Appendix B
Field Investigation Summary

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Appendix B. Field Investigation Summary

This appendix describes the field activities performed as part of the Part A, Part B, Perimeter Area, and storm drain system investigation programs during implementation of the *Revised Final Soil RCRA Facility Investigation / Remedial Investigation Work Plan, PG&E Topock Compressor Station, Needles, California* (Soil RFI/RI Work Plan) (CH2M HILL, Inc. [CH2M], 2013) from 2015 to 2017. Topics addressed in this appendix include pre-investigation activities, soil investigation field methodology, storm drain investigation methodology, field survey observations, deviations from the Soil RFI/RI Work Plan, and post-investigation activities. Standard Operating Procedures (SOPs) relevant for the investigation activities for this project are included in Attachment B7. The implementation of the Soil RFI/RI Work Plan was executed in conformance with the following approvals, authorizations, and approved documents:

- California Department of Toxic Substances Control (DTSC) and U.S. Department of the Interior (DOI) conditionally approved the Soil RFI/RI Work Plan, Addendum and Errata on August 24, 2015 (DTSC, 2015a; DOI, 2015).
- *PG&E Topock Compressor Station Soil Investigation Project Final Environmental Impact Report* (EIR) (DTSC, 2011; DTSC, 2015b).
- Pre-construction and post-investigation biological surveys were conducted in compliance with the *Programmatic Biological Assessment for the Pacific Gas and Electric Topock Compressor Station Remedial and Investigative Action (PBA; CH2M, 2007) and the Extension and Modification of the Programmatic Biological Assessment for Pacific Gas and Electric Topock Compressor Station Remedial Investigative Actions, January 2007* (DOI, 2012).

B.1 Pre-investigation Activities

This section presents activities conducted prior to intrusive work on site.

B.1.1 Project-specific Tribal Safety Orientation

A project-specific tribal safety orientation was held for the representatives of Native American Tribes who observed the soil investigation activities at the Topock Compressor Station. The orientation was held on October 20, 2015, and was led by Hargis & Associates. The purpose of this meeting was to review the planned field activities and associated safety topics for tribal observers during field work.

B.1.2 Project Initiation Meeting

Consistent with other phases of work conducted at the Topock site, Pacific Gas and Electric Company (PG&E) invited agency representatives and other stakeholders (including representatives of Native American Tribes involved with the Topock project) to the site for a project initiation meeting prior to the start of intrusive activities on October 29, 2015. As part of this meeting, interested Tribes provided a traditional healing and cleansing ceremony before ground-disturbing activities occurred. During the meeting, PG&E presented an overview of the activities that would be conducted during implementation of the field work, discussed various cultural and biological sensitivities associated with the project, introduced key project team members (including subcontractors), identified certifications required for site visitors, described applicable site safety and communication protocols, and reviewed plans for project communications with the agency and stakeholders during work.

Prior to mobilization to the site, relevant documents were developed and reviewed by field personnel (for example, work plan, site-specific health and safety plan, site security plan, SOPs, and schedule). Required certifications were verified for all workers on the project, and all workers received the appropriate orientation to ensure that they were knowledgeable about the Best Management Practices applicable to their activities.

B.1.3 Surveys

Pre-investigation surveys conducted include biological, archaeological, utility, asbestos, and video surveys, as summarized below.

- Pre-investigation and post-investigation biological surveys were conducted in accordance with the PBA (CH2M, 2007) and PBA Extension and Modification (DOI, 2012). A qualified biologist conducted a pre-construction biological survey of all work areas outside of the compressor station fence line prior to ground-disturbing activities, and biological monitoring was conducted throughout field work. A pre-construction survey for special-status birds was conducted immediately prior to vegetation removal in the mouth of Bat Cave Wash, and prior to sediment and pore-water sampling activities along the western shore of the Colorado River in the vicinity of the East Ravine for work performed during the nesting season (March 15 through October 1). Plants of traditional cultural significance that are listed in Appendix PLA of the EIR (DTSC, 2015b) were identified during these surveys, and PG&E implemented conservation measures outlined in the EIR, as appropriate. In addition, a survey was conducted to assess the potential for special-status bat species roosting and foraging habitat in the Topock Soil Investigation Project Area (Brown and Rainey, 2015). Details regarding the planning and conducting of the survey field verification are presented in the Third Quarter 2015 EIR Mitigation Measures Compliance Report for the Final Groundwater Remedy and Soil Investigation (CH2M, 2015).
- A pre-investigation archaeological survey field verification was conducted on September 22, 2015, prior to ground-disturbing activities. The Tribes were notified in advance of the planned surveys. Monitoring for archaeological and paleontological resources was also conducted throughout field work. Details regarding the planning and conducting of the survey field verification are presented in the Third Quarter 2015 EIR Mitigation Measures Compliance Report for the Final Groundwater Remedy and Soil Investigation (CH2M, 2015).
- Aboveground and underground utility surveys were conducted within all work areas prior to ground-disturbing activities. Underground utilities were identified by utility owners, who were contacted using the Underground Service Alert of Southern California (DigAlert). In addition, underground utilities were identified through a third-party location effort using surface geophysical tools typical for underground line location.
- Asbestos surveys were performed by a State of California-certified asbestos professional in Undesignated Area (UA)-1 and Area of Concern (AOC) 27 – MW-24 Bench. The survey at each of these areas included a visual inspection of surface materials and debris, and collection of debris samples to determine asbestos content and friability. Monitoring for debris potentially containing asbestos was conducted during ground-disturbing activities at AOC 27 (ground-disturbing activities were not conducted at UA-1).
- Video surveys were conducted to evaluate storm drain lines and industrial lines (AOC 20). Video surveys were used to locate areas on which to focus soil sampling and to better understand the storm and industrial waste line system, such as condition and location of the utilities.
- Geophysical surveys were conducted to locate septic leach lines at AOC 17 and to locate potential buried debris in AOC 27 and UA-1. The results of the survey were used to focus soil sampling and trenching efforts at AOC 17 and AOC 27 (soil sampling and trenching were not conducted at UA-1).
- X-ray fluorescence (XRF) was used to assist with identifying and optimizing sample locations in debris areas located in AOCs 10, 14, and 27; in the Perimeter Area; and during Step 1 of the phased sampling approach for proposed sample locations in unpaved areas inside the compressor station fence line.

B.1.4 Site Access and Demarcation

The proposed access routes and drilling sites were field-checked and were clearly delineated before equipment mobilization. Once marked, as referenced above, the work areas were surveyed for cultural, biological, and paleontological resources prior to equipment mobilization.

Access pathway improvements were necessary to collect samples at locations within AOC 1 and AOC 11. Topographic low areas modified during the 2008 Part A field sampling event required further modifications to access proposed samples in the upper reaches of AOC 11 (11e subarea).

Because of the thick vegetation in the tamarisk thicket area near the mouth of Bat Cave Wash in AOC 1, a path was cut through the vegetation to allow passage of necessary sampling equipment. The vegetation removal was completed by cutting above the roots as close to the ground surface as possible to establish an even path for the drilling equipment and crew, while maintaining soil stability and allowing for vegetation regrowth. Vegetation removal activities were performed in consultation with and under supervision of a qualified biologist. As directed by DOI, approximately 0.1 acre of vegetation was cut from the tamarisk thicket in AOC 1 to allow access to sample locations. The cut vegetation was left in place.

B.2 Soil Investigation Field Methodology

Soil sample collection and handling activities followed SOPs from the *Topock Program Sampling, Analysis, and Field Procedures Manual, PG&E Topock Compressor Station, Needles, California* (CH2M, 2005). The methods, equipment, and procedures for borehole drilling requirements, surface soil sampling, subsurface soil sampling, debris sampling, geophysical surveys, XRF screening, soil vapor sampling, potholing/trenching and sampling, surveying, vegetation removal, waste management, and decontamination followed the methods described in the Soil RFI/RI Work Plan (CH2M, 2013), with any deviations presented in the following sections. The SOPs relevant for the investigation procedures for this project are included in Attachment B7.

B.2.1 Soil Sample Collection

Soil samples were collected from boreholes or excavations using four drilling/excavation methods: drilling, potholing/trenching, vacuum excavation, and excavation using hand tools. The specific method for each sampling location was selected on the basis of site conditions. Each borehole and excavation was logged under the supervision of a California Professional Geologist. Boring logs summarizing the lithology encountered, soil sample collection depths, and other relevant details are included as Attachment B1. Sample and trench locations are shown on Figure B-1 (presented at the end of this appendix). Logs of each excavation including soil sample collection depths are presented as Attachment B2, and photographic logs of each excavation are presented as Attachment B3.

Drilling. Most of the subsurface soil samples collected from locations outside of the Topock Compressor Station (TCS) fence line were from drilled boreholes. Rotosonic drilling was the only method used from 2015 to 2017, and rotosonic and direct-push drilling were used during the 2008 Part A, Phase 1 work. These methods were selected because they can be used to collect continuous soil core from the ground surface to the target depth. Soil samples were collected directly from the core. Rotosonic boreholes were typically up to 6 inches in diameter (providing a 4-inch core). During the 2008 work, the method selected for each location was based on access constraints, target depth, and the anticipated subsurface conditions. All drilled boreholes from 2008-2017 were backfilled using hydrated bentonite or Portland cement grout. Boreholes that were drilled to the water table were backfilled in accordance with the California Well Standards.

Potholing and Trenching. A backhoe (rubber tire) was used to install potholes and trenches to evaluate the presence, nature, and extent of debris in certain investigation areas, and to collect soil samples at locations outside the TCS fence line. In some cases, this method was used to collect subsurface soil samples when drill rig access was not feasible or would have required significantly more ground disturbance than excavation for soil sample collection, alone. Potholes and trenches were deepened gradually so that subtle changes in lithology and debris could be documented in the logs. Soil samples were collected directly from the backhoe bucket. Each excavation was backfilled using the material removed from that excavation.

Vacuum Excavation. Given the safety hazards associated with mechanical excavation (including drilling and backhoe excavation) inside the TCS, most of the soil samples collected inside the TCS fence line were collected from excavations made using vacuum excavation. Vacuum excavation uses a vacuum to

suction soil from the subsurface directly into a vacuum tank. Typically, vacuum excavations were advanced to the predesignated depths, and then hand tools were used to collect the soil sample from in-situ soil (see next section). The lithology of each soil sample was logged, but all other portions of the vacuum excavations were not logged because the excavated soil could not be observed. Potholes were backfilled with soil excavated from within the TCS fence line, or using imported, select fill if backfill from the TCS was not available. The surface was repaired to match existing surface; for example, potholes installed in asphalt were repaired with asphalt patch, and potholes in concrete were repaired with premix concrete.

Hand Tools. Hand tools, which include stainless-steel trowels, slide hammers, hand augers, and shovels, were used to collect soil samples in areas that could not be accessed by drilling or excavation equipment or where hand-digging was required for safety reasons. Each excavation created using hand tools was backfilled using the material removed from that excavation.

B.2.2 Installation of Soil Vapor Probes and Soil Vapor Sample Collection

Permanent single-depth soil gas probes were installed at AOC 13 (at locations AOC13-5, AOC13-6, AOC13-11, and AOC13-16) and nested, multiple-depth soil gas probes were installed in AOC 26 (at location AOC26-1). The soil gas probes were installed and sampled in accordance with the methods described in SOP B17, *Installation of Permanent Soil Gas Probes* and SOP B18, *Collection of Soil Gas Samples from Temporary and Permanent Probes Using Cannisters and Helium Leak Check* found in Attachment B7. Locations were defined and optimized in collaboration with DTSC and DOI. Installation details and as-built diagrams are presented in Attachment B1. Boreholes were initially cleared using vacuum excavation to a depth approved by the PG&E field monitor. For the multiple-depth probe at location AOC26-1, rotosonic drilling was also used.

Samples were collected in certified, precleaned 6-liter SUMMA canisters using helium leak check and screening procedures presented in the Soil RFI/RI Work Plan (CH2M, 2013). The Soil RFI/RI Work Plan (CH2M, 2013) only included one round of soil gas sampling; however, during the data gaps evaluation, DTSC requested that PG&E conduct another round of soil gas sampling. Soil gas samples were collected during two sampling events: January 2016 and February 2017.

B.2.3 X-ray Fluorescence Field Screening

To reduce intrusive sampling, a portable XRF analyzer was used to assist with identifying and optimizing possible sample locations in debris areas (located in AOCs 10, 14, and 27), in the Perimeter Area just outside the compressor station fence line, and during Step 1 of the phased sampling approach for proposed sample locations in unpaved areas inside the compressor station fence line, following the methodology described in SOP B-16 (Attachment B7). Screening results are presented in Attachment B8, Table B8-1. XRF screening locations are shown on Figure B8-1 in the same attachment.

Sixty-six XRF screening locations within debris areas in AOCs 10, 14, and 27 were identified during site walks with the agencies on December 1 and 2, 2015. XRF screening was used to evaluate debris encountered during intrusive investigation. Unlike the process used for soil screening, non-soil materials were preferentially screened in situ. If the item of debris was sufficiently large, readings were taken from a minimum of three locations and were averaged. The XRF data collected from the debris areas were summarized and discussed during data calls with the agencies to assess where soil samples would be collected for offsite laboratory analysis and to identify potential contingency locations, if necessary.

Step 1 of the phased sampling approach required XRF screening at sample locations on the compressor station to optimize locations where soil samples were collected for offsite laboratory analysis. This XRF screening occurred at 93 locations. The following XRF screening process was followed:

a) Established a circular area around the proposed soil sample location with a radius of approximately 10 feet.

b) Screened the surface soils within the established area, as practicable. The exact number of locations to be analyzed using the XRF in a given screening area was adjusted based field conditions, but was generally conducted every 10 feet to the north, south, east, and west, excluding the direction in which

existing data or surface infrastructure (for example, pipes, pavement, and aboveground utilities) was located.

c) Repeated the screening/sample collection process (steps a and b). This process was repeated until XRF-measured metal concentrations no longer exceeded screening levels or soil was no longer exposed (that is, the ground surface is covered by concrete sidewalk, asphalt paving, or building foundation).

d) Summarized and discussed data. The XRF data were summarized and discussed during data calls with the agencies to assess where soil samples would be collected for offsite laboratory analysis and to identify potential contingency locations, if necessary.

As detailed in the Soil RFI/RI Work Plan, all soil samples to be screened by XRF were collected and analyzed following SOP B16, *Field-portable X-Ray Fluorescence Soil Sampling*. The XRF analyzer was calibrated daily in the field with standards provided by the XRF manufacturer. Soil samples were collected using a clean stainless-steel trowel, placed in clean zip-top bags, and analyzed in the field for total chromium using the XRF analyzer. XRF analyzer results were recorded in the field notebook. XRF concentration readings were adjusted using least-square regression to correct for site variation.

B.2.4 Sample Collection and Handling

This section describes the procedures for the collection and handling of soil, debris, and white powder material samples. Soil samples were collected in accordance with sample collection and handling procedures defined in the Soil RFI/RI Work Plan (CH2M, 2013).

Soil, White Powder Material, and Debris Sample Collection for Inorganic, Semivolatile Organic Compound, Total Petroleum Hydrocarbons-diesel/-motor-oil, Pesticides, and Polychlorinated Biphenyls Analyses. Soil and white powder samples requiring inorganic, semivolatile organic compound (SVOC), total petroleum hydrocarbons (TPH)-diesel and TPH-motor-oil, pesticide, dioxin/furan, and polychlorinated biphenyl (PCB) analyses were collected directly from the drilling core or backhoe bucket or surface soil using stainless-steel trowels. The collected material was sorted to remove any rocks and other debris prior to being homogenized in a stainless-steel bowl, as directed in SOP B7, *Homogenization of Soil and Sediment Samples*. After homogenization, the soil was transferred to unpreserved glass sample jars and labeled. Samples of white powder material or debris were not homogenized.

Debris (for example, wood or metal) samples were collected using stainless-steel trowels and depending on the size of the debris, were either placed into glass sample jars or large plastic zip top bags.

Soil Sample Collection for Volatile Organic Compounds and Total Petroleum Hydrocarbons-gasoline Analyses. Soil sample aliquots designated for volatile organic compound (VOC) and TPH-gasoline analyses were collected immediately upon opening the relatively undisturbed drilling core or recovery from a pothole (that is, before geologic logging or the collection of other soil sample aliquots) to minimize the potential for volatilization of compounds to the atmosphere. VOC and TPH-gasoline aliquots were collected using dedicated plastic syringes, as directed in SOP B15, *Volatile Organic Compound (VOC) Soil Sampling Protocols*. Using the syringes, a specific volume of sample, which correlates to an approximate target mass, was transferred directly from the least-disturbed portions of the drilling core or backhoe bucket into pre-preserved sample vials. The sample vials were chilled prior to use to minimize evaporation of the preservative when opened.

Sample Management and Storage. Samples were placed immediately into field coolers with ice; VOC and TPH-gasoline containers were arranged in the sample cooler standing upright. The field coolers were taken to the sample management area, where the samples were transferred into a refrigerator and/or freezer. If transport of a sample to the laboratory was scheduled for pickup more than 24 hours after sampling, samples were stored in the freezer.

Shipping. Samples collected for chemical analysis were transported to the laboratory via courier, generally daily. Chain-of-custody forms accompanied all samples to the laboratory.

B.2.5 Surveying

Following sample collection, the horizontal location and elevation of each sample location was documented using an industry-standard (Trimble), resource-grade, handheld global positioning system (GPS) unit capable of 1-meter accuracy. The locations of the samples are shown on Figure B1.

B.2.6 Equipment Decontamination

Drilling, excavation, and sampling equipment were decontaminated using the methods defined in the Soil RFI/RI Work Plan (CH2M, 2013) and SOP-B5 (Attachment B7). Equipment blanks (EBs) were collected at a frequency of one per sampling crew per day where non-dedicated equipment was used. Results of EBs are presented in Attachment B4, Table B4-1 and are discussed in the data quality evaluation in Appendix E of the main RFI/RI Report document. There were some detects for hexavalent chromium, manganese, and/or select dioxin/furan isomers that were found in one or more EBs. However, the concentrations observed for the associated samples were greater than 5 times the concentration found in the EB and no data were qualified for EB contamination.

Drilling pipe and core barrels were steam cleaned at the designated decontamination area between boreholes. Vacuum truck air lines were steam pressure washed at the decontamination area between boreholes. The direct-push core barrels were fitted with dedicated acetate liners for each core. Backhoe/excavator buckets were steam cleaned before work began and between sampling locations using a dry brush. Hand tools and non-dedicated sampling tools (for example, mixing bowl) were cleaned between samples using Liquinox soap and a two-stage rinse.

B.2.7 Waste Management

Displaced soil generated during the soil investigation field work from soil borings and trenches were managed following the Displaced Soil and Hazardous Waste Management Procedures presented in Appendix J of the Soil RFI/RI Work Plan (CH2M, 2013). Typically, soil was returned to its original borehole for hand tool borings, trenches, and potholes. During other activities that generated soil waste, such as drilling and vacuum truck work, soil was collected in a bin or vacuum tank and transferred to a soil staging area located at the TransWestern Bench and put into roll-off bins. The soil was characterized to assess whether it was hazardous or non-hazardous waste. Investigation-derived waste analytical results are presented in Table B4-2 in Attachment B4. Four-point composite samples were collected and analyzed from each soil bin, and results compared to the interim screening levels (ISLs) in the Soil Management Protocol and hazardous waste levels.

Waste soil was generated from various sources and AOCs, as shown in Table B-1 (presented at the end of this appendix). A total of 58 cubic yards of non-hazardous soil waste, 8 cubic yards of non-Resource Conservation and Recovery Act hazardous soil waste, and 11 cubic yards of Resource Conservation and Recovery Act hazardous soil waste was generated and stored in roll-off bins onsite (Table B-2). Hazardous waste was shipped to US Ecology's approved disposal/receiving faculty in Beatty, Nevada, within 90 days of the accumulation start and shipping. 39 tons of non-hazardous soil that exceeded the groundwater remedy soil management plan ISLs were shipped to US Ecology's approved disposal/receiving faculty in Beatty, Nevada, on August 4 and August 11, 2020. Waste manifests are presented as Attachment B5.

Approximately 200 gallons of water generated during decontamination of sample tools, excavating tools, and drilling/vacuum equipment were stored on the decontamination pad at the TransWestern Bench staging area and transferred to the Topock Interim Measure Number 3 Treatment Plant. Unregulated solid waste (general construction debris) was disposed of in the onsite PG&E dumpsters.

B.3 Storm Drain Investigation Methodology

The storm drain investigation process consisted of the following elements:

1) Field verification
2) Flow testing
3) Video camera surveys

The three steps were generally performed in sequence so that each step benefited from the information collected during the previous step. In some cases, steps were repeated to confirm the findings of subsequent steps. The investigation was conducted in phases during 2016 and 2017, and in some cases, opportunistically during TCS maintenance activities. Where present, samples of sediment were collected from storm drain catch basins, and soil samples were collected concurrent with the investigation, to verify that appropriate sample locations and analytical parameters were selected. Each of the tasks is described in more detail below.

The information collected that is described above was used to compile a comprehensive table (Table 3-41), which is presented in Section 3 of the main body of this RFI/RI Report.

B.3.1 Field Verification

The field verification began by visually verifying the features documented in records in the field to the degree feasible. This step included consultation with knowledgeable employees currently employed at the station, as applicable. Items that were not verified visually were further evaluated in subsequent phases of the storm drain alignment investigation, if feasible. Features that were visually verified were a starting point for additional field verification using surface geophysical methods (standard utility line locating methods) and through potholing and trenching. Potholing and trenching were conducted using “soft digging” techniques, including hand tools and vacuum excavation. Material that was removed using hand tools was replaced in the excavation from which it was generated. The alignment of storm drain line segments and location of associated catch basins are presented on Figure 3-19 (presented in Section 3 of the main body of this RFI/RI Report).

Thirty catch basins and three trench drains were located during the initial review (catch basin CB-14 was never located). Trench drains were either purpose-built trenches designed only to catch runoff from a specific area or consisted of pipe trenches with a stormwater outlet. Accumulated sediment encountered in catch basins or trench drains during the visual field verification was sampled and analyzed for Title 22 metals, hexavalent chromium, TPH, polycyclic aromatic hydrocarbons (PAHs), and PCBs. After sample collection, any remaining sediment was removed and disposed of in accordance with the waste management plan.

Ninety-five percent of the samples collected from catch basins were analyzed for the full suite of Target Analyte List/Target Compound List (TAL/TCL) constituents.

For flow testing, a direct method was used to establish which catch basins were connected to other catch basins and specific outfalls. Water was discharged to individual catch basins to determine where the water discharged in the system. Typically, the flow test was conducted by starting at the most “upstream” catch basin and watching nearby catch basins and outfalls. In addition to verifying flow paths, the flow testing identified drain lines that were blocked when water did not discharge to another catch basin or at an outfall and eventually filled up the storm drain line being tested.

Flow testing was conducted systematically. If an upstream catch basin or storm drain line appeared to be blocked, PG&E attempted to flow-test a catch basin closer to the discharge location “downstream.” In some cases, PG&E attempted to pressure wash and vacuum specific storm drain line segments to remove accumulated material creating the blockage. Water used to conduct the flow testing was obtained from the TCS water supply.

Samples of discharge water were collected from accessible outfalls and were analyzed for Title 22 metals, hexavalent chromium, TPH, PAHs, and PCBs. Prior to flow-testing activities, PG&E collected a source-water sample from the water pipeline. A source-water sample was also analyzed for Title 22 metals, hexavalent chromium, TPH, PAHs, and PCBs to determine chemicals of potential concern concentrations in the source water, if any, and to allow comparison between source-water and discharge-water samples. Arsenic, barium, total chromium, molybdenum, selenium, silver, zinc, and TPH-motor-oil were detected above laboratory reporting limits in the source water. Detected concentrations in the discharge water were comparable to the source water except for concentrations of TPH-motor-oil, barium, molybdenum, and zinc. The results of the discharge water from accessible outfalls compared to the source-water concentrations are presented in Table 3-39 (presented in Section 3 of the main body of this RFI/RI Report).

B.3.2 Video Camera Tracing

Where feasible, which includes the majority of the evaluated storm drain lines, video surveys were conducted within the pipes and catch basins to confirm pipeline alignment and locate breaks, obstacles, and known and unknown service connections. The segments of the storm drain system that were video surveyed are indicated on Figure 3-19 (presented in Section 3 of the main body of this RFI/RI Report). Pictures and descriptions of significant video log findings are in Attachment B10. Full video logs are in Attachment B11.

The location and depth of defects, laterals, joints, and blockages were recorded and retained by PG&E to assist with future maintenance and engineering activities as well as potential remediation to be conducted following closure of the compressor station.

B.3.3 Storm Drain Soil Investigation

Soil samples were collected at the storm drain outfalls and along storm drain lines in accordance with the work plan and based on observations made during the storm drain investigation. Review of video from within the storm drains and laboratory results for soil samples collected at storm drain outfalls and from within catch basins resulted in the addition of five new samples (CH2M, 2016). The samples and sampling rationale are presented in Exhibit B-1.

EXHIBIT B-1
Storm Drains List of Additional Soil Sampling Locations
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New Location ID	Depth (ft bgs)	Description/Rationale
SD-27	Immediately beneath the line (and 1-2 feet beneath the first interval to hold) (as feasible)	Assess Storm Drain Line 8 (old), upslope of potential former out fall south of current line
SD-28	Immediately beneath the line (and 1-2 feet beneath the first interval to hold) (as feasible)	Assess Storm Drain Line 11, where the line transitions from old red clay to white PVC
SD-29	Immediately beneath the line (and 2 feet beneath the line to hold) (as feasible)	Assess area near the old red clay pipe that extends south from CB-30. The boring would also be located by the industrial floor drain line
SD-30	To be determined after field survey	Pothole near TD-3 to try and complete the video survey of a long stretch of storm drain line, which was not located in the initial survey
SD-31	Immediately beneath the line (and 1-2 feet beneath the first interval to hold) (as feasible)	Assess potential historic storm drain lines on west side of north cooling tower

Notes:
bgs – below ground surface
ft - feet

All soil samples were analyzed for Title 22 metals, hexavalent chromium, PAHs, TPH, and PCBs. Twenty percent of the samples collected along the storm drains and below the storm drain outfalls were analyzed for the full suite of TAL/TCL constituents.

B.4 Field Survey Observations

The following subsections describe the process and results of field surveys conducted during implementation of the Soil RFI/RI Work Plan. These surveys included asbestos surveys, geophysical surveys, and trenching to identify debris or burned material.

B.4.1 AOC 14

In 2016 and 2017, trenching was conducted in AOC 14 in a series of six trenches to identify the extent of debris and burned material. Trench locations were recorded using GPS and are shown on Figure B1. Analytical results for trench samples are presented in Tables 3-9a through 3-9k (presented in Section 3 of the main body of this RFI/RI Report). The trenches and observed debris are described below.

- Trench AOC14-4 was approximately 22 feet long by 3 feet wide and extended to approximately 10 feet bgs as shown on Figure B2-1 (the B2 figures are presented in Attachment B2). An observed debris layer approximately 0.5 to 2 feet thick included metallic material, charcoal, glass, wire with pipe insulation, wire, hose, tile, and miscellaneous unidentified debris that appeared melted or burned. A photograph of debris is shown in Attachment B3. Eleven samples were collected at various depths at sample locations AOC14-14E and AOC12-14W. Analytical results for these samples are presented in Tables 3-9a through 3-9k and are discussed in Section 4.1.7 (presented in the main body of this RFI/RI Report).
- Trench AOC14-15 was approximately 8 feet long by 3 feet wide and extended to approximately 8 feet bgs as shown on Figure B2-15. An observed debris layer approximately 6 feet thick included stainless-steel banding strap, metallic debris, abundant white material, and white foam board insulation. A photograph of debris is shown in Attachment B3. Four samples were collected at various depths at sample location AOC14-15. Analytical results for these samples are presented in Tables 3-9a through 3-9k and are discussed in Section 4.1.7 (presented in the main body of this RFI/RI Report).
- Trench AOC14-16 was approximately 30 feet long by 3 feet wide and extended to approximately 1 foot bgs as shown on Figure B2-3. An observed debris layer approximately 4 feet thick included concrete slabs, plastic, wood, and cemented granular black debris. A photograph of debris is shown in Attachment B3. Ten samples were collected at various depths at sample locations AOC14-16-E and AOC14-16W. Analytical results for these samples are presented in Tables 3-9a through 3-9k and are discussed in Section 4.1.7 (presented in the main body of this RFI/RI Report).
- Trench AOC14-17 was approximately 21 feet long by 3 feet wide and extended to approximately 10 feet bgs on the western side. The trench was shallower on the eastern side due to an approximate 5-foot decline in the ground surface from the western to eastern side. The trench is shown on Figure B2-4. An observed debris layer approximately 4 feet thick included charcoal, wood, pipe, rusty metallic material, and concrete. A photograph of debris is shown in Attachment B3. One sample was collected at AOC14-17E and five samples were collected at various depths at AOC14-17W. Analytical results for these samples are presented in Tables 3-9a through 3-9k and are discussed in Section 4.1.7 (presented in the main body of this RFI/RI Report).

Two additional trenches (AOC14-20 and AOC14-21) were dug in April 2017 to assess extent of debris and white powder in the central AOC 14 area, just north of highway 40.

- AOC14-20 was approximately 13 feet long by 3 feet wide and 9 feet deep. No debris was observed in this trench; however, a thin white layer roughly 1 inch thick was observed in the trench located at a depth of 2 to 3 feet. A photograph of the white layer is shown in Attachment B3. Four samples were collected at various depths at AOC14-20. Analytical results for these samples are presented in Tables 3-9a through 3-9k and are discussed in Section 4.1.7 (presented in the main body of this RFI/RI Report).
- AOC14-21 was approximately 18 feet long by 3 feet wide and 10 feet deep. A small amount of debris was observed in this trench including iron nodules and red clay pipe pieces. A large concrete electrical duct

bank (transit conduit incased in red conduit) was encountered near the bottom of the trench at a depth of 5.5 feet. The concrete was mainly found on the south side of the trench and was 1 foot by 1 foot in cross section dimensions. The concrete feature was observed extending out of the ground north and south of the trench where the ground surface drops off due to a natural depression and the I-40 road cut. A photograph of the trench is shown in Attachment B3. Four samples were collected at various depths at AOC14-2. Analytical results for these samples are presented in Tables 3-9a through 3-9k and are discussed in Section 4.1.7 (presented in the main body of this RFI/RI Report).

B.4.2 AOC 17

A geophysical survey was conducted at AOC 17 to confirm the location of a septic tank and associated leach line. The survey was conducted using ground-penetrating radar and metal detection. The proximity of metal structures precluded the use of total field magnetics analysis and terrain conductivity during this survey. Results are presented in Attachment B6. During sample collection near the leach line using vacuum excavation, the location of the leach line was visually confirmed at a depth of about 4 feet.

B.4.3 AOC 27

An asbestos survey, geophysical survey, and trenching were conducted at AOC 27. During the asbestos survey, debris samples were collected from 11 locations and submitted for laboratory analysis of asbestos by polarized light microscopy of bulk samples. Types of debris sampled included the following: roofing debris, suspected asbestos tile, black felt debris, cement tile, black mastic covered yellow vinyl, gray felt roofing debris, silver mastic at large round metal gasket, curved cement tiles, fire hose debris, black hot tar debris, and an electrical box. One sample was collected from each debris type that was suspected to contain asbestos (asbestos-containing material is defined as any material or product containing more than 1% asbestos). Repeat samples of the same type of debris were not collected. Asbestos reports are presented in Attachment B9 and results were as follows:

- Asbestos was present in 7 of the 11 debris types. Results indicated varying concentrations of chrysotile were present in the samples (2 to 40 percent).
- None of the asbestos-containing samples were friable; therefore, the material did not present a hazard to staff performing non-intrusive surveys (utility/geophysical and XRF).

Following the asbestos survey, a geophysical survey was conducted to identify buried debris using the following tools: terrain conductivity, total field magnetics, metal detection, and ground-penetrating radar. Results of the geophysical survey are presented in Attachment B6. Key findings included that the geophysical survey:

- Identified extensive underground utilities across the area.
- Confirmed correct placement of planned sample locations AOC27-1 through -5, which were collected from trenches across the area to evaluate subsurface anomalies.
- Identified a grouping of subsurface anomalies near the base of the access road from the Topock Compressor Station (TC1, GPR4, and GPR 5 on Plate 2A in Attachment B6).
- Identified a grouping of subsurface anomalies along the existing electrical line (MDA1, MDA2, GPR1, and TMF2 on Plate 2A in Attachment B6).
- Identified a subsurface anomaly at the northern extent of the identified underground utility that is suspected to be an abandoned water line (TMF1 on Plate 2A in Attachment B6).
- Identified a subsurface anomaly at the southern end of the study area, due north of the elbow in the Mojave pipeline (TC2 on Plate 2A in Attachment B6).

Following the geophysical survey, trenching was conducted in AOC 27 at a series of 10 trenches to confirm the subsurface anomalies identified during the geophysical survey. Trench locations were recorded and are shown on Figures 3-9a through 3-9m (presented in the main body of this report) and Figure B1. The trenches and observed debris are described below.

- Trench AOC27-1 was approximately 13 feet long by 3 feet wide and extended to approximately 10 feet bgs as shown on Figure B2-5. An observed debris layer approximately 1.5 feet thick included wood fragments and rusty metallic material. A photograph of debris is shown in Attachment B3. Four samples were collected at various depths at sample location AOC27-1. Analytical results for these samples are presented in Tables 3-10a through 3-10j and are discussed in Section 4.1.8 (presented in the main body of this RFI/RI Report).
- Trench AOC 27-2 was approximately 30 feet long by 3 feet wide and extended to approximately 10 feet bgs as shown on Figure B2-6. An observed debris layer approximately 6 feet thick included wood fragments, timbers, a 3-foot-by-3-foot concrete block, a 2-foot-by-2-foot-by-6-foot red concrete block with conduit, red clay pipe (as trash), and metal. A photograph of debris is shown in Attachment B3. Four samples were collected at various depths at sample location AOC27-2. Analytical results for these samples are presented in Tables 3-10a through 3-10j and are discussed in Section 4.1.8 (presented in the main body of this RFI/RI Report).
- Trench AOC27-4/AOC27-5 was approximately 30 feet long by 30 feet wide and extended to approximately 10 feet bgs as shown on Figure B2-7. An observed debris approximately 3 to 5 feet thick included wood fragments, timbers, a large concrete block, and one round piece of metal with tarry/mastic material on one side of the disc-like object (believed to be a crushed tank bottom). A photograph of debris is shown in Attachment B3. Eight samples were collected at various depths at sample locations AOC27-4 and AOC27-5. Analytical results for these samples are presented in Tables 3-10a through 3-10j and are discussed in Section 4.1.8 (presented in the main body of this RFI/RI Report).
- Trench AOC27-6/AOC27-7/AOC27-8 was approximately 30 feet long by 3 feet wide and extended approximately 6 feet bgs as shown on Figure B2-8. The trench was dug along the access road from the MW-24 Bench to Bat Cave Wash where the ground surface slopes down toward the southwest. An observed debris layer approximately 3 feet thick included pipe, metallic fragments, glass, wire, tile, construction debris, insulation, pipe wrap, cable, and wood. A photograph of debris is shown in Attachment B3. Eight samples were collected at various depths at sample locations AOC27-6, AOC27-7, and AOC27-8. Analytical results for these samples are presented in Tables 3-10a through 3-10j and are discussed in Section 4.1.8 (presented in the main body of this RFI/RI Report).
- Trench AOC27-9 was approximately 10 feet long by 3 feet wide and extended to approximately 10 feet bgs as shown on Figure B2-9. No debris was observed. A photograph of the trench is shown in Attachment B3. Five samples were collected at various depths at sample location AOC27-9. Analytical results for these samples are presented in Tables 3-10a through 3-10j and are discussed in Section 4.1.8 (presented in the main body of this RFI/RI Report).
- Trench AOC27-18 was approximately 50 feet long by 3 feet wide and extended to approximately 8 feet bgs as shown on Figure B2-10. The trench was dug along the access road from the TCS to the MW-24 Bench, and the ground surface at the location of the trench sloped down toward the west. An observed debris layer approximately 1.5 to 5.5 feet thick included red concrete block, tire, rebar, rusty metallic pieces, asphalt chunks, charcoal, old road base, and one larger concrete block (the observed face of the block was approximately 5 feet by 5 feet). A photograph of debris is shown Attachment B3. Five samples were collected at various depths at sample locations AOC27-18 and AOC27-18E. Analytical results for these samples are presented in Tables 3-10a through 3-10j and are discussed in Section 4.1.8 (presented in the main body of this RFI/RI Report).
- Trench AOC27-20 was approximately 12 feet long by 3 feet wide and extended to approximately 10 feet bgs as shown on Figure B2-11. No debris was observed. A photograph of the trench is shown in Attachment B3. Five samples were collected at various depths at sample location AOC27-20. Analytical results for these samples are presented in Tables 3-10a through 3-10j and are discussed in Section 4.1.8 (presented in the main body of this RFI/RI Report).

- Trench AOC27-24 was approximately 20 feet long by 3 feet wide and extended to approximately 7 to 10 feet bgs as shown on Figure B2-12. Observed debris included rusty metal, a large block of concrete (approximately 5 feet by 5 feet on exposed face) in the shape of a “U”, and wood next to the concrete (possible forms). A photograph of debris is shown in Attachment B3. Four samples were collected at various depths at sample location AOC27-24. Analytical results for these samples are presented in Tables 3-10a through 3-10j and are discussed in Section 4.1.8 (presented in the main body of this RFI/RI Report).
- Trench AOC27-24SW was dug just southwest of Trench AOC27-24. It was approximately 25 feet long by 3 feet wide and extended to approximately 10 feet bgs as shown on Figure B2-13. Observed debris included rusty metal, a large block of concrete (approximately 5 feet tall), and wood next to the concrete (possible forms). A photograph of debris is shown in Attachment B3. Four samples were collected at various depths at sample location AOC27-124SW. Analytical results for these samples are presented in Tables 3-10a through 3-10j and are discussed in Section 4.1.8 (presented in the main body of this RFI/RI Report).
- Trench AOC27-50 was approximately 10 feet long by 3 feet wide and extended to approximately 10 feet bgs as shown on Figure B2-14. Observed debris included rusty metal, tiles, red clay pipe, and glass debris. A photograph of debris is shown in Attachment B3. Four samples were collected at various depths at sample location AOC27-50. Analytical results for these samples are presented in Tables 3-10a through 3-10j and are discussed in Section 4.1.8 (presented in the main body of this RFI/RI Report).

B.4.4 UA-1

An asbestos survey and a geophysical survey were conducted at UA-1A and UA-1B. During the asbestos survey, debris samples were collected from two locations and submitted for laboratory analysis of asbestos. Results indicated the following:

- Asbestos was present in both debris types (a pipe gasket and hose clamps with fibrous material attached to residual paint). Results indicated chrysotile was present in the gasket and hose clamp samples at 20 and 15 percent, respectively.
- None of the asbestos-containing samples were friable; therefore, the material did not present a hazard to staff performing non-intrusive geophysical survey.

Following the asbestos survey, a geophysical survey was conducted using the following tools: terrain conductivity, total field magnetics, metal detection, and (for UA-1A only) ground-penetrating radar. Results of the geophysical survey are presented in Attachment B6. Key findings include:

- UA-1A:
  - Two subsurface anomalies were detected with the total field magnetics survey. These anomalies could be associated with buried pipes or metallic debris.
  - A follow-on survey with metal detection and ground-penetrating radar did not detect anomalies that correlated with the total field magnetics survey, but did identify a linear anomaly between the two areas (with metal detection).
- UA-1B West – No subsurface anomalies were detected.
- UA-1B East – One subsurface anomaly was detected with the terrain conductivity, which suggests the presence of non-conductive buried debris (for example, wood or brick). Alternatively, this could be associated with a change in soil type or moisture content. The metal detection survey was negative.

Trenching was not conducted to evaluate subsurface anomalies because of the cultural significance of the area and the inert nature of the suspected buried pipes.

B.5 Deviations from the Draft Work Plan

Table B-3 lists the deviations from the Soil RFI/RI Work Plan (CH2M, 2013). Deviations from the work plan generally fell into the following categories:

1) Advanced the boring deeper than proposed in the work plan because of staining
2) Collection of proposed samples was not possible due to encountering refusal or groundwater

B.6 Post-investigation Activities

Post-investigation activities consisted of surveys, site restoration, and reporting.

In accordance with the PBA (CH2M, 2007), a post-investigation survey was conducted by a qualified biologist at each site after completion of site activity. Excluding the proposed sampling near the mouth of Bat Cave Wash and near the mouth of East Ravine, all areas of the proposed Part A, Phase 2, proposed Part B Perimeter Area, and storm drain system investigation area were previously disturbed and contained limited to no vegetation. No more than 2 acres of vegetation combined were removed in the tamarisk area near the mouth of Bat Cave Wash.

Given the limited impacts to vegetation near the mouth of Bat Cave Wash and vigorous growth habit of the tamarisk vegetation, a revegetation plan will not be required. A qualified biologist reviewed the post-investigation survey results from the mouth of Bat Cave Wash and determined that the extent of impacts to vegetation in the work areas did not result in substantial adverse effects to vegetation.

B.7 References

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Tables

TABLE B1
Waste Source Summary Table
RFI/RI Report, Volume 3 – Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Source Information										
Waste Bin Number	AOC	Sample Location	Sample Date	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Collection Method	Trench Sample	Opportunistic Sample	Notes
5985	13	AOC13-1-17000	12/05/15	0	1	Soil	Vac Truck			
5985	13	AOC13-1-17002	12/05/15	2	3	Soil	Vac Truck			
5985	13	AOC13-10-17003	12/14/15	0	0.5	Soil	Vac Truck			
5985	13	AOC13-10-17004	12/14/15	2	3	Soil	Vac Truck			
5985	13	AOC13-12-17008	12/05/15	0	1	Soil	Vac Truck			
5985	13	AOC13-12-17010	12/05/15	2	3	Soil	Vac Truck			
5985	13	AOC13-14-17013	12/14/15	0	0.5	Soil	Vac Truck			
5985	13	AOC13-14-17014	12/14/15	2	3	Soil	Vac Truck			
5985	13	AOC13-15-17015	12/14/15	0	0.5	Soil	Vac Truck			
5985	13	AOC13-15-17016	12/14/15	2	3	Soil	Vac Truck			
5985	13	AOC13-15-17017	12/14/15	5	6	Soil	Vac Truck			
5985	13	AOC13-17-17021	12/08/15	0	0.5	Soil	Vac Truck			
5985	13	AOC13-17-17022	12/08/15	2	3	Soil	Vac Truck			
5985	13	AOC13-2-17028	12/05/15	0	1	Soil	Vac Truck			
5985	13	AOC13-2-17029	12/05/15	2	3	Soil	Vac Truck			
5985	13	AOC13-3-17054	12/14/15	0	0.5	Soil	Vac Truck			
5985	13	AOC13-3-17055	12/14/15	2	3	Soil	Vac Truck			
5985	13	AOC13-32-17061	12/04/15	0	0.5	Soil	Vac Truck			
5985	13	AOC13-32-17062	12/04/15	2	3	Soil	Vac Truck			
5985	13	AOC13-4-17063	12/14/15	0	0.5	Soil	Vac Truck			
5985	13	AOC13-4-17065	12/14/15	2	3	Soil	Vac Truck			
5985	13	AOC13-7-17070	12/14/15	0	0.5	Soil	Vac Truck			
5985	13	AOC13-7-17071	12/14/15	2	3	Soil	Vac Truck			
5985	13	AOC13-8-17072	12/05/15	0	1	Soil	Vac Truck			
5985	13	AOC13-8-17074	12/05/15	2	3	Soil	Vac Truck			
5985	17	AOC17-1-20000	12/06/15	0	1	Soil	Vac Truck			
5985	17	AOC17-1-20002	12/06/15	2	3	Soil	Vac Truck			
5985	17	AOC17-1-20003	12/06/15	5	6	Soil	Vac Truck			
5985	17	AOC17-1-20022	12/06/15	9	10	Soil	Vac Truck			
5985	17	AOC17-2-20004	12/06/15	0	1	Soil	Vac Truck			
5985	17	AOC17-2-20005	12/06/15	2	3	Soil	Vac Truck			
5985	17	AOC17-2-20006	12/06/15	5	6	Soil	Vac Truck			
5985	17	AOC17-2-20007	12/06/15	9	10	Soil	Vac Truck			
5985	17	AOC17-3-20008	12/06/15	0	1	Soil	Vac Truck			
5985	17	AOC17-3-20010	12/06/15	2	3	Soil	Vac Truck			
5985	17	AOC17-3-20011	12/06/15	5	6	Soil	Vac Truck			
5985	17	AOC17-3-20012	12/06/15	9	10	Soil	Vac Truck			
5985	17	AOC17-4-20013	12/06/15	0	1	Soil	Vac Truck			
5985	17	AOC17-4-20014	12/06/15	2	3	Soil	Vac Truck			
5985	17	AOC17-4-20015	12/06/15	5	6	Soil	Vac Truck			
5985	17	AOC17-5-20017	12/06/15	0	1	Soil	Vac Truck			
5985	17	AOC17-5-20018	12/06/15	2	3	Soil	Vac Truck			
5985	17	AOC17-5-20020	12/06/15	5	6	Soil	Vac Truck			
5985	17	AOC17-5-20021	12/06/15	9	10	Soil	Vac Truck			
5985	18	AOC18-10-21004	12/16/15	0	0.5	Soil	Vac Truck			
5985	18	AOC18-10-21005	12/16/15	2	3	Soil	Vac Truck			
5985	18	AOC18-10-21006	12/16/15	5	6	Soil	Vac Truck			
5985	18	AOC18-12-21010	12/04/15	0	0.5	Soil	Vac Truck			
5985	18	AOC18-12-21011	12/04/15	2	3	Soil	Vac Truck			
5985	18	AOC18-12-21012	12/04/15	5	6	Soil	Vac Truck			
5985	18	AOC18-4-21019	12/04/15	0	0.5	Soil	Vac Truck			
5985	18	AOC18-4-21020	12/04/15	2	3	Soil	Vac Truck			
5985	18	AOC18-4-21021	12/05/15	5	6	Soil	Vac Truck			
5985	18	AOC18-5-21022	12/04/15	0	0.5	Soil	Vac Truck			
5985	18	AOC18-5-21023	12/04/15	2	3	Soil	Vac Truck			
5985	18	AOC18-5-21024	12/04/15	5	6	Soil	Vac Truck			
5985	18	AOC18-6-21025	12/04/15	0	0.5	Soil	Vac Truck			
5985	18	AOC18-6-21026	12/04/15	2	3	Soil	Vac Truck			
5985	18	AOC18-6-21028	12/04/15	5	6	Soil	Vac Truck			
5985	18	AOC18-7-21029	12/08/15	0	0.5	Soil	Vac Truck			
5985	18	AOC18-7-21030	12/08/15	2	3	Soil	Vac Truck			
5985	18	AOC18-8-21032	12/08/15	0	1	Soil	Vac Truck			
5985	18	AOC18-8-21033	12/08/15	2	3	Soil	Vac Truck			
5985	18	AOC18-9-21036	12/07/15	0	0.5	Soil	Vac Truck			
5985	18	AOC18-9-21038	12/07/15	2	3	Soil	Vac Truck			
5985	19	AOC19-5-22002	12/06/15	0	0.5	Soil	Vac Truck			
5985	19	AOC19-5-22003	12/06/15	2	3	Soil	Vac Truck			
5985	19	AOC19-9-22015	12/05/15	0	0.5	Soil	Vac Truck			
5985	19	AOC19-9-22016	12/05/15	2	3	Soil	Vac Truck			
5985	19	AOC19-9-22017	12/06/15	5	6	Soil	Vac Truck			
5985	20	AOC20-2-23003	12/18/15	0	1	Soil	Vac Truck			
5985	20	AOC20-2-23004	12/18/15	2	3	Soil	Vac Truck			
5985	20	AOC20-2-23016	12/18/15	5	6	Soil	Vac Truck			
5985	20	AOC20-2-23017	12/18/15	9	10	Soil	Vac Truck			
5985	20	AOC20-3-23005	12/18/15	0	1	Soil	Vac Truck			
5985	20	AOC20-3-23006	12/18/15	2	3	Soil	Vac Truck			
5985	20	AOC20-3-23019	12/18/15	7	8	Soil	Vac Truck			
5985	20	AOC20-4-23007	12/15/15	0	1	Soil	Vac Truck			
5985	20	AOC20-4-23009	12/15/15	2	2.5	Soil	Vac Truck			Below concrete utility
5985	20	AOC20-4-23016	12/15/15	1.9	2	Soil	Vac Truck			
5985	20	AOC20-5-23010	12/15/15	0	1	Soil	Vac Truck			
5985	20	AOC20-5-23011	12/15/15	2	3	Soil	Vac Truck			
5985	20	AOC20-6-23012	12/15/15	0	1	Soil	Vac Truck			

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				Source Information						
Waste Bin Number	AOC	Sample Location	Sample Date	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Collection Method	Trench Sample	Opportunistic Sample	Notes
5985	20	AOC20-6-23013	12/15/15	2	3	Soil	Vac Truck			
5985	20	AOC20-7-23014	12/18/15	0	1	Soil	Vac Truck			
5985	20	AOC20-7-23015	12/18/15	2	3	Soil	Vac Truck			
5985	20	AOC20-7-23018	12/18/15	5	5.5	Soil	Vac Truck			
5985	23	AOC23-1-26000	12/08/15	0	1	Soil	Vac Truck			
5985	23	AOC23-1-26002	12/08/15	2	3	Soil	Vac Truck			
5985	26	AOC26-1-28000	12/15/15	0	0.5	Soil	Vac Truck			
5985	26	AOC26-1-28001	12/15/15	2	3	Soil	Vac Truck			
5985	26	AOC26-1-28002	12/15/15	5	6	Soil	Vac Truck			
5985	26	AOC26-1-28003	12/15/15	9	10	Soil	Vac Truck			
5985	28	AOC28a-01-34000	12/17/15	0	0.5	Soil	Vac Truck			
5985	28	AOC28a-01-34001	12/17/15	2	3	Soil	Vac Truck			
5985	28	AOC28b-01-34003	12/17/15	0	0.5	Soil	Vac Truck			
5985	28	AOC28c-01-34004	12/17/15	0	0.5	Soil	Vac Truck			
5985	28	AOC28c-01-34005	12/17/15	2	3	Soil	Vac Truck			
5985	28	AOC28d-01-34006	12/17/15	0	0.5	Soil	Vac Truck			
5985	28	AOC28d-01-34007	12/17/15	2	3	Soil	Vac Truck			
5985	28	AOC28d-01-34008	12/17/15	4.5	5	Soil	Vac Truck			
5985	4	AOC4-17-3100	12/01/15	2	3	Soil	Vac Truck			
5985	4	AOC4-18-3103	12/01/15	2	3	Soil	Vac Truck			
5985	4	AOC4-29-3153	12/02/15	0	1	Soil	Vac Truck			
5985	4	AOC4-29-3154	12/03/15	2	3	Soil	Vac Truck			
5985	4	AOC4-29-3155	12/03/15	5	6	Soil	Vac Truck			
5985	4	AOC4-30-3157	12/02/15	0	1	Soil	Vac Truck			
5985	4	AOC4-30-3158	12/03/15	2	3	Soil	Vac Truck			
5985	4	AOC4-30-3159	12/03/15	5	6	Soil	Vac Truck			
5985	4	AOC4-31-3161	12/02/15	0	1	Soil	Vac Truck			
5985	4	AOC4-31-3162	12/02/15	2	3	Soil	Vac Truck			
5985	4	AOC4-31-3163	12/02/15	5	6	Soil	Vac Truck			
5985	4	AOC4-32-3164	12/02/15	0	1	Soil	Vac Truck			
5985	4	AOC4-32-3165	12/02/15	2	3	Soil	Vac Truck			
5985	4	AOC4-32-3166	12/02/15	5	6	Soil	Vac Truck			
5985	5	AOC5-2-13004	12/08/15	0	0.5	Soil	Vac Truck			
5985	5	AOC5-2-13005	12/08/15	2	3	Soil	Vac Truck			
5985	7	AOC7-3-15005	12/09/15	0	1	Soil	Vac Truck			
5985	7	AOC7-3-15006	12/09/15	2	3	Soil	Vac Truck			
5985	7	AOC7-4-15007	12/09/15	0	1	Soil	Vac Truck			
5985	7	AOC7-4-15008	12/09/15	2	3	Soil	Vac Truck			
5985	8	AOC8-2-16002	12/09/15	0	1	Soil	Vac Truck			
5985	8	AOC8-2-16003	12/09/15	2	3	Soil	Vac Truck			
5985	SD	SD-7-D1	12/17/15	0	1	Soil	Vac Truck			
5985	SD	SD-7-D2	12/17/15	2	3	Soil	Vac Truck			
5985	SD	SD-7-D3	12/18/15	5	6	Soil	Vac Truck			
5985	SD	SD-7-D4	12/18/15	9	10	Soil	Vac Truck			
5985	SWMU5	SWMU5-1-29000	12/08/15	0	1	Soil	Vac Truck			
5985	SWMU5	SWMU5-1-29001	12/08/15	2	3	Soil	Vac Truck			
5985	SWMU5	SWMU5-2-29002	12/07/15	0	0.5	Soil	Vac Truck			
5985	SWMU5	SWMU5-2-29003	12/07/15	2	3	Soil	Vac Truck			
5985	SWMU6	SWMU6-1-30000	12/07/15	0	1	Soil	Vac Truck			
5985	SWMU6	SWMU6-1-30001	12/07/15	2	3	Soil	Vac Truck			
5985	SWMU6	SWMU6-1-30002	12/07/15	5	6	Soil	Vac Truck			
5985	SWMU8	SWMU8-1-31000	12/09/15	0	1	Soil	Vac Truck			
5985	SWMU8	SWMU8-1-31001	12/09/15	2	3	Soil	Vac Truck			
5985	Unit4.3	Units 4.3-1-33000	12/07/15	0	1	Soil	Vac Truck			
5985	Unit4.3	Units 4.3-1-33001	12/07/15	2	3	Soil	Vac Truck			
5985	Unit4.3	Units 4.3-2-33002	12/07/15	0	1	Soil	Vac Truck			
5985	Unit4.3	Units 4.3-2-33003	12/07/15	2	3	Soil	Vac Truck			
6582	1	AOC1-T1e-289	01/11/16	0	1	Soil	Rotosonic			
6582	1	AOC1-T1e-290	01/11/16	2	3	Soil	Rotosonic			
6582	1	AOC1-T1e-291	01/11/16	5	6	Soil	Rotosonic			
6582	1	AOC1-T1e-292	01/11/16	9	10	Soil	Rotosonic			
6582	1	AOC1-T1e-294	01/11/16	14	15	Soil	Rotosonic			
6582	1	AOC1-T1f-295	01/12/16	0	1	Soil	Rotosonic			
6582	1	AOC1-T1f-296	01/12/16	2	3	Soil	Rotosonic			
6582	1	AOC1-T1f-297	01/12/16	5	6	Soil	Rotosonic			
6582	1	AOC1-T1f-298	01/12/16	9	10	Soil	Rotosonic			
6582	1	AOC1-T1f-300	01/12/16	14	15	Soil	Rotosonic			
6582	11	AOC11-1-6100	01/05/16	0	1	Soil	Rotosonic			
6582	11	AOC11-1-6102	01/05/16	2	3	Soil	Rotosonic			
6582	11	AOC11-1-6103	01/05/16	5	6	Soil	Rotosonic			
6582	11	AOC11-1-6104	01/05/16	9	10	Soil	Rotosonic			
6582	11	AOC11-2-6105	01/05/16	0	1	Soil	Rotosonic			
6582	11	AOC11-2-6106	01/05/16	2	3	Soil	Rotosonic			
6582	11	AOC11-2-6107	01/05/16	5	6	Soil	Rotosonic			
6582	11	AOC11-2-6108	01/05/16	9	10	Soil	Rotosonic			
6582	11	AOC11-3-6110	01/05/16	0	1	Soil	Rotosonic			
6582	11	AOC11-3-6111	01/05/16	2	3	Soil	Rotosonic			
6582	11	AOC11-3-6112	01/05/16	5	6	Soil	Rotosonic			
6582	11	AOC11-3-6113	01/05/16	9	10	Soil	Rotosonic			
6582	11	AOC11-4-6115	01/05/16	0	1	Soil	Rotosonic			
6582	11	AOC11-4-6116	01/05/16	2	3	Soil	Rotosonic			
6582	11	AOC11-6-6123	01/06/16	0	1	Soil	Rotosonic			
6582	11	AOC11-6-6124	01/06/16	2	3	Soil	Rotosonic			

TABLE B1
Waste Source Summary Table
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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Source Information						
Waste Bin Number	AOC	Sample Location	Sample Date	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Collection Method	Trench Sample	Opportunistic Sample	Notes
6582	11	AOC11-6-6125	01/06/16	5	6	Soil	Rotosonic			
6582	11	AOC11-6-6126	01/06/16	9	10	Soil	Rotosonic			
6582	11	AOC11-7-6127	01/06/16	0	1	Soil	Rotosonic			
6582	11	AOC11-7-6128	01/06/16	2	3	Soil	Rotosonic			
6582	11	AOC11-7-6129	01/06/16	5	6	Soil	Rotosonic			
6582	11	AOC11e-3-6153	01/08/16	0	1	Soil	Vac Truck			
6582	11	AOC11e-3-6155	01/10/16	2	3	Soil	Vac Truck			
6582	11	AOC11e-3-6156	01/10/16	5	6	Soil	Vac Truck			
6582	11	AOC11e-3-6157	01/10/16	9	10	Soil	Vac Truck			
6582	11	AOC11e-3-6158	01/10/16	13	14	Soil	Vac Truck			
6582	13	AOC13-11-17005	01/05/16	0	0.5	Soil	Vac Truck			
6582	13	AOC13-11-17007	01/05/16	2	3	Soil	Vac Truck			
6582	13	AOC13-13-17011	01/09/16	0	0.5	Soil	Vac Truck			
6582	13	AOC13-13-17012	01/09/16	2	3	Soil	Vac Truck			
6582	13	AOC13-16-17019	01/05/16	0	1	Soil	Vac Truck			
6582	13	AOC13-16-17020	01/05/16	2	3	Soil	Vac Truck			
6582	13	AOC13-18-17023	01/06/16	0	0.5	Soil	Vac Truck			
6582	13	AOC13-18-17025	01/06/16	2	3	Soil	Vac Truck			
6582	13	AOC13-19-17026	01/08/16	0	0.5	Soil	Vac Truck			
6582	13	AOC13-19-17027	01/08/16	2	3	Soil	Vac Truck			
6582	13	AOC13-20-17030	01/08/16	0	0.5	Soil	Vac Truck			
6582	13	AOC13-20-17031	01/08/16	2	3	Soil	Vac Truck			
6582	13	AOC13-21-17032	01/08/16	0	0.5	Soil	Vac Truck			
6582	13	AOC13-22-17035	01/08/16	0	0.5	Soil	Vac Truck			
6582	13	AOC13-22-17036	01/08/16	2	3	Soil	Vac Truck			
6582	13	AOC13-23-17037	01/08/16	0	0.5	Soil	Vac Truck			
6582	13	AOC13-23-17038	01/08/16	2	3	Soil	Vac Truck			
6582	13	AOC13-24-17039	01/08/16	0	0.5	Soil	Vac Truck			
6582	13	AOC13-24-17041	01/08/16	2	3	Soil	Vac Truck			
6582	13	AOC13-25-17042	01/09/16	0	0.5	Soil	Vac Truck			
6582	13	AOC13-25-17043	01/09/16	2	3	Soil	Vac Truck			
6582	13	AOC13-26-17044	01/09/16	0	0.5	Soil	Vac Truck			
6582	13	AOC13-26-17045	01/09/16	2	3	Soil	Vac Truck			
6582	13	AOC13-27-17047	01/09/16	0	0.5	Soil	Vac Truck			
6582	13	AOC13-27-17048	01/09/16	2	3	Soil	Vac Truck			
6582	13	AOC13-28-17049	01/09/16	0	0.5	Soil	Vac Truck			
6582	13	AOC13-28-17050	01/09/16	2	3	Soil	Vac Truck			
6582	13	AOC13-29-17051	01/09/16	0	0.5	Soil	Vac Truck			
6582	13	AOC13-29-17053	01/09/16	2	3	Soil	Vac Truck			
6582	13	AOC13-30-17056	01/07/16	0	0.5	Soil	Vac Truck			
6582	13	AOC13-30-17057	01/07/16	2	3	Soil	Vac Truck			
6582	13	AOC13-31-17058	01/07/16	0	0.5	Soil	Vac Truck			
6582	13	AOC13-31-17060	01/07/16	2	3	Soil	Vac Truck			
6582	13	AOC13-5-17066	01/05/16	0	0.5	Soil	Vac Truck			
6582	13	AOC13-5-17067	01/05/16	2	3	Soil	Vac Truck			
6582	13	AOC13-6-17068	01/05/16	0	0.5	Soil	Vac Truck			
6582	13	AOC13-6-17069	01/05/16	2	3	Soil	Vac Truck			
6582	13	AOC13-9-17075	01/09/16	0	0.5	Soil	Vac Truck			
6582	13	AOC13-9-17076	01/09/16	2	3	Soil	Vac Truck			
6582	16	AOC16-1-19000	01/11/16	0	0.5	Soil	Vac Truck			
6582	16	AOC16-1-19001	01/11/16	2	3	Soil	Vac Truck			
6582	16	AOC16-2-19002	01/11/16	0	0.5	Soil	Vac Truck			
6582	16	AOC16-2-19003	01/11/16	2	3	Soil	Vac Truck			
6582	16	AOC16-3-19004	01/11/16	0	0.5	Soil	Vac Truck			
6582	16	AOC16-3-19005	01/11/16	2	3	Soil	Vac Truck			
6582	16	AOC16-4-19006	01/11/16	0	1	Soil	Vac Truck			
6582	18	AOC18-1-21000	01/12/16	0	0.5	Soil	Vac Truck			
6582	18	AOC18-1-21002	01/12/16	2	3	Soil	Vac Truck			
6582	18	AOC18-1-21003	01/12/16	5	6	Soil	Vac Truck			
6582	18	AOC18-11-21007	01/11/16	0	0.5	Soil	Vac Truck			
6582	18	AOC18-11-21008	01/11/16	2	3	Soil	Vac Truck			
6582	18	AOC18-11-21009	01/11/16	5	6	Soil	Vac Truck			
6582	18	AOC18-2-21013	01/12/16	0	0.5	Soil	Vac Truck			
6582	18	AOC18-2-21014	01/12/16	2	3	Soil	Vac Truck			
6582	18	AOC18-2-21015	01/12/16	5	6	Soil	Vac Truck			
6582	18	AOC18-3-21016	01/12/16	0	0.5	Soil	Vac Truck			
6582	18	AOC18-3-21017	01/12/16	2	3	Soil	Vac Truck			
6582	18	AOC18-3-21018	01/12/16	5	6	Soil	Vac Truck			
6582	21	AOC21-1-24000	01/12/16	0	0.5	Soil	Vac Truck			
6582	21	AOC21-1-24001	01/12/16	2	3	Soil	Vac Truck			
6582	21	AOC21-1-24002	01/12/16	5	6	Soil	Vac Truck			
6582	22	AOC22-1-25000	01/06/16	0	0.5	Soil	Vac Truck			
6582	22	AOC22-1-25002	01/06/16	2	3	Soil	Vac Truck			
6582	22	AOC22-2-25003	01/06/16	0	0.5	Soil	Vac Truck			
6582	22	AOC22-2-25004	01/06/16	2	3	Soil	Vac Truck			
6582	23	AOC23-2-26003	01/07/16	0	0.5	Soil	Vac Truck			
6582	23	AOC23-3-26005	01/07/16	0	0.5	Soil	Vac Truck			
6582	24	AOC24-1-27000	01/10/16	0	0.5	Soil	Vac Truck			
6582	24	AOC24-1-27001	01/10/16	2	3	Soil	Vac Truck			
6582	24	AOC24-2-27002	01/11/16	0	0.5	Soil	Vac Truck			
6582	24	AOC24-2-27004	01/11/16	2	3	Soil	Vac Truck			
6582	24	AOC24-2-27005	01/11/16	5	6	Soil	Vac Truck			
6582	26	AOC26-1-28004	01/10/16	24	25	Soil	Rotosonic			
6582	26	AOC26-1-28005	01/10/16	49	50	Soil	Rotosonic			

TABLE B1
Waste Source Summary Table
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		Source Information								
Waste Bin Number	AOC	Sample Location	Sample Date	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Collection Method	Trench Sample	Opportunistic Sample	Notes
6582	26	AOC26-1-28006	01/11/16	74	75	Soil	Rotosonic			
6582	4	AOC4-BCW1-3126	01/06/16	0	1	Soil	Rotosonic			
6582	4	AOC4-BCW1-3127	01/06/16	2	3	Soil	Rotosonic			
6582	4	AOC4-BCW1-3128	01/06/16	5	6	Soil	Rotosonic			
6582	4	AOC4-BCW1-3129	01/06/16	9	10	Soil	Rotosonic			
6582	4	AOC4-BCW2-3130	01/06/16	0	1	Soil	Rotosonic			
6582	4	AOC4-BCW2-3131	01/06/16	2	3	Soil	Rotosonic			
6582	4	AOC4-BCW2-3132	01/06/16	5	6	Soil	Rotosonic			
6582	4	AOC4-BCW2-3133	01/06/16	9	10	Soil	Rotosonic			
6582	4	AOC4-BCW3-3135	01/06/16	0	1	Soil	Rotosonic			
6582	4	AOC4-BCW3-3137	01/06/16	2	3	Soil	Rotosonic			
6582	4	AOC4-BCW3-3138	01/06/16	5	6	Soil	Rotosonic			
6582	4	AOC4-BCW3-3139	01/06/16	9	10	Soil	Rotosonic			
6582	4	AOC4-BCW4-3140	01/06/16	0	1	Soil	Rotosonic			
6582	4	AOC4-BCW4-3141	01/06/16	2	3	Soil	Rotosonic			
6582	4	AOC4-BCW4-3142	01/06/16	5	6	Soil	Rotosonic			
6582	4	AOC4-BCW4-3143	01/06/16	9	10	Soil	Rotosonic			
6582	4	AOC4-BCW5-3144	01/06/16	0	1	Soil	Rotosonic			
6582	4	AOC4-BCW5-3146	01/06/16	2	3	Soil	Rotosonic			
6582	4	AOC4-BCW5-3147	01/06/16	5	6	Soil	Rotosonic			
6582	4	AOC4-BCW5-3148	01/06/16	9	10	Soil	Rotosonic			
6582	4	AOC4-BCW6-3149	01/06/16	0	1	Soil	Rotosonic			
6582	4	AOC4-BCW6-3150	01/06/16	2	3	Soil	Rotosonic			
6582	4	AOC4-BCW6-3151	01/06/16	5	6	Soil	Rotosonic			
6582	4	AOC4-BCW6-3152	01/06/16	9	10	Soil	Rotosonic			
6582	7	AOC7-1-15000	01/06/16	0	0.5	Soil	Vac Truck			
6582	7	AOC7-1-15001	01/06/16	2	3	Soil	Vac Truck			
6582	7	AOC7-2-15002	01/06/16	0	0.5	Soil	Vac Truck			
6582	7	AOC7-2-15004	01/06/16	2	3	Soil	Vac Truck			
6582	7	AOC7-5-15009	01/06/16	0	0.5	Soil	Vac Truck			
6582	7	AOC7-5-15010	01/06/16	2	3	Soil	Vac Truck			
6582	8	AOC8-1-16000	01/07/16	0	0.5	Soil	Vac Truck			
6582	8	AOC8-1-16001	01/07/16	2	3	Soil	Vac Truck			
6582	9	AOC9-18-4111	01/10/16	5	6	Soil	Vac Truck			
6582	9	AOC9-18-4112	01/10/16	9	10	Soil	Vac Truck			
6582	SD	SD-14-01	01/11/16	0	1	Soil	Rotosonic			
6582	SD	SD-14-03	01/11/16	2	3	Soil	Rotosonic			
6582	SD	SD-14-06	01/11/16	5	6	Soil	Rotosonic			
6582	SD	SD-14-10	01/11/16	9	10	Soil	Rotosonic			
6582	SD	SD-15-01	01/12/16	0	0.5	Soil	Rotosonic			
6582	SD	SD-15-03	01/12/16	2	3	Soil	Rotosonic			
6582	SD	SD-15-06	01/12/16	5	6	Soil	Rotosonic			
6582	SD	SD-15-10	01/12/16	9	10	Soil	Rotosonic			
6582	SD	SD-16-01	01/12/16	0	0.5	Soil	Rotosonic			
6582	SD	SD-16-03	01/12/16	2	3	Soil	Rotosonic			
6582	SD	SD-16-06	01/12/16	5	6	Soil	Rotosonic			
6582	SD	SD-16-10	01/12/16	9	10	Soil	Rotosonic			
6582	SWMU1	SWMU1-18-1100	01/07/16	0	1	Soil	Rotosonic			
6582	SWMU1	SWMU1-18-1101	01/07/16	2	3	Soil	Rotosonic			
6582	SWMU1	SWMU1-18-1102	01/07/16	5	6	Soil	Rotosonic			
6582	SWMU1	SWMU1-18-1103	01/07/16	9	10	Soil	Rotosonic			
6582	SWMU1	SWMU1-18-1104	01/07/16	14	15	Soil	Rotosonic			
6582	SWMU1	SWMU1-18-1106	01/07/16	19	20	Soil	Rotosonic			
6582	SWMU1	SWMU1-18-1107	01/07/16	29	30	Soil	Rotosonic			
6582	SWMU1	SWMU1-18-1108	01/07/16	39	40	Soil	Rotosonic			
6582	SWMU1	SWMU1-18-1109	01/08/16	49	50	Soil	Rotosonic			
6582	SWMU1	SWMU1-18-1110	01/08/16	59	60	Soil	Rotosonic			
6582	SWMU1	SWMU1-18-1111	01/08/16	69	70	Soil	Rotosonic			
6582	SWMU1	SWMU1-18-1112	01/08/16	79	80	Soil	Rotosonic			
6582	SWMU1	SWMU1-19-1113	01/09/16	0	1	Soil	Rotosonic			
6582	SWMU1	SWMU1-19-1114	01/09/16	2	3	Soil	Rotosonic			
6582	SWMU1	SWMU1-19-1115	01/09/16	5	6	Soil	Rotosonic			
6582	SWMU1	SWMU1-19-1116	01/09/16	9	10	Soil	Rotosonic			
6582	SWMU1	SWMU1-19-1117	01/09/16	14	15	Soil	Rotosonic			
6582	SWMU1	SWMU1-19-1118	01/09/16	19	20	Soil	Rotosonic			
6582	SWMU1	SWMU1-19-1120	01/09/16	29	30	Soil	Rotosonic			
6582	SWMU1	SWMU1-19-1121	01/09/16	39	40	Soil	Rotosonic			
6582	SWMU1	SWMU1-19-1122	01/09/16	49	50	Soil	Rotosonic			
6582	SWMU1	SWMU1-19-1123	01/09/16	59	60	Soil	Rotosonic			
6582	SWMU1	SWMU1-19-1124	01/10/16	69	70	Soil	Rotosonic			
6582	SWMU1	SWMU1-19-1125	01/10/16	79	80	Soil	Rotosonic			
6666	1	AOC1-T5D-304	01/12/16	0	1	Soil	Rotosonic			
6666	1	AOC1-T5D-305	01/12/16	2	3	Soil	Rotosonic			
6666	1	AOC1-T5D-307	01/12/16	5	6	Soil	Rotosonic			
6666	1	AOC1-T5D-308	01/12/16	9	10	Soil	Rotosonic			
6666	1	AOC1-T5D-309	01/12/16	14	15	Soil	Rotosonic			
6666	1	AOC1-T5D-310	01/12/16	19	20	Soil	Rotosonic			
6666	10	AOC10-10-5200	01/22/16	0	1	Soil	Rotosonic			
6666	10	AOC10-10-5201	01/22/16	2	3	Soil	Rotosonic			
6666	10	AOC10-10-5202	01/22/16	5	6	Soil	Rotosonic			
6666	10	AOC10-10-5203	01/22/16	9	10	Soil	Rotosonic			
6666	10	AOC10-11-5205	01/22/16	0	1	Soil	Rotosonic			
6666	10	AOC10-11-5207	01/22/16	2	3	Soil	Rotosonic			
6666	10	AOC10-11-5208	01/22/16	5	6	Soil	Rotosonic			

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		Source Information								
Waste Bin Number	AOC	Sample Location	Sample Date	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Collection Method	Trench Sample	Opportunistic Sample	Notes
6666	10	AOC10-11-5209	01/22/16	9	10	Soil	Rotosonic			
6666	10	AOC10-12-5210	01/22/16	0	0.5	Soil	Rotosonic			
6666	10	AOC10-12-5211	01/22/16	2	3	Soil	Rotosonic			
6666	10	AOC10-12-5212	01/22/16	5	6	Soil	Rotosonic			
6666	10	AOC10-12-5213	01/22/16	9	10	Soil	Rotosonic			
6666	10	AOC10a-2-5233	01/13/16	0	1	Soil	Rotosonic			
6666	10	AOC10a-2-5234	01/13/16	2	3	Soil	Rotosonic			
6666	10	AOC10a-2-5235	01/13/16	5	6	Soil	Rotosonic			
6666	10	AOC10a-2-5236	01/13/16	9	10	Soil	Rotosonic			
6666	10	AOC10a-3-5237	01/13/16	0	1	Soil	Rotosonic			
6666	10	AOC10a-3-5238	01/13/16	2	3	Soil	Rotosonic			
6666	10	AOC10a-3-5239	01/13/16	5	6	Soil	Rotosonic			
6666	10	AOC10a-3-5240	01/13/16	9	10	Soil	Rotosonic			
6666	10	AOC10c-6-5241	01/21/16	14	15	Soil	Rotosonic			
6666	10	AOC10c-6-5242	01/22/16	19	20	Soil	Rotosonic			
6666	10	AOC10c-6-5247	01/22/16	29	30	Soil	Rotosonic			
6666	10	AOC10c-6-5248	01/22/16	49	50	Soil	Rotosonic			
6666	10	AOC10c-6-5250	01/22/16	59	60	Soil	Rotosonic			
6666	11	AOC11e-4-6159	01/28/16	0	1	Soil	Rotosonic			
6666	11	AOC11e-4-6160	01/28/16	2	3	Soil	Rotosonic			
6666	11	AOC11e-4-6161	01/28/16	5	6	Soil	Rotosonic			
6666	11	AOC11e-4-6164	01/28/16	14	15	Soil	Rotosonic			
6666	11	AOC11e-5-6165	01/19/16	14	15	Soil	Rotosonic			
6666	11	AOC11e-5-6166	01/19/16	19	20	Soil	Rotosonic			
6666	11	AOC11e-5-6167	01/19/16	29	30	Soil	Rotosonic			
6666	11	AOC11e-5-6168	01/19/16	39	40	Soil	Rotosonic			
6666	11	AOC11e-5-6169	01/20/16	49	50	Soil	Rotosonic			
6666	11	AOC11e-5-6170	01/21/16	59	60	Soil	Rotosonic			
6666	11	AOC11e-5-6171	01/21/16	69	70	Soil	Rotosonic			
6666	15	AOC15-1-18000	01/22/16	0	0.5	Soil	Vac Truck			
6666	15	AOC15-1-18001	01/22/16	2	3	Soil	Vac Truck			
6666	15	AOC15-2-18002	01/22/16	0	0.5	Soil	Vac Truck			
6666	15	AOC15-2-18003	01/22/16	2	3	Soil	Vac Truck			
6666	15	AOC15-3-18004	01/22/16	0	0.5	Soil	Vac Truck			
6666	15	AOC15-3-18005	01/22/16	2	3	Soil	Vac Truck			
6666	15	AOC15-4-18007	01/22/16	0	0.5	Soil	Vac Truck			
6666	15	AOC15-4-18008	01/22/16	2	3	Soil	Vac Truck			
6666	15	AOC15-5-18009	01/22/16	0	0.5	Soil	Vac Truck			
6666	15	AOC15-5-18011	01/22/16	2	3	Soil	Vac Truck			
6666	15	AOC15-6-18012	01/22/16	0	0.5	Soil	Vac Truck			
6666	15	AOC15-6-18014	01/22/16	2	3	Soil	Vac Truck			
6666	15	AOC15-7-18015	01/22/16	0	0.5	Soil	Vac Truck			
6666	15	AOC15-7-18017	01/22/16	2	3	Soil	Vac Truck			
6666	26	AOC26-2-28007	01/14/16	0	0.5	Soil	Vac Truck			
6666	26	AOC26-2-28008	01/14/16	2	3	Soil	Vac Truck			
6666	26	AOC26-2-28009	01/14/16	5	6	Soil	Vac Truck			
6666	26	AOC26-3-28011	01/13/16	0	0.5	Soil	Vac Truck			
6666	26	AOC26-3-28012	01/13/16	2	3	Soil	Vac Truck			
6666	26	AOC26-3-28013	01/13/16	5	6	Soil	Vac Truck			
6666	26	AOC26-4-28015	01/13/16	0	0.5	Soil	Vac Truck			
6666	26	AOC26-4-28016	01/13/16	2	3	Soil	Vac Truck			
6666	26	AOC26-4-28017	01/13/16	5	6	Soil	Vac Truck			
6666	26	AOC26-4-28018	01/13/16	9	10	Soil	Vac Truck			
6666	26	AOC26-5-28019	01/13/16	0	0.5	Soil	Vac Truck			
6666	26	AOC26-5-28020	01/13/16	2	3	Soil	Vac Truck			
6666	26	AOC26-5-28021	01/13/16	5	6	Soil	Vac Truck			
6666	26	AOC26-5-28022	01/13/16	8	9	Soil	Vac Truck			
6666	5	AOC5-1-13000	01/19/16	0	0.5	Soil	Vac Truck			
6666	5	AOC5-1-13001	01/19/16	2	3	Soil	Vac Truck			
6666	5	AOC5-1-13002	01/19/16	5	6	Soil	Vac Truck			
6666	5	AOC5-1-13003	01/19/16	9	10	Soil	Vac Truck			
6666	5	AOC5-5-13012	01/14/16	0	0.5	Soil	Vac Truck			
6666	5	AOC5-5-13013	01/14/16	2	3	Soil	Vac Truck			
6666	5	AOC5-5-13014	01/14/16	5	6	Soil	Vac Truck			
6666	5	AOC5-5-13015	01/14/16	9	10	Soil	Vac Truck			
6666	5	AOC5-6-13016	01/19/16	0	0.5	Soil	Vac Truck			
6666	5	AOC5-6-13018	01/19/16	2	3	Soil	Vac Truck			
6666	6	AOC6-1-14000	01/20/16	0	0.5	Soil	Vac Truck			
6666	6	AOC6-1-14001	01/20/16	2	3	Soil	Vac Truck			
6666	6	AOC6-2-14003	01/20/16	0	0.5	Soil	Vac Truck			
6666	6	AOC6-2-14004	01/20/16	2	3	Soil	Vac Truck			
6666	6	AOC6-3-14005	01/20/16	0	0.5	Soil	Vac Truck			
6666	6	AOC6-3-14007	01/20/16	2	3	Soil	Vac Truck			
6666	6	AOC6-4-14008	01/20/16	0	0.5	Soil	Vac Truck			
6666	6	AOC6-4-14009	01/20/16	2	3	Soil	Vac Truck			
6666	6	AOC6-5-14010	01/19/16	0	0.5	Soil	Vac Truck			
6666	6	AOC6-5-14012	01/19/16	2	3	Soil	Vac Truck			
6666	6	AOC6-7-14013	01/19/16	0	0.5	Soil	Vac Truck			
6666	6	AOC6-7-14014	01/19/16	2	3	Soil	Vac Truck			
6666	9	AOC9-16-4105	01/13/16	0	0.5	Soil	Rotosonic			
6666	9	AOC9-16-4106	01/13/16	2	3	Soil	Rotosonic			
6666	9	AOC9-16-4107	01/13/16	5	6	Soil	Rotosonic			
6666	9	AOC9-16-4108	01/13/16	9	10	Soil	Rotosonic			
6666	9	AOC9-17-4110	01/14/16	14	15	Soil	Vac Truck			

TABLE B1
Waste Source Summary Table
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				Source Information						
Waste Bin Number	AOC	Sample Location	Sample Date	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Collection Method	Trench Sample	Opportunistic Sample	Notes
6666	9	AOC9-20-4118	01/13/16	0	0.5	Soil	Rotosonic			
6666	9	AOC9-20-4119	01/13/16	2	3	Soil	Rotosonic			
6666	9	AOC9-20-4121	01/13/16	5	6	Soil	Rotosonic			
6666	9	AOC9-20-4122	01/13/16	9	10	Soil	Rotosonic			
6666	SD	SD-1-D1	01/13/16	0	0.5	Soil	Rotosonic			
6666	SD	SD-1-D2	01/13/16	2	3	Soil	Rotosonic			
6666	SD	SD-1-D3	01/13/16	5	6	Soil	Rotosonic			
6666	SD	SD-1-D4	01/13/16	9	10	Soil	Rotosonic			
6666	SWMU1	SWMU1-20-1126	01/13/16	14	15	Soil	Rotosonic			
6666	SWMU1	SWMU1-20-1128	01/13/16	19	20	Soil	Rotosonic			
6666	SWMU1	SWMU1-20-1129	01/13/16	29	30	Soil	Rotosonic			
6666	SWMU1	SWMU1-20-1130	01/14/16	39	40	Soil	Rotosonic			
6666	SWMU1	SWMU1-20-1131	01/14/16	49	50	Soil	Rotosonic			
6666	SWMU1	SWMU1-20-1132	01/14/16	59	60	Soil	Rotosonic			
6666	SWMU1	SWMU1-20-1133	01/14/16	69	70	Soil	Rotosonic			
6666	SWMU1	SWMU1-20-1134	01/14/16	79	80	Soil	Rotosonic			
6666	SWMU1	SWMU1-20-1152-1	01/13/16	1	1.5	Soil	Rotosonic			
6666	SWMU1	SWMU1-20-1152-10	01/13/16	9	10	Soil	Rotosonic			
6666	SWMU1	SWMU1-20-1152-2	01/13/16	2	3	Soil	Rotosonic			
6666	SWMU1	SWMU1-20-1152-6	01/13/16	5	6	Soil	Rotosonic			
6666	SWMU11	SWMU11-1-32000	01/19/16	0	0.5	Soil	Vac Truck			
6666	SWMU11	SWMU11-1-32001	01/19/16	2	3	Soil	Vac Truck			
6666	SWMU11	SWMU11-3-32004	01/19/16	0	0.5	Soil	Vac Truck			
6666	SWMU11	SWMU11-3-32005	01/19/16	2	3	Soil	Vac Truck			
6666	SWMU11	SWMU11-5-32008	01/20/16	0	0.5	Soil	Vac Truck			
6666	SWMU11	SWMU11-5-32009	01/20/16	2	3	Soil	Vac Truck			
6590	1	AOC1-1-150	01/23/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-1-151	01/23/16	2	3	Soil	Rotosonic			
6590	1	AOC1-1-152	01/23/16	5	6	Soil	Rotosonic			
6590	1	AOC1-1-153	01/23/16	9	10	Soil	Rotosonic			
6590	1	AOC1-1-154	01/23/16	14	15	Soil	Rotosonic			
6590	1	AOC1-1-156	01/24/16	19	20	Soil	Rotosonic			
6590	1	AOC1-1-157	01/24/16	29	30	Soil	Rotosonic			
6590	1	AOC1-2-158	01/23/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-2-159	01/23/16	2	3	Soil	Rotosonic			
6590	1	AOC1-2-160	01/23/16	5	6	Soil	Rotosonic			
6590	1	AOC1-2-161	01/23/16	9	10	Soil	Rotosonic			
6590	1	AOC1-2-162	01/23/16	14	15	Soil	Rotosonic			
6590	1	AOC1-2-163	01/23/16	19	20	Soil	Rotosonic			
6590	1	AOC1-2-165	01/23/16	29	30	Soil	Rotosonic			
6590	1	AOC1-3-166	01/25/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-3-167	01/25/16	2	3	Soil	Rotosonic			
6590	1	AOC1-3-168	01/25/16	5	6	Soil	Rotosonic			
6590	1	AOC1-3-169	01/25/16	9	10	Soil	Rotosonic			
6590	1	AOC1-3-170	01/25/16	14	15	Soil	Rotosonic			
6590	1	AOC1-3-172	01/25/16	19	20	Soil	Rotosonic			
6590	1	AOC1-3-173	01/25/16	29	30	Soil	Rotosonic			
6590	1	AOC1-3-174	01/25/16	39	40	Soil	Rotosonic			
6590	1	AOC1-3-175	01/25/16	49	50	Soil	Rotosonic			
6590	1	AOC1-3-176	01/25/16	59	60	Soil	Rotosonic			
6590	1	AOC1-3-177	01/26/16	69	70	Soil	Rotosonic			
6590	1	AOC1-3-178	01/26/16	79	80	Soil	Rotosonic			
6590	1	AOC1-4-179	01/23/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-4-180	01/23/16	2	3	Soil	Rotosonic			
6590	1	AOC1-4-181	01/23/16	5	6	Soil	Rotosonic			
6590	1	AOC1-4-182	01/23/16	9	10	Soil	Rotosonic			
6590	1	AOC1-4-183	01/23/16	14	15	Soil	Rotosonic			
6590	1	AOC1-4-184	01/23/16	19	20	Soil	Rotosonic			
6590	1	AOC1-4-186	01/23/16	29	30	Soil	Rotosonic			
6590	1	AOC1-BCW10-187	02/04/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW10-188	02/04/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW10-189	02/04/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW10-190	02/04/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW10-191	02/04/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW11-192	02/04/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW11-193	02/04/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW11-194	02/04/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW11-195	02/04/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW12-196	02/04/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW12-197	02/04/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW12-198	02/04/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW12-199	02/04/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW13-200	02/04/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW13-201	02/04/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW13-202	02/04/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW13-203	02/04/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW14-204	02/04/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW14-205	02/04/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW14-206	02/04/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW14-207	02/04/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW15-208	02/04/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW15-209	02/04/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW15-210	02/04/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW15-211	02/04/16	9	10	Soil	Rotosonic			

TABLE B1
Waste Source Summary Table
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		Source Information								
Waste Bin Number	AOC	Sample Location	Sample Date	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Collection Method	Trench Sample	Opportunistic Sample	Notes
6590	1	AOC1-BCW16-212	02/04/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW16-213	02/04/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW16-214	02/04/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW16-215	02/04/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW17-216	02/04/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW17-217	02/04/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW17-218	02/04/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW17-219	02/04/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW18-220	02/05/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW18-221	02/05/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW18-222	02/05/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW18-223	02/05/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW19-224	02/05/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW19-225	02/05/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW19-226	02/05/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW19-227	02/05/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW20-228	02/05/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW20-229	02/05/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW20-230	02/05/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW20-231	02/05/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW21-232	02/05/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW21-233	02/05/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW21-234	02/05/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW21-235	02/05/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW22-236	02/05/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW22-237	02/05/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW22-238	02/05/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW22-239	02/05/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW23-240	02/05/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW23-241	02/05/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW23-242	02/05/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW23-243	02/05/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW24-244	02/05/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW24-245	02/05/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW24-246	02/05/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW24-247	02/05/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW25-248	02/05/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW25-249	02/05/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW25-250	02/05/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW25-251	02/05/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW26-252	02/04/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW26-253	02/04/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW26-254	02/04/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW26-255	02/04/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW27-256	02/05/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW27-257	02/05/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW27-258	02/05/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW27-259	02/05/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW28-260	02/05/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW28-261	02/05/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW28-262	02/05/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW28-263	02/05/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW29-264	02/04/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW29-265	02/04/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW29-266	02/04/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW29-267	02/04/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW30-268	02/04/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW30-269	02/04/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW30-270	02/04/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW30-271	02/04/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW7-272	02/05/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW7-273	02/05/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW7-274	02/05/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW7-275	02/05/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW7-276	02/05/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW7-277	02/05/16	14	15	Soil	Rotosonic			
6590	1	AOC1-BCW7-278	02/05/16	19	20	Soil	Rotosonic			
6590	1	AOC1-BCW8-280	02/04/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW8-281	02/04/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW8-282	02/04/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW8-283	02/04/16	9	10	Soil	Rotosonic			
6590	1	AOC1-BCW9-285	02/04/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-BCW9-286	02/04/16	2	3	Soil	Rotosonic			
6590	1	AOC1-BCW9-287	02/04/16	5	6	Soil	Rotosonic			
6590	1	AOC1-BCW9-288	02/04/16	9	10	Soil	Rotosonic			
6590	1	AOC1-T2g-320	03/03/16	9	10	Soil	Rotosonic			Red
6590	1	AOC1-T2g-321	03/03/16	14	15	Soil	Rotosonic			
6590	1	AOC1-T2g-322	03/03/16	19	20	Soil	Rotosonic			
6590	1	AOC1-T2g-323	03/03/16	29	30	Soil	Rotosonic			
6590	1	AOC1-T2g-324	03/03/16	39	40	Soil	Rotosonic			
6590	1	AOC1-T2g-326	03/03/16	49	50	Soil	Rotosonic			
6590	1	AOC1-T2g-327	03/03/16	59	60	Soil	Rotosonic			
6590	1	AOC1-T2g-328	03/03/16	69	70	Soil	Rotosonic			
6590	1	AOC1-T2h-329	03/04/16	0	1	Soil	Rotosonic			

TABLE B1
Waste Source Summary Table
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Source Information										
Waste Bin Number	AOC	Sample Location	Sample Date	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Collection Method	Trench Sample	Opportunistic Sample	Notes
6590	1	AOC1-T2h-330	03/04/16	2	3	Soil	Rotosonic			
6590	1	AOC1-T2h-331	03/04/16	5	6	Soil	Rotosonic			
6590	1	AOC1-T2h-332	03/04/16	9	10	Soil	Rotosonic			
6590	1	AOC1-T2h-333	03/04/16	14	15	Soil	Rotosonic			
6590	1	AOC1-T2h-334	03/04/16	19	20	Soil	Rotosonic			Green staining on rocks
6590	1	AOC1-T2h-335	03/04/16	29	30	Soil	Rotosonic			Green staining on rocks
6590	1	AOC1-T2h-336	03/04/16	39	40	Soil	Rotosonic			
6590	1	AOC1-T2i-337	03/05/16	0	1	Soil	Rotosonic			
6590	1	AOC1-T2i-338	03/05/16	2	3	Soil	Rotosonic			
6590	1	AOC1-T2i-339	03/05/16	5	6	Soil	Rotosonic			
6590	1	AOC1-T2i-340	03/05/16	9	10	Soil	Rotosonic			
6590	1	AOC1-T2i-341	03/05/16	14	15	Soil	Rotosonic			
6590	1	AOC1-T2i-342	03/05/16	19	20	Soil	Rotosonic			
6590	1	AOC1-T2j-343	03/05/16	0	1	Soil	Rotosonic			
6590	1	AOC1-T2j-344	03/05/16	2	3	Soil	Rotosonic			
6590	1	AOC1-T2j-346	03/05/16	5	6	Soil	Rotosonic			
6590	1	AOC1-T2j-347	03/05/16	9	10	Soil	Rotosonic			
6590	1	AOC1-T2j-348	03/05/16	14	15	Soil	Rotosonic			
6590	1	AOC1-T2j-349	03/05/16	19	20	Soil	Rotosonic			
6590	1	AOC1-T6D-312	02/09/16	0	0.5	Soil	Rotosonic			
6590	1	AOC1-T6D-313	02/09/16	2	3	Soil	Rotosonic			
6590	1	AOC1-T6D-314	02/09/16	5	6	Soil	Rotosonic			
6590	1	AOC1-T6D-315	02/09/16	9	10	Soil	Rotosonic			
6590	1	AOC1-T6D-317	02/09/16	14	15	Soil	Rotosonic			
6590	1	AOC1-T6D-319	02/09/16	19	20	Soil	Rotosonic			
6590	11	AOC11-5-6119	02/03/16	0	0.5	Soil	Rotosonic			
6590	11	AOC11-5-6120	02/03/16	2	3	Soil	Rotosonic			
6590	11	AOC11-5-6121	02/03/16	5	6	Soil	Rotosonic			
6590	11	AOC11-5-6122	02/03/16	9	10	Soil	Rotosonic			
6590	11	AOC11c-3-6139	02/03/16	14	15	Soil	Rotosonic			
6590	11	AOC11c-3-6140	02/03/16	19	20	Soil	Rotosonic			
6590	11	AOC11c-3-6141	02/03/16	29	30	Soil	Rotosonic			
6590	11	AOC11c-4-6146	01/28/16	0	1	Soil	Rotosonic			
6590	11	AOC11c-4-6147	01/28/16	2	3	Soil	Rotosonic			
6590	11	AOC11c-4-6148	01/28/16	5	6	Soil	Rotosonic			
6590	11	AOC11c-4-6149	01/28/16	9	10	Soil	Rotosonic			
6590	11	AOC11c-4-6151	02/02/16	14	15	Soil	Rotosonic			
6590	11	AOC11c-4-6152	02/02/16	19	20	Soil	Rotosonic			
6590	19	AOC19-6-22006	01/23/16	0	0.5	Soil	Vac Truck			
6590	19	AOC19-6-22007	01/23/16	2	3	Soil	Vac Truck			
6590	19	AOC19-7-22008	01/23/16	0	0.5	Soil	Vac Truck			
6590	19	AOC19-7-22010	01/23/16	2	3	Soil	Vac Truck			
6590	20	AOC20-1-23000	01/26/16	0	1	Soil	Vac Truck			
6590	20	AOC20-1-23001	01/26/16	2	3	Soil	Vac Truck			
6590	5	AOC5-3-13006	01/23/16	0	0.5	Soil	Vac Truck			
6590	5	AOC5-3-13007	01/23/16	2	3	Soil	Vac Truck			
6590	5	AOC5-4-13010	01/23/16	0	0.5	Soil	Vac Truck			
6590	5	AOC5-4-13011	01/23/16	2	3	Soil	Vac Truck			
6590	6	AOC6-8-14015	01/25/16	0	0.5	Soil	Vac Truck			
6590	6	AOC6-8-14016	01/25/16	2	3	Soil	Vac Truck			
6590	6	AOC6-8-14017	01/25/16	5	6	Soil	Vac Truck			
6590	6	AOC6-8-14018	01/25/16	7.5	8	Soil	Vac Truck			
6590	SWMU1	SWMU1-21-1135	01/26/16	14	15	Soil	Rotosonic			
6590	SWMU1	SWMU1-21-1136	01/26/16	19	20	Soil	Rotosonic			
6590	SWMU1	SWMU1-21-1137	01/27/16	29	30	Soil	Rotosonic			
6590	SWMU1	SWMU1-21-1138	01/27/16	39	40	Soil	Rotosonic			
6590	SWMU1	SWMU1-21-1139	01/27/16	49	50	Soil	Rotosonic			
6590	SWMU1	SWMU1-21-1140	01/27/16	59	60	Soil	Rotosonic			
6590	SWMU1	SWMU1-21-1141	01/27/16	69	70	Soil	Rotosonic			
6590	SWMU1	SWMU1-21-1142	01/27/16	79	80	Soil	Rotosonic			
6590	SWMU1	SWMU1-21-1153	01/26/16	0	1	Soil	Rotosonic			
6590	SWMU1	SWMU1-21-1154	01/26/16	2	3	Soil	Rotosonic			
6590	SWMU1	SWMU1-21-1155	01/26/16	5	6	Soil	Rotosonic			
6590	SWMU1	SWMU1-21-1156	01/26/16	9	10	Soil	Rotosonic			
6590	SWMU11	SWMU11-2-32002	01/26/16	0	0.5	Soil	Vac Truck			
6590	SWMU11	SWMU11-2-32003	01/26/16	2	3	Soil	Vac Truck			
6590	SWMU11	SWMU11-4-32006	01/25/16	0	0.5	Soil	Vac Truck			
6590	SWMU11	SWMU11-4-32007	01/25/16	2	3	Soil	Vac Truck			
6657	10	AOC10-20-5247	02/17/16	0	0.5	Soil	Hand Tools			Light green material
6657	10	AOC10-20-5248	02/25/16	2	3	Soil	Hand Tools			
5985	19	AOC19-10-22000	12/16/15	0	0.5	Soil	Vac Truck			
5985	19	AOC19-10-22001	12/16/15	2	3	Soil	Vac Truck			
5985	19	AOC19-8-22011	12/16/15	0	0.5	Soil	Vac Truck			
5985	19	AOC19-8-22012	12/16/15	2	3	Soil	Vac Truck			
5985	19	AOC19-8-22013	12/16/15	5	6	Soil	Vac Truck			
5985	19	AOC19-8-22014	12/16/15	9	10	Soil	Vac Truck			
6657	SD	CB-1-01	11/07/15	NA	NA	Soil	Hand Tools			Cleaned CB on 1/28/16
6657	SD	CB-11-01	11/07/15	NA	NA	Soil	Hand Tools			Cleaned CB on 1/28/16

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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Source Information										
Waste Bin Number	AOC	Sample Location	Sample Date	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Collection Method	Trench Sample	Opportunistic Sample	Notes
6657	SD	CB-13-01	11/07/15	NA	NA	Soil	Hand Tools			Cleaned CB on 1/28/16
6657	SD	CB-16-01	11/07/15	NA	NA	Soil	Hand Tools			Cleaned CB on 1/28/16
6657	SD	CB-17-01	11/07/15	NA	NA	Soil	Hand Tools			Cleaned CB on 1/28/16
6657	SD	CB-20-01	11/07/15	NA	NA	Soil	Hand Tools			Cleaned CB on 1/28/16
6657	SD	CB-21-01	11/07/15	NA	NA	Soil	Hand Tools			Cleaned CB on 1/28/16
6657	SD	CB-23-01	11/07/15	NA	NA	Soil	Hand Tools			Cleaned CB on 1/28/16
6657	SD	CB-26-01	11/07/15	NA	NA	Soil	Hand Tools			Cleaned CB on 1/28/16
6657	SD	CB-27-01	11/07/15	NA	NA	Soil	Hand Tools			Cleaned CB on 1/28/16
6657	SD	CB-28-01	11/07/15	NA	NA	Soil	Hand Tools			Cleaned CB on 1/28/16
6657	SD	CB-3-01	11/07/15	NA	NA	Soil	Hand Tools			Cleaned CB on 1/28/16
6657	SD	CB-30-01	11/07/15	NA	NA	Soil	Hand Tools			Cleaned CB on 1/28/16
6657	SD	CB-6-01	11/07/15	NA	NA	Soil	Hand Tools			Cleaned CB on 1/28/16
6657	SD	CB-6-02	11/09/15	NA	NA	Soil	Hand Tools			Cleaned CB on 1/28/16
6657	SD	CB-8-01	11/07/15	NA	NA	Soil	Hand Tools			Cleaned CB on 1/28/16
6657	SD	CB-9-01	11/07/15	NA	NA	Soil	Hand Tools			Cleaned CB on 1/28/16
6657	SWMU1	SWMU1-25-1148	01/26/16	0	1	Soil	Rotosonic			
6657	SWMU1	SWMU1-25-1149	01/26/16	2	3	Soil	Rotosonic			
6657	SWMU1	SWMU1-25-1150	01/26/16	5	6	Soil	Rotosonic			
6657	SWMU1	SWMU1-25-1151	01/26/16	9	10	Soil	Rotosonic			
6238	TCS4	Soil-IDW-01-6238	03/21/16	NA	NA	Soil	Hand Tools			Soil from TCS4 gabions
6253	1	AOC1-5-365	01/09/17	0.0	0.5	Soil	Rotosonic			
6253	1	AOC1-5-366	01/09/17	2.0	3.0	Soil	Rotosonic			
6253	1	AOC1-5-367	01/09/17	5.0	6.0	Soil	Rotosonic			
6253	1	AOC1-5-368	01/09/17	9.0	10.0	Soil	Rotosonic			
6253	1	AOC1-5-369	01/09/17	14.0	15.0	Soil	Rotosonic			
6253	1	AOC1-6-370	01/09/17	0.0	0.5	Soil	Rotosonic			
6253	1	AOC1-6-371	01/09/17	2.0	3.0	Soil	Rotosonic			
6253	1	AOC1-6-372	01/09/17	5.0	6.0	Soil	Rotosonic			
6253	1	AOC1-6-373	01/09/17	9.0	10.0	Soil	Rotosonic			
6253	1	AOC1-6-374	01/09/17	14.0	15.0	Soil	Rotosonic			
6253	1	AOC1-7-375	01/09/17	0.0	0.5	Soil	Rotosonic			
6253	1	AOC1-7-376	01/09/17	2.0	3.0	Soil	Rotosonic			
6253	1	AOC1-7-378	01/09/17	5.0	6.0	Soil	Rotosonic			
6253	1	AOC1-7-379	01/09/17	9.0	10.0	Soil	Rotosonic			
6253	1	AOC1-7-380	01/09/17	14.0	15.0	Soil	Rotosonic			
6253	10	AOC10-25-5266	01/08/17	0.0	0.5	Soil	Rotosonic			
6253	10	AOC10-25-5268	01/08/17	2.0	3.0	Soil	Rotosonic			
6253	10	AOC10-25-5269	01/08/17	5.0	6.0	Soil	Rotosonic			
6253	10	AOC10-25-5270	01/08/17	9.0	10.0	Soil	Rotosonic			
6253	10	AOC10a-4-5278	01/08/17	0.0	0.5	Soil	Rotosonic			
6253	10	AOC10a-4-5279	01/08/17	2.0	3.0	Soil	Rotosonic			
6253	10	AOC10a-4-5280	01/08/17	5.0	6.0	Soil	Rotosonic			
6253	10	AOC10a-4-5281	01/08/17	9.0	10.0	Soil	Rotosonic			
6253	13	AOC13-34-17080	01/21/17	0.0	0.5	Soil	Vac Truck			
6253	13	AOC13-34-17081	01/21/17	2.0	3.0	Soil	Vac Truck			
6253	13	AOC13-34-17082	01/21/17	5.0	6.0	Soil	Vac Truck			
6253	15	AOC15-1-18018	01/19/17	5.0	6.0	Soil	Vac Truck			
6253	15	AOC15-1-18019	01/20/17	9.0	10.0	Soil	Vac Truck			
6253	15	AOC15-1-18020	01/20/17	14.0	14.5	Soil	Vac Truck			Flowing sand at 14.5 ft
6253	19	AOC19-10-22021	01/22/17	5.0	5.5	Soil	Vac Truck			
6253	19	AOC19-10-22022	01/22/17	6.5	7.0	Soil	Vac Truck			
6253	19	AOC19-11-22023	01/23/17	5.0	6.0	Soil	Vac Truck			
6253	19	AOC19-11-22024	01/23/17	9.0	10.0	Soil	Vac Truck			
6253	19	AOC19-12-22025	01/21/17	0.0	0.5	Soil	Vac Truck			
6253	19	AOC19-12-22026	01/21/17	2.0	3.0	Soil	Vac Truck			
6253	19	AOC19-12-22028	01/21/17	4.0	5.0	Soil	Vac Truck			
6253	19	AOC19-13-22029	01/22/17	0.0	0.5	Soil	Vac Truck			
6253	19	AOC19-13-22030	01/22/17	2.0	3.0	Soil	Vac Truck			
6253	19	AOC19-13-22031	01/22/17	5.0	6.0	Soil	Vac Truck			
6253	19	AOC19-14-22032	01/21/17	0.0	0.5	Soil	Vac Truck			
6253	19	AOC19-14-22034	01/21/17	2.0	3.0	Soil	Vac Truck			
6253	19	AOC19-14-22035	01/21/17	5.0	6.0	Soil	Vac Truck			
6253	19	AOC19-15-22036	01/21/17	0.0	0.5	Soil	Vac Truck			
6253	19	AOC19-15-22037	01/21/17	2.0	3.0	Soil	Vac Truck			
6253	19	AOC19-15-22038	01/21/17	5.0	6.0	Soil	Vac Truck			
6253	21	AOC21-1-24003	01/11/17	9.0	10.0	Soil	Vac Truck			

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Source Information										
Waste Bin Number	AOC	Sample Location	Sample Date	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Collection Method	Trench Sample	Opportunistic Sample	Notes
6253	21	AOC21-1-24004	01/11/17	14.0	15.0	Soil	Vac Truck			
6253	22	AOC22-2-25005	01/17/17	5.0	6.0	Soil	Vac Truck			
6253	22	AOC22-2-25007	01/17/17	9.0	10.0	Soil	Vac Truck			
6253	22	AOC22-3-25008	01/17/17	0.0	0.5	Soil	Vac Truck			
6253	22	AOC22-3-25009	01/17/17	2.0	3.0	Soil	Vac Truck			
6253	22	AOC22-3-25010	01/17/17	5.0	6.0	Soil	Vac Truck			
6253	22	AOC22-3-25011	01/17/17	9.0	10.0	Soil	Vac Truck			
6253	23	AOC23-4-26006	01/17/17	0.0	0.5	Soil	Vac Truck			
6253	23	AOC23-4-26007	01/17/17	2.0	3.0	Soil	Vac Truck			
6253	4	AOC4-26-3172	02/01/17	5.0	6.0	Soil	Vac Truck			
6253	4	AOC4-27-3174	02/01/17	5.0	5.5	Soil	Vac Truck			
6253	4	AOC4-38-3196	02/02/17	0.0	0.5	Soil	Vac Truck			
6253	4	AOC4-38-3197	02/02/17	2.0	2.2	Soil	Vac Truck			
6253	4	AOC4-41-3210	02/02/17	0.0	0.5	Soil	Vac Truck			
6253	4	AOC4-42-3177	02/04/17	0.0	0.5	Soil	Vac Truck			
6253	4	AOC4-42-3178	02/04/17	2.0	3.0	Soil	Vac Truck			
6253	4	AOC4-42-3179	02/04/17	5.0	6.0	Soil	Vac Truck			
6253	4	AOC4-42-3181	02/04/17	7.0	7.5	Soil	Vac Truck			
6253	5	AOC5-2-13019	01/18/17	5.0	6.0	Soil	Vac Truck			
6253	5	AOC5-2-Scale	01/18/17	0.5	0.5	Debris	Vac Truck			White scale layer, 0.25 inches thick.
6253	5	AOC5-4-13021	01/19/17	5.0	5.5	Soil	Vac Truck			
6253	5	AOC5-4-13022	01/19/17	6.5	7.0	Soil	Vac Truck			
6253	6	AOC6-5-14019	01/24/17	5.0	6.0	Soil	Vac Truck			
6253	6	AOC6-5-14020	01/24/17	9.0	10.0	Soil	Vac Truck			
6253	6	AOC6-7-14021	01/24/17	5.0	6.0	Soil	Vac Truck			
6253	6	AOC6-7-14022	01/24/17	9.0	10.0	Soil	Vac Truck			
6253	9	AOC9-21-4123	01/08/17	0.0	0.5	Soil	Rotosonic			
6253	9	AOC9-21-4125	01/08/17	2.0	3.0	Soil	Rotosonic			
6253	9	AOC9-21-4126	01/08/17	5.0	6.0	Soil	Rotosonic			
6253	PA	PA-10-02	01/26/17	2.0	3.0	Soil	Vac Truck			
6253	PA	PA-10-03	01/26/17	5.0	6.0	Soil	Vac Truck			
6253	PA	PA-11-02	01/25/17	2.0	3.0	Soil	Vac Truck			
6253	PA	PA-11-04	01/25/17	5.0	6.0	Soil	Vac Truck			
6253	PA	PA-12-02	01/25/17	2.0	3.0	Soil	Vac Truck			
6253	PA	PA-12-03	01/25/17	5.0	6.0	Soil	Vac Truck			
6253	PA	PA-18-02	01/26/17	2.0	3.0	Soil	Vac Truck			
6253	PA	PA-18-04	01/26/17	5.0	6.0	Soil	Vac Truck			
6253	PA	PA-19-02	01/31/17	2.0	3.0	Soil	Vac Truck			
6253	PA	PA-19-03	01/31/17	5.0	6.0	Soil	Vac Truck			
6253	PA	PA-20-02	01/31/17	2.0	3.0	Soil	Vac Truck			
6253	PA	PA-20-03	01/31/17	5.0	6.0	Soil	Vac Truck			
6253	PA	PA-21-02	01/31/17	2.0	3.0	Soil	Vac Truck			
6253	PA	PA-21-03	01/31/17	5.0	6.0	Soil	Vac Truck			
6253	SD	SD-28-01	02/05/17	0.0	0.5	Soil	Vac Truck			
6253	SD	SD-28-02	02/05/17	2.0	3.0	Soil	Vac Truck			
6253	SD	SD-28-03	02/05/17	5.0	6.0	Soil	Vac Truck			
6253	SD	SD-28-04	02/05/17	9.0	10.0	Soil	Vac Truck			Collected below PVC pipe
6253	SD	SD-29-01	02/04/17	0.0	0.5	Soil	Vac Truck			
6253	SD	SD-29-02	02/04/17	2.0	3.0	Soil	Vac Truck			
6253	SD	SD-29-03	02/05/17	4.5	5.0	Soil	Vac Truck			Collected below clay pipe
6253	SD	SD-29-04	02/05/17	7.5	8.0	Soil	Vac Truck			
6253	SWMU1	SWMU1-26-1157	01/08/17	0.0	0.5	Soil	Rotosonic			
6253	SWMU1	SWMU1-26-1159	01/08/17	2.0	3.0	Soil	Rotosonic			
6253	SWMU1	SWMU1-26-1160	01/08/17	5.0	6.0	Soil	Rotosonic			
6253	SWMU1	SWMU1-26-1161	01/08/17	9.0	10.0	Soil	Rotosonic			
6253	SWMU1	SWMU1-26-1162	01/08/17	14.0	15.0	Soil	Rotosonic			
6253	SWMU1	SWMU1-26-1163	01/08/17	19.0	20.0	Soil	Rotosonic			
6253	SWMU1	SWMU1-26-1164	01/08/17	29.0	30.0	Soil	Rotosonic			
6253	SWMU1	SWMU1-27-1165	01/07/17	0.0	0.5	Soil	Rotosonic			
6253	SWMU1	SWMU1-27-1166	01/07/17	2.0	3.0	Soil	Rotosonic			
6253	SWMU1	SWMU1-27-1167	01/07/17	5.0	6.0	Soil	Rotosonic			
6253	SWMU1	SWMU1-27-1168	01/07/17	9.0	10.0	Soil	Rotosonic			
6253	SWMU1	SWMU1-27-1169	01/07/17	14.0	15.0	Soil	Rotosonic			
6253	SWMU1	SWMU1-27-1170	01/07/17	19.0	20.0	Soil	Rotosonic			
6253	SWMU1	SWMU1-27-1171	01/07/17	29.0	30.0	Soil	Rotosonic			
6253	SWMU11	SWMU11-3-32010	01/18/17	5.0	6.0	Soil	Vac Truck			
6253	SWMU11	SWMU11-3-32011	01/18/17	6.5	7.0	Soil	Vac Truck			
6253	SWMU5	SWMU5-2-29005	01/12/17	5.0	6.0	Soil	Vac Truck			
6253	SWMU5	SWMU5-2-29007	01/12/17	9.0	10.0	Soil	Vac Truck			
6253	SWMU6	SWMU6-1-30003	01/12/17	9.0	10.0	Soil	Vac Truck			
Drums	SD	SD-42-OS1-1006	07/17/17	3.0	4.0	Debris	Vac Truck		X	From inside of pipe
Returned to Hole	1	AOC1-8-381	01/05/17	0.0	0.5	Soil	Hand Tools			
Returned to Hole	1	AOC1-8-382	01/05/17	2.0	3.0	Soil	Hand Tools			
Returned to Hole	1	AOC1-BCW31-272	02/20/17	0.0	0.5	Sediment	Hand Tools		X	
Returned to Hole	1	AOC1-BCW31-273	02/20/17	2.0	3.0	Sediment	Hand Tools		X	

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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Waste Bin Number	AOC	Source Information: Sample Location	Sample Date	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Collection Method	Trench Sample	Opportunistic Sample	Notes
Returned to Hole	1	AOC1-BCW32-274	02/20/17	0.0	0.5	Sediment	Hand Tools		X	
Returned to Hole	1	AOC1-BCW32-275	02/20/17	2.0	3.0	Sediment	Hand Tools		X	
Returned to Hole	1	AOC1-T1g-351	02/17/17	0.0	0.5	Soil	Backhoe	X		
Returned to Hole	1	AOC1-T1g-353	02/17/17	2.0	3.0	Soil	Backhoe	X		
Returned to Hole	1	AOC1-T1g-354	02/17/17	5.0	6.0	Soil	Backhoe	X		
Returned to Hole	1	AOC1-T1g-355	02/17/17	9.0	10.0	Soil	Backhoe	X		
Returned to Hole	1	AOC1-T2f-301	12/17/15	0	1	Soil	Hand Tools			
Returned to Hole	1	AOC1-T2f-302	12/17/15	2	3	Soil	Hand Tools			
Returned to Hole	1	AOC1-T7-356	02/19/17	0.0	0.5	Soil	Backhoe	X		
Returned to Hole	1	AOC1-T7-357	02/19/17	2.0	3.0	Soil	Backhoe	X		
Returned to Hole	1	AOC1-T7-358	02/19/17	5.0	6.0	Soil	Backhoe	X		
Returned to Hole	1	AOC1-T7-359	02/19/17	9.0	10.0	Soil	Backhoe	X		
Returned to Hole	1	AOC1-T8-360	02/18/17	0.0	0.5	Soil	Backhoe	X		
Returned to Hole	1	AOC1-T8-361	02/18/17	2.0	3.0	Soil	Backhoe	X		
Returned to Hole	1	AOC1-T8-362	02/18/17	5.0	6.0	Soil	Backhoe	X		
Returned to Hole	1	AOC1-T8-363	02/18/17	9.0	10.0	Soil	Backhoe	X		
Returned to Hole	10	AOC10-13-5214	12/03/15	0	1	Soil	Hand Tools			
Returned to Hole	10	AOC10-14-5216	12/03/15	0	1	Soil	Hand Tools			
Returned to Hole	10	AOC10-15-5217	12/15/15	0	1	Soil	Backhoe			
Returned to Hole	10	AOC10-15-5219	12/15/15	2	3	Soil	Backhoe			
Returned to Hole	10	AOC10-15-5220	12/15/15	5	6	Soil	Backhoe			
Returned to Hole	10	AOC10-15-5221	12/15/15	9	10	Soil	Backhoe			
Returned to Hole	10	AOC10-16-5222	12/15/15	0	1	Soil	Backhoe			
Returned to Hole	10	AOC10-16-5223	12/15/15	2	3	Soil	Backhoe			
Returned to Hole	10	AOC10-16-5224	12/15/15	5	6	Soil	Backhoe			
Returned to Hole	10	AOC10-16-5225	12/15/15	9	10	Soil	Backhoe			
Returned to Hole	10	AOC10-17-5226	12/03/15	0	1	Soil	Hand Tools			
Returned to Hole	10	AOC10-18-5227	12/06/15	0	1	Soil	Hand Tools			
Returned to Hole	10	AOC10-18-5228	12/06/15	2	3	Soil	Hand Tools			
Returned to Hole	10	AOC10-19-5262	02/24/16	0	1	Soil	Hand Tools			
Returned to Hole	10	AOC10-19-5263	02/24/16	2	3	Soil	Hand Tools			
Returned to Hole	10	AOC10-21-5251	02/25/16	0	0.5	Soil	Hand Tools			Oily debris
Returned to Hole	10	AOC10-21-5252	02/25/16	2	3	Soil	Hand Tools			Appears clean
Returned to Hole	10	AOC10-22-5254	02/17/16	0	0.5	Soil	Hand Tools			Black, oily soil
Returned to Hole	10	AOC10-22-5255	02/17/16	1	2	Soil	Hand Tools			White dusty soil
Returned to Hole	10	AOC10-22-5256	02/17/16	2	3	Soil	Hand Tools			Appears clean
Returned to Hole	10	AOC10-22-5257	02/17/16	5	6	Soil	Hand Tools			Appears clean
Returned to Hole	10	AOC10-23-5258	02/25/16	0	1	Soil	Hand Tools			White scale
Returned to Hole	10	AOC10-23-5259	02/25/16	2	3	Soil	Hand Tools			No debris observed
Returned to Hole	10	AOC10-23-5260	02/25/16	1	2	Soil	Hand Tools			Black soil
Returned to Hole	10	AOC10-24-5261	03/07/16	0	1	Soil	Hand Tools			
Returned to Hole	10	AOC10-24-5262	03/07/16	2	3	Soil	Hand Tools			
Returned to Hole	10	AOC10-26-5271	02/21/17	0.0	0.5	Soil	Hand Tools			
Returned to Hole	10	AOC10-26-5272	02/21/17	2.0	3.0	Soil	Hand Tools			
Returned to Hole	10	AOC10-26-5274	02/21/17	4.5	5.0	Soil	Hand Tools			
Returned to Hole	10	AOC10-26-Debris	02/21/17	2.5	2.7	Debris	Hand Tools			White debris
Returned to Hole	10	AOC10-27-5275	01/04/17	0.0	0.5	Soil	Hand Tools			
Returned to Hole	10	AOC10-27-5276	01/04/17	2.0	3.0	Soil	Hand Tools			
Returned to Hole	10	AOC10-27-5277	01/04/17	4.5	5.0	Soil	Hand Tools			
Returned to Hole	10	AOC10-9-5229	12/07/15	0	1	Soil	Hand Tools			
Returned to Hole	10	AOC10-9-5230	12/07/15	2	3	Soil	Hand Tools			
Returned to Hole	10	AOC10d-9-5243	12/15/15	0	1	Soil	Backhoe			
Returned to Hole	10	AOC10d-9-5244	12/15/15	2	3	Soil	Backhoe			
Returned to Hole	10	AOC10d-9-5245	12/15/15	5	6	Soil	Backhoe			
Returned to Hole	10	AOC10d-9-5246	12/15/15	9	10	Soil	Backhoe			
Returned to Hole	11	AOC11-8-6131	12/06/15	0	1	Soil	Hand Tools			
Returned to Hole	11	AOC11-8-6132	12/06/15	2	2.5	Soil	Hand Tools			
Returned to Hole	11	AOC11-9-6135	12/06/15	0	1	Soil	Hand Tools			
Returned to Hole	11	AOC11-9-6136	12/06/15	2	3	Soil	Hand Tools			
Returned to Hole	11	AOC11E-6-6172	12/03/15	0	1	Soil	Hand Tools			
Returned to Hole	13	AOC13-33-17079	02/15/17	2.0	3.0	Soil	Hand Tools			
Returned to Hole	13	AOC13-OS15-1001	04/25/17	3.0	3.1	Soil	Hand Tools	X	X	West side of trench
Returned to Hole	13	AOC13-OS16-1002	04/25/17	2.8	2.9	Soil	Hand Tools	X	X	East side of trench
Returned to Hole	13	AOC13-OS17-1003	04/26/17	3.8	3.9	Soil	Hand Tools	X	X	North side of trench
Returned to Hole	13	AOC13-OS18-1004	04/25/17	3.8	3.9	Soil	Hand Tools	X	X	South side of trench
Returned to Hole	13	AOC13-OS19-1005	04/26/17	4.4	4.5	Soil	Hand Tools	X	X	Bottom, center of trench
Returned to Hole	14	AOC14-14E-8127	02/18/16	0	1	Soil	Backhoe			
Returned to Hole	14	AOC14-14E-8128	02/18/16	2	3	Soil	Backhoe			
Returned to Hole	14	AOC14-14E-8130	02/18/16	5	5.5	Soil	Backhoe			
Returned to Hole	14	AOC14-14E-8131	02/18/16	6	7	Soil	Backhoe			
Returned to Hole	14	AOC14-14E-8132	02/18/16	9	10	Soil	Backhoe			
Returned to Hole	14	AOC14-14W-8100	02/16/16	0	1	Soil	Backhoe			
Returned to Hole	14	AOC14-14W-8101	02/16/16	2	3	Soil	Backhoe			
Returned to Hole	14	AOC14-14W-8102	02/16/16	5	5.5	Soil	Backhoe			
Returned to Hole	14	AOC14-14W-8103	02/16/16	6	7	Soil	Backhoe			

TABLE B1
Waste Source Summary Table
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Waste Bin Number	AOC	Source Information: Sample Location	Sample Date	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Collection Method	Trench Sample	Opportunistic Sample	Notes
Returned to Hole	14	AOC14-14W-8104	02/16/16	9	10	Soil	Backhoe			
Returned to Hole	14	AOC14-15-8105	02/18/16	0	1	Soil	Backhoe			
Returned to Hole	14	AOC14-15-8106	02/18/16	2	3	Soil	Backhoe			
Returned to Hole	14	AOC14-15-8108	02/18/16	5	6	Soil	Backhoe			
Returned to Hole	14	AOC14-15-8109	02/18/16	7	8	Soil	Backhoe			
Returned to Hole	14	AOC14-16E-8133	02/23/16	0	1	Soil	Backhoe			
Returned to Hole	14	AOC14-16E-8134	02/23/16	2	3	Soil	Backhoe			
Returned to Hole	14	AOC14-16E-8135	02/23/16	5	6	Soil	Backhoe			
Returned to Hole	14	AOC14-16E-8136	02/23/16	9	10	Soil	Backhoe			
Returned to Hole	14	AOC14-16W-8111	02/22/16	0	1	Soil	Backhoe			
Returned to Hole	14	AOC14-16W-8112	02/22/16	2	3	Soil	Backhoe			
Returned to Hole	14	AOC14-16W-8113	02/22/16	5	6	Soil	Backhoe			
Returned to Hole	14	AOC14-16W-8114	02/22/16	7	8	Soil	Backhoe			
Returned to Hole	14	AOC14-16W-8115	02/22/16	9	10	Soil	Backhoe			
Returned to Hole	14	AOC14-17E-8137	02/24/16	9	10	Soil	Backhoe			
Returned to Hole	14	AOC14-17W-8117	02/24/16	0	1	Soil	Backhoe			
Returned to Hole	14	AOC14-17W-8118	02/24/16	2	3	Soil	Backhoe			
Returned to Hole	14	AOC14-17W-8119	02/24/16	5	6	Soil	Backhoe			
Returned to Hole	14	AOC14-17W-8120	02/24/16	9	10	Soil	Backhoe			
Returned to Hole	14	AOC14-17W-8121	02/24/16	1	2	Soil	Backhoe			
Returned to Hole	14	AOC14-18-8122	02/17/16	0	1	Soil	Hand Tools			
Returned to Hole	14	AOC14-18-8123	02/17/16	2	3	Soil	Hand Tools			
Returned to Hole	14	AOC14-18-8124	02/17/16	5	6	Soil	Hand Tools			
Returned to Hole	14	AOC14-19-8125	02/17/16	2	3	Soil	Hand Tools			
Returned to Hole	14	AOC14-19-8126	02/17/16	3	4	Soil	Hand Tools			
Returned to Hole	14	AOC14-20-8138	04/26/17	0.0	0.5	Soil	Backhoe	X		
Returned to Hole	14	AOC14-20-8139	04/26/17	2.0	3.0	Soil	Backhoe	X		
Returned to Hole	14	AOC14-20-8140	04/26/17	5.0	6.0	Soil	Backhoe	X		
Returned to Hole	14	AOC14-20-8141	04/26/17	8.0	9.0	Soil	Backhoe	X		
Returned to Hole	14	AOC14-21-8142	04/26/17	0.0	0.5	Soil	Backhoe	X		
Returned to Hole	14	AOC14-21-8143	04/26/17	2.0	3.0	Soil	Backhoe	X		
Returned to Hole	14	AOC14-21-8145	04/26/17	5.0	6.0	Soil	Backhoe	X		
Returned to Hole	14	AOC14-21-8146	04/26/17	9.0	10.0	Soil	Backhoe	X		
Returned to Hole	16	AOC16-5-19008	02/20/17	0.0	0.5	Soil	Hand Tools			
Returned to Hole	16	AOC16-5-19010	02/20/17	2.0	3.0	Soil	Hand Tools			
Returned to Hole	19	AOC19-11-22018	03/10/16	0	1	Soil	Vac Truck			
Returned to Hole	19	AOC19-11-22019	03/10/16	2	3	Soil	Vac Truck			
Returned to Hole	20	AOC20-08-OS1-1001	12/18/16	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	20	AOC20-08-OS1-1002	12/18/16	4.0	5.0	Soil	Vac Truck		X	Collected below red clay "Y" junction
Returned to Hole	20	AOC20-09-OS1-1001	12/20/16	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	20	AOC20-09-OS1-1002	12/20/16	4.0	5.0	Soil	Vac Truck		X	Collected below mainline and FD-39 lateral
Returned to Hole	20	AOC20-11-OS1-1001	12/21/16	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	20	AOC20-11-OS1-1003	12/21/16	6.0	7.0	Soil	Vac Truck		X	Collected below "T" flange fitting
Returned to Hole	20	AOC20-12-OS1-1001	12/21/16	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	20	AOC20-12-OS1-1002	12/21/16	2.0	3.0	Soil	Vac Truck		X	Collected below mainline and FD-41 lateral
Returned to Hole	20	AOC20-12-OS1-1003	12/21/16	5.0	6.0	Soil	Vac Truck		X	
Returned to Hole	20	AOC20-13-OS1-1001	12/21/16	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	20	AOC20-13-OS1-1002	12/21/16	2.0	3.0	Soil	Vac Truck		X	Collected below mainline and FD-42 lateral
Returned to Hole	20	AOC20-13-OS1-1004	12/21/16	5.0	6.0	Soil	Vac Truck		X	
Returned to Hole	20	AOC20-14-OS1-1001	12/19/16	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	20	AOC20-14-OS1-1002	12/19/16	2.0	3.0	Soil	Vac Truck		X	
Returned to Hole	20	AOC20-14-OS1-1003	12/20/16	6.0	7.0	Soil	Vac Truck		X	Collected below red clay pipe/lateral junction
Returned to Hole	20	AOC20-16-OS1-1001	12/19/16	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	20	AOC20-16-OS1-1002	12/19/16	2.0	3.0	Soil	Vac Truck		X	
Returned to Hole	20	AOC20-16-OS1-1003	12/19/16	5.0	6.0	Soil	Vac Truck		X	
Returned to Hole	20	AOC20-16-OS1-1004	12/19/16	9.0	9.5	Soil	Vac Truck		X	Collected below red clay pipe/lateral junction

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Waste Bin Number	AOC	Source Information: Sample Location	Sample Date	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Collection Method	Trench Sample	Opportunistic Sample	Notes
Returned to Hole	20	AOC20-18-OS1-1001	12/17/16	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	20	AOC20-18-OS1-1002	12/17/16	3.0	3.5	Soil	Vac Truck		X	Collected below PVC/Steel/PVC flange spool
Returned to Hole	20	AOC20-21-OS1-1001	12/20/16	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	20	AOC20-21-OS1-1002	12/20/16	2.0	3.0	Soil	Vac Truck		X	
Returned to Hole	20	AOC20-21-OS1-1003	12/20/16	5.0	6.0	Soil	Vac Truck		X	
Returned to Hole	20	AOC20-21-OS1-1004	12/20/16	8.5	9.0	Soil	Vac Truck		X	Collected below mainline and west line junction
Returned to Hole	27	AOC27-1-28545	03/18/16	0	1	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-1-28546	03/18/16	2	3	Soil	Backhoe	X		Some wood
Returned to Hole	27	AOC27-1-28547	03/18/16	5	6	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-1-28548	03/18/16	9	10	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-18-28528	03/17/16	0	1	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-18-28529	03/17/16	2	3	Soil	Backhoe	X		Brown debris
Returned to Hole	27	AOC27-18-28530	03/17/16	5	6	Soil	Backhoe	X		Red debris
Returned to Hole	27	AOC27-18-28531	03/17/16	4	5	Soil	Backhoe	X		Red debris (East)
Returned to Hole	27	AOC27-18-28532	03/17/16	9	10	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-2-28541	03/18/16	0	1	Soil	Backhoe	X		Debris
Returned to Hole	27	AOC27-2-28542	03/18/16	2	3	Soil	Backhoe	X		Debris
Returned to Hole	27	AOC27-2-28543	03/18/16	5	6	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-2-28544	03/18/16	9	10	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-20-28508	03/01/16	0	1	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-20-28509	03/01/16	2	3	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-20-28511	03/01/16	5	6	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-20-28512	03/01/16	9	10	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-24-28549	03/18/16	0	1	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-24-28550	03/18/16	2	3	Soil	Backhoe	X		Concrete debris
Returned to Hole	27	AOC27-24-28551	03/18/16	5	6	Soil	Backhoe	X		Concrete debris
Returned to Hole	27	AOC27-24-28552	03/18/16	9	10	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-24SW-28553	03/18/16	0	1	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-24SW-28554	03/18/16	2	3	Soil	Backhoe	X		Concrete debris
Returned to Hole	27	AOC27-24SW-28555	03/18/16	5	6	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-24SW-28556	03/18/16	9	10	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-27-28517	03/02/16	0	1	Soil	Hand Tools			No debris
Returned to Hole	27	AOC27-27-28518	03/02/16	2	3	Soil	Hand Tools			
Returned to Hole	27	AOC27-36-28524	03/17/16	0	1	Soil	Vac Truck	X		No debris
Returned to Hole	27	AOC27-36-28525	03/17/16	2	3	Soil	Vac Truck	X		No debris
Returned to Hole	27	AOC27-36-28526	03/17/16	5	6	Soil	Vac Truck	X		No debris
Returned to Hole	27	AOC27-36-28527	03/17/16	9.6	10	Soil	Vac Truck	X		No debris
Returned to Hole	27	AOC27-4-28537	03/17/16	0	1	Soil	Backhoe	X		Wood debris
Returned to Hole	27	AOC27-4-28539	03/17/16	2	3	Soil	Backhoe	X		Wood debris
Returned to Hole	27	AOC27-4-28540	03/17/16	5	6	Soil	Backhoe	X		Some wood
Returned to Hole	27	AOC27-5-28533	03/17/16	0	1	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-5-28534	03/17/16	2	3	Soil	Backhoe	X		Wood debris
Returned to Hole	27	AOC27-5-28535	03/17/16	5	6	Soil	Backhoe	X		Wood debris
Returned to Hole	27	AOC27-5-28536	03/17/16	9	10	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-50-28513	03/02/16	0	1	Soil	Backhoe	X		Debris
Returned to Hole	27	AOC27-50-28514	03/02/16	2	3	Soil	Backhoe	X		Debris
Returned to Hole	27	AOC27-50-28515	03/02/16	5	6	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-50-28516	03/02/16	9	10	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-51-28557	02/17/17	0.0	0.5	Soil	Backhoe	X		East side of trench (on slope)
Returned to Hole	27	AOC27-51-28558	02/17/17	2.0	3.0	Soil	Backhoe	X		
Returned to Hole	27	AOC27-51-28559	02/17/17	5.0	6.0	Soil	Backhoe	X		
Returned to Hole	27	AOC27-51-28562	02/17/17	0.0	0.5	Soil	Backhoe	X		West side of trench
Returned to Hole	27	AOC27-51-28564	02/17/17	2.0	3.0	Soil	Backhoe	X		West side of trench
Returned to Hole	27	AOC27-51-28565	02/17/17	5.0	6.0	Soil	Backhoe	X		West side of trench
Returned to Hole	27	AOC27-6-28500	02/29/16	0	1	Soil	Backhoe	X		Debris
Returned to Hole	27	AOC27-6-28501	02/29/16	2	3	Soil	Backhoe	X		Debris
Returned to Hole	27	AOC27-6-28502	02/29/16	5	6	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-7-28503	02/29/16	0	1	Soil	Backhoe	X		Debris
Returned to Hole	27	AOC27-7-28504	02/29/16	2	3	Soil	Backhoe	X		Debris
Returned to Hole	27	AOC27-7-28505	03/01/16	5	6	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-8-28506	03/01/16	1	2	Soil	Backhoe	X		Debris
Returned to Hole	27	AOC27-8-28507	03/01/16	5	6	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-9-28519	03/08/16	0	1	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-9-28521	03/08/16	2	3	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-9-28522	03/08/16	5	6	Soil	Backhoe	X		No debris
Returned to Hole	27	AOC27-9-28523	03/08/16	9	10	Soil	Backhoe	X		No debris
Returned to Hole	4	AOC4-19-3106	11/20/15	0	1	Soil	Hand Tools			
Returned to Hole	4	AOC4-19-3107	11/20/15	2	3	Soil	Hand Tools			
Returned to Hole	4	AOC4-20-3108	11/20/15	0	1	Soil	Hand Tools			
Returned to Hole	4	AOC4-21-3110	11/20/15	0	1	Soil	Hand Tools			
Returned to Hole	4	AOC4-22-3112	11/20/15	0	1	Soil	Hand Tools			

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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

		Source Information								
Waste Bin Number	AOC	Sample Location	Sample Date	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Collection Method	Trench Sample	Opportunistic Sample	Notes
Returned to Hole	4	AOC4-23-3114	12/06/15	0	1	Soil	Hand Tools			
Returned to Hole	4	AOC4-23-3115	12/06/15	2	3	Soil	Hand Tools			
Returned to Hole	4	AOC4-24-3116	12/06/15	0	1	Soil	Hand Tools			
Returned to Hole	4	AOC4-24-3117	12/06/15	2	3	Soil	Hand Tools			
Returned to Hole	4	AOC4-25-3118	11/20/15	0	1	Soil	Hand Tools			
Returned to Hole	4	AOC4-26-3120	11/20/15	0	1	Soil	Hand Tools			
Returned to Hole	4	AOC4-26-3121	11/20/15	2	3	Soil	Hand Tools			
Returned to Hole	4	AOC4-27-3122	11/20/15	0	1	Soil	Hand Tools			
Returned to Hole	4	AOC4-27-3123	11/20/15	2	3	Soil	Hand Tools			
Returned to Hole	4	AOC4-28-3124	11/20/15	0	1	Soil	Hand Tools			
Returned to Hole	4	AOC4-33-3182	02/14/17	0.0	0.5	Soil	Hand Tools			
Returned to Hole	4	AOC4-33-3183	02/14/17	2.0	3.0	Soil	Hand Tools			
Returned to Hole	4	AOC4-34-3184	02/14/17	0.0	0.5	Soil	Hand Tools			
Returned to Hole	4	AOC4-36-3188	01/05/17	0.0	0.5	Soil	Hand Tools			
Returned to Hole	4	AOC4-36-3189	01/05/17	0.9	1.0	Soil	Hand Tools			
Returned to Hole	4	AOC4-37-3192	02/04/17	0.0	0.5	Soil	Hand Tools			
Returned to Hole	4	AOC4-39-3200	01/05/17	0.0	0.5	Soil	Hand Tools			
Returned to Hole	4	AOC4-39-3202	01/05/17	1.5	1.7	Soil	Hand Tools			
Returned to Hole	4	AOC4-40-3205	02/06/17	0.0	0.5	Soil	Hand Tools			
Returned to Hole	4	AOC4-40-3207	02/06/17	0.5	1.0	Soil	Hand Tools			
Returned to Hole	4	AOC4-M06-10822	02/07/17	2.0	3.0	Soil	Hand Tools			
Returned to Hole	4	AOC4DAM-OS1-3214	02/22/17	0.0	0.2	Soil	Hand Tools		X	
Returned to Hole	4	AOC4DAM-OS1-3215	02/22/17	1.0	1.5	Soil	Hand Tools		X	
Returned to Hole	4	AOC4DAM-OS2-3217	02/22/17	0.0	0.2	Soil	Hand Tools		X	
Returned to Hole	4	AOC4DAM-OS2-3218	02/22/17	1.0	1.5	Soil	Hand Tools		X	
Returned to Hole	9	AOC9-15-4100	12/06/15	0	1	Soil	Hand Tools			
Returned to Hole	9	AOC9-15-4101	12/06/15	2	3	Soil	Hand Tools			
Returned to Hole	9	AOC9-17-4109	01/10/16	9	10	Soil	Hand Tools			
Returned to Hole	9	AOC9-19-4114	01/13/16	0	0.5	Soil	Backhoe			
Returned to Hole	9	AOC9-19-4115	01/13/16	2	3	Soil	Backhoe			
Returned to Hole	9	AOC9-19-4116	01/13/16	5	6	Soil	Backhoe			
Returned to Hole	9	AOC9-19-4117	01/13/16	9	10	Soil	Backhoe			
Returned to Hole	9	AOC9-22-4127	01/04/17	0.0	0.5	Soil	Hand Tools			
Returned to Hole	9	AOC9-22-4128	01/04/17	2.0	3.0	Soil	Hand Tools			Includes composite of white debris and soil
Returned to Hole	9	AOC9-22-4129	01/04/17	4.5	5.0	Soil	Hand Tools			
Returned to Hole	9	AOC9-22-Debris	01/04/17	2.5	2.6	Debris	Hand Tools			White debris
Returned to Hole	SD	CB-15-01	02/02/16	NA	NA	Soil	Hand Tools			
Returned to Hole	ER	ERPW-1-D1	01/28/16	0	0.5	Sediment	Hand Tools			River mud and tule/bamboo roots
Returned to Hole	ER	ERPW-1-D2	01/28/16	1	1.5	Sediment	Hand Tools			River mud and tule/bamboo roots
Returned to Hole	ER	ERPW-1-D3	01/28/16	1.5	2	Sediment	Hand Tools			River mud and tule/bamboo roots
Returned to Hole	ER	ERPW-10-D1	01/24/16	0	0.5	Sediment	Hand Tools			Very fine sand, dry
Returned to Hole	ER	ERPW-10-D2	01/24/16	1	1.5	Sediment	Hand Tools			Very fine sand, dry
Returned to Hole	ER	ERPW-10-D3	01/24/16	1.5	2	Sediment	Hand Tools			Very fine sand, dry
Returned to Hole	ER	ERPW-2-D1	01/25/16	0	0.5	Sediment	Hand Tools			River mud and tule/bamboo roots
Returned to Hole	ER	ERPW-2-D2	01/25/16	1	1.5	Sediment	Hand Tools			River mud and tule/bamboo roots
Returned to Hole	ER	ERPW-2-D3	01/25/16	1.5	2	Sediment	Hand Tools			River mud and tule/bamboo roots
Returned to Hole	ER	ERPW-3-D1	01/25/16	0	0.5	Sediment	Hand Tools			River mud and tule/bamboo roots
Returned to Hole	ER	ERPW-3-D2	01/25/16	1	1.5	Sediment	Hand Tools			River mud and tule/bamboo roots
Returned to Hole	ER	ERPW-3-D3	01/25/16	1.5	2	Sediment	Hand Tools			River mud and tule/bamboo roots
Returned to Hole	ER	ERPW-3-D4	01/28/16	5.5	6	Sediment	Hand Tools			Very fine sand
Returned to Hole	ER	ERPW-4-D1	01/28/16	0	0.5	Sediment	Hand Tools			River mud and tule/bamboo roots
Returned to Hole	ER	ERPW-4-D2	01/28/16	1	1.5	Sediment	Hand Tools			River mud and tule/bamboo roots
Returned to Hole	ER	ERPW-4-D3	01/28/16	1.5	2	Sediment	Hand Tools			River mud and tule/bamboo roots
Returned to Hole	ER	ERPW-5-D1	01/25/16	0	0.5	Sediment	Hand Tools			River mud and tule/bamboo roots
Returned to Hole	ER	ERPW-5-D2	01/25/16	1	1.5	Sediment	Hand Tools			River mud and tule/bamboo roots
Returned to Hole	ER	ERPW-5-D3	01/25/16	1.5	2	Sediment	Hand Tools			River mud and tule/bamboo roots
Returned to Hole	ER	ERPW-6-D1	01/24/16	0	0.5	Sediment	Hand Tools			Gravel from weather Miocene conglomerate BR
Returned to Hole	ER	ERPW-6-D2	01/24/16	1	1.5	Sediment	Hand Tools			Gravel from weather Miocene conglomerate BR

TABLE B1
Waste Source Summary Table
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Source Information										
Waste Bin Number	AOC	Sample Location	Sample Date	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Collection Method	Trench Sample	Opportunistic Sample	Notes
Returned to Hole	ER	ERPW-6-D3	01/24/16	1.5	2	Sediment	Hand Tools			Gravel from weather Miocene conglomerate BR
Returned to Hole	ER	ERPW-7-D1	01/24/16	0	0.5	Sediment	Hand Tools			Very fine sand
Returned to Hole	ER	ERPW-7-D2	01/24/16	1	1.5	Sediment	Hand Tools			Very fine sand
Returned to Hole	ER	ERPW-7-D3	01/24/16	1.5	2	Sediment	Hand Tools			Very fine sand
Returned to Hole	ER	ERPW-7-D4	01/25/16	5.5	6	Sediment	Hand Tools			Very fine sand
Returned to Hole	ER	ERPW-8-D1	01/24/16	0	0.5	Sediment	Hand Tools			River mud and tule/bamboo roots
Returned to Hole	ER	ERPW-8-D2	01/24/16	1	1.5	Sediment	Hand Tools			River mud and tule/bamboo roots
Returned to Hole	ER	ERPW-8-D3	01/24/16	1.5	2	Sediment	Hand Tools			River mud and tule/bamboo roots
Returned to Hole	ER	ERPW-9-D1	01/23/16	0	0.5	Sediment	Hand Tools			River mud and tule/bamboo roots
Returned to Hole	ER	ERPW-9-D2	01/23/16	1	1.5	Sediment	Hand Tools			River mud and tule/bamboo roots
Returned to Hole	ER	ERPW-9-D3	01/23/16	1.5	2	Sediment	Hand Tools			River mud and tule/bamboo roots
Returned to Hole	PA	PA-01-1	11/09/15	0	1	Soil	Hand Tools			
Returned to Hole	PA	PA-02-1	11/09/15	0	1	Soil	Hand Tools			
Returned to Hole	PA	PA-03-1	11/09/15	0	1	Soil	Hand Tools			
Returned to Hole	PA	PA-04-1	11/09/15	0	1	Soil	Hand Tools			
Returned to Hole	PA	PA-05-1	11/09/15	0	1	Soil	Hand Tools			
Returned to Hole	PA	PA-06-1	11/09/15	0	1	Soil	Hand Tools			
Returned to Hole	PA	PA-07-1	11/09/15	0	1	Soil	Hand Tools			
Returned to Hole	PA	PA-08-03	01/12/16	2	3	Soil	Rotosonic			
Returned to Hole	PA	PA-08-06	01/12/16	5	6	Soil	Rotosonic			
Returned to Hole	PA	PA-08-1	11/09/15	0	1	Soil	Hand Tools			
Returned to Hole	PA	PA-08-10	01/12/16	9	10	Soil	Rotosonic			
Returned to Hole	PA	PA-09-01	01/27/16	0	1	Soil	Hand Tools			
Returned to Hole	PA	PA-11-01	01/27/16	0	1	Soil	Hand Tools			
Returned to Hole	PA	PA-12-01	01/27/16	0	1	Soil	Hand Tools			
Returned to Hole	PA	PA-13-01	01/27/16	0	1	Soil	Hand Tools			
Returned to Hole	PA	PA-14-01	01/27/16	0	1	Soil	Hand Tools			
Returned to Hole	PA	PA-15-01	01/27/16	0	1	Soil	Hand Tools			
Returned to Hole	PA	PA-16-01	01/27/16	0	1	Soil	Hand Tools			
Returned to Hole	PA	PA-17-01	01/27/16	0	1	Soil	Hand Tools			
Returned to Hole	PA	PA-18-01	01/27/16	0	1	Soil	Hand Tools			
Returned to Hole	PA	PA-19-01	01/27/16	0	1	Soil	Hand Tools			
Returned to Hole	PA	PA-20-01	01/27/16	0	1	Soil	Hand Tools			
Returned to Hole	PA	PA-21-01	01/27/16	0	1	Soil	Hand Tools			
Returned to Hole	PA	PA-22-01	01/27/16	0	1	Soil	Hand Tools			
Returned to Hole	SD	SD-10-01	11/10/15	0	1	Soil	Hand Tools			
Returned to Hole	SD	SD-10-03	11/10/15	2	3	Soil	Hand Tools			
Returned to Hole	SD	SD-11-01	12/06/15	0	0.5	Soil	Hand Tools			Location is at the southern pipe outfall of legacy SDL-8
Returned to Hole	SD	SD-11-01	03/07/16	0	1	Soil	Hand Tools			Location is at the northern pipe outfall of active SDL-8
Returned to Hole	SD	SD-11-02	03/07/16	2	3	Soil	Hand Tools			Location is at the northern pipe outfall of active SDL-8
Returned to Hole	SD	SD-11-03	12/06/15	2	3	Soil	Hand Tools			Location is at the southern pipe outfall of legacy SDL-8
Returned to Hole	SD	SD-11-04	03/07/16	3	4	Soil	Hand Tools			Location is at the northern pipe outfall of active SDL-8
Returned to Hole	SD	SD-12-01	11/10/15	0	1	Soil	Hand Tools			
Returned to Hole	SD	SD-12-03	11/10/15	2	3	Soil	Hand Tools			
Returned to Hole	SD	SD-13-01	11/10/15	0	1	Soil	Hand Tools			
Returned to Hole	SD	SD-13-03	11/10/15	2	3	Soil	Hand Tools			
Returned to Hole	SD	SD-17-01	12/17/15	0	0.5	Soil	Hand Tools			
Returned to Hole	SD	SD-17-02	12/17/15	2	3	Soil	Hand Tools			Collected below 45 elbow of SDL-12 line
Returned to Hole	SD	SD-18-01	12/17/15	0	0.5	Soil	Hand Tools			
Returned to Hole	SD	SD-19-D1	01/13/16	0	0.5	Soil	Backhoe			
Returned to Hole	SD	SD-19-D2	01/13/16	2	3	Soil	Backhoe			
Returned to Hole	SD	SD-19-D3	01/13/16	5	6	Soil	Backhoe			
Returned to Hole	SD	SD-19-D4	01/13/16	8	8.5	Soil	Backhoe			
Returned to Hole	SD	SD-2-01	11/10/15	0	1	Soil	Hand Tools			
Returned to Hole	SD	SD-2-03	11/10/15	2	3	Soil	Hand Tools			
Returned to Hole	SD	SD-20-01	11/11/15	0	1	Soil	Hand Tools			

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Waste Bin Number	AOC	Sample Location	Sample Date	Source Information: Top Depth Of Sample (Feet)	Source Information: Bottom Depth Of Sample (Feet)	Source Information: Matrix	Source Information: Collection Method	Source Information: Trench Sample	Source Information: Opportunistic Sample	Notes
Returned to Hole	SD	SD-20-03	11/11/15	2	3	Soil	Hand Tools			Collected below large hole of SDL-9 line were much of the storm water discharges
Returned to Hole	SD	SD-21-01	03/10/16	0	1	Soil	Hand Tools			
Returned to Hole	SD	SD-21-03	03/10/16	2	3	Soil	Hand Tools			
Returned to Hole	SD	SD-22-01	03/09/16	0	1	Soil	Hand Tools			
Returned to Hole	SD	SD-22-03	03/09/16	2	3	Soil	Hand Tools			
Returned to Hole	SD	SD-23-01	03/09/16	0	1	Soil	Hand Tools			
Returned to Hole	SD	SD-23-03	03/09/16	2	3	Soil	Hand Tools			
Returned to Hole	SD	SD-24-01	03/09/16	0	1	Soil	Hand Tools			
Returned to Hole	SD	SD-24-03	03/09/16	2	3	Soil	Hand Tools			
Returned to Hole	SD	SD-25-01	03/10/16	0	1	Soil	Hand Tools			
Returned to Hole	SD	SD-26-01	03/10/16	0	1	Soil	Hand Tools			
Returned to Hole	SD	SD-27-02	02/15/17	2.0	3.0	Soil	Hand Tools			Collected below SD-8 pipe
Returned to Hole	SD	SD-27-03	02/15/17	4.0	5.0	Soil	Hand Tools			
Returned to Hole	SD	SD-3-01	11/10/15	0	1	Soil	Hand Tools			
Returned to Hole	SD	SD-3-03	11/10/15	2	3	Soil	Hand Tools			
Returned to Hole	SD	SD-31-01	02/15/17	0.0	0.5	Soil	Hand Tools			
Returned to Hole	SD	SD-31-03	02/15/17	2.0	3.0	Soil	Hand Tools			Collected below metal pipe
Returned to Hole	SD	SD-31-PIPE	02/15/17	1.0	2.0	Soil	Hand Tools			Soil collected from inside the pipe
Returned to Hole	SD	SD-33-OS1-1001	12/20/16	1.5	2.0	Soil	Hand Tools		X	Collected below gray "45" elbow
Returned to Hole	SD	SD-34-OS1-1001	12/02/16	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	SD	SD-34-OS1-1002	12/02/16	1.0	1.5	Soil	Vac Truck		X	Collected below clay pipe 90 degree elbow
Returned to Hole	SD	SD-34-OS1-1003	12/03/16	2.0	3.0	Soil	Vac Truck		X	
Returned to Hole	SD	SD-34-OS1-1004	12/03/16	5.0	6.0	Soil	Vac Truck		X	
Returned to Hole	SD	SD-34-OS1-1005	12/02/16	0.5	1.0	Soil	Vac Truck		X	Collected from inside of pipe
Returned to Hole	SD	SD-34A-OS1-1001	12/02/16	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	SD	SD-34A-OS1-1002	12/02/16	1.0	1.5	Soil	Vac Truck		X	Collected below clay pipe (1 ft north of HC ramp)
Returned to Hole	SD	SD-34A-OS1-1003	12/02/16	2.0	3.0	Soil	Vac Truck		X	
Returned to Hole	SD	SD-34A-OS1-1004	12/02/16	5.0	6.0	Soil	Vac Truck		X	
Returned to Hole	SD	SD-35-OS1-1001	12/04/16	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	SD	SD-35-OS1-1002	12/04/16	2.0	3.0	Soil	Vac Truck		X	
Returned to Hole	SD	SD-35-OS1-1003	12/05/16	4.5	5.5	Soil	Vac Truck		X	Collected below clay pipe at the joint
Returned to Hole	SD	SD-35A-OS1-1001	12/05/16	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	SD	SD-35A-OS1-1002	12/05/16	2.0	3.0	Soil	Vac Truck		X	
Returned to Hole	SD	SD-35A-OS1-1003	12/05/16	4.5	5.5	Soil	Vac Truck		X	Collected below clay pipe at the joint
Returned to Hole	SD	SD-36-OS1-1001	12/01/16	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	SD	SD-36-OS1-1002	12/01/16	2.5	3.0	Soil	Vac Truck		X	
Returned to Hole	SD	SD-36-OS1-1003	12/01/16	5.0	6.0	Soil	Vac Truck		X	Collected below clay pipe joint, at offset
Returned to Hole	SD	SD-37-OS1-1001	11/30/16	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	SD	SD-37-OS1-1002	11/30/16	3.0	3.5	Soil	Vac Truck		X	Collected below clay/PVC pipe transition
Returned to Hole	SD	SD-37-OS1-1003	11/30/16	5.0	5.5	Soil	Vac Truck		X	
Returned to Hole	SD	SD-38-OS1-1001	12/13/16	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	SD	SD-38-OS1-1002	12/13/16	3.0	4.0	Soil	Vac Truck		X	Collected below pipe (concrete block around clay/PVC)
Returned to Hole	SD	SD-39-OS1-1001	11/29/16	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	SD	SD-39-OS1-1002	11/29/16	2.5	3.0	Soil	Vac Truck		X	Collected below PVC/steel pipe transition
Returned to Hole	SD	SD-4-01	11/10/15	0	1	Soil	Hand Tools			
Returned to Hole	SD	SD-4-03	11/10/15	2	3	Soil	Hand Tools			
Returned to Hole	SD	SD-40-OS1-1001	12/06/16	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	SD	SD-40-OS1-1002	12/06/16	2.0	3.0	Soil	Vac Truck		X	
Returned to Hole	SD	SD-40-OS1-1003	12/06/16	5.0	5.5	Soil	Vac Truck		X	
Returned to Hole	SD	SD-40-OS1-1004	12/09/16	6.0	7.0	Soil	Vac Truck		X	Collected from material inside of pipe at the "T"
Returned to Hole	SD	SD-40-OS1-1005	12/09/16	7.0	8.0	Soil	Vac Truck		X	Collected below 8-in x 4-in PVC "T" (SDL-11)

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Waste Bin Number	AOC	Source Information: Sample Location	Sample Date	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Collection Method	Trench Sample	Opportunistic Sample	Notes
Returned to Hole	SD	SD-40-OS1-1006	12/09/16	9.0	10.0	Soil	Vac Truck		X	Collected 2 ft below 8-in x 4-in PVC "T" (SDL-11)
Returned to Hole	SD	SD-40-OS1-1007	12/11/16	7.0	8.0	Soil	Vac Truck		X	Collected below "Y" clay pipe fitting
Returned to Hole	SD	SD-40-OS1-1008	12/09/16	5.0	6.0	Soil	Vac Truck		X	Collected below 90 degree 4-in PVC pipe
Returned to Hole	SD	SD-41-OS1-1001	12/13/16	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	SD	SD-41-OS1-1002	12/13/16	2.0	3.0	Soil	Vac Truck		X	
Returned to Hole	SD	SD-41-OS1-1003	12/14/16	5.0	6.0	Soil	Vac Truck		X	
Returned to Hole	SD	SD-41-OS1-1004	12/14/16	8.0	8.5	Soil	Vac Truck		X	Collected next to red clay pipe
Returned to Hole	SD	SD-42-OS1-1001	07/17/17	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	SD	SD-42-OS1-1003	07/17/17	2.0	3.0	Soil	Vac Truck		X	
Returned to Hole	SD	SD-42-OS1-1004	07/17/17	5.0	6.0	Soil	Vac Truck		X	Collected below pipe
Returned to Hole	SD	SD-43-OS1-1001	07/18/17	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	SD	SD-43-OS1-1002	07/18/17	2.0	3.0	Soil	Vac Truck		X	
Returned to Hole	SD	SD-43-OS1-1003	07/18/17	5.0	6.0	Soil	Vac Truck		X	Collected below pipe
Returned to Hole	SD	SD-44-OS1-1001	07/19/17	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	SD	SD-44-OS1-1002	07/19/17	2.0	3.0	Soil	Vac Truck		X	
Returned to Hole	SD	SD-44-OS1-1003	07/19/17	5.0	6.0	Soil	Vac Truck		X	Collected below pipe
Returned to Hole	SD	SD-5-01	11/10/15	0	1	Soil	Hand Tools			
Returned to Hole	SD	SD-5-03	11/10/15	2	3	Soil	Hand Tools			
Returned to Hole	SD	SD-6-01	11/10/15	0	1	Soil	Hand Tools			
Returned to Hole	SD	SD-6-03	11/10/15	2	3	Soil	Hand Tools			
Returned to Hole	SD	SD-6-05	11/10/15	5	6	Soil	Hand Tools			
Returned to Hole	SD	SD-8-01	11/11/15	0	1	Soil	Hand Tools			
Returned to Hole	SD	SD-8-03	11/11/15	2	3	Soil	Hand Tools			
Returned to Hole	SD	SD-9-01	11/10/15	0	1	Soil	Hand Tools			
Returned to Hole	SD	SD-9-03	11/10/15	2	3	Soil	Hand Tools			
Returned to Hole	SD	SD-9-05	11/10/15	5	6	Soil	Hand Tools			
Returned to Hole	SD	SD-OS30-1001	07/18/17	0.0	0.5	Soil	Vac Truck		X	
Returned to Hole	SD	SD-OS30-1002	07/18/17	2.0	3.0	Soil	Vac Truck		X	
Returned to Hole	SD	SD-OS30-1003	07/18/17	4.0	5.0	Soil	Vac Truck		X	Collected next to pipe
Returned to Hole	SD	SD-OS30-1004	07/18/17	5.0	6.0	Soil	Vac Truck		X	Collected below pipe
Returned to Hole	SD	SD-OS30-1005	07/18/17	7.0	8.0	Soil	Vac Truck		X	
Returned to Hole	SWMU1	SWMU1-22-1144	12/17/15	0	1	Soil	Hand Tools			
Returned to Hole	SWMU1	SWMU1-23-1146	12/17/15	0	1	Soil	Hand Tools			
Returned to Hole	SWMU1	SWMU1-24-1147	12/17/15	0	1	Soil	Hand Tools			
Returned to Hole	SWMU1	SWMU1-28-1172	02/14/17	0.0	0.5	Soil	Hand Tools			
Returned to Hole	SWMU1	SWMU1-28-1174	02/14/17	2.0	3.0	Soil	Hand Tools			
Returned to Hole	SWMU1	SWMU1-29-1175	02/16/17	0.0	0.5	Soil	Backhoe	X		
Returned to Hole	SWMU1	SWMU1-29-1176	02/16/17	2.0	3.0	Soil	Backhoe	X		Soil is green or has green staining
Returned to Hole	SWMU1	SWMU1-29-1177	02/16/17	5.0	6.0	Soil	Backhoe	X		
Returned to Hole	SWMU1	SWMU1-29-1178	02/16/17	9.0	10.0	Soil	Backhoe	X		
Returned to Hole	TCS4	TCS4-E-05	03/01/16	4	5	Soil	Backhoe			14 ft east of TCS4
Returned to Hole	TCS4	TCS4-E-06	03/01/16	5	6	Soil	Backhoe			14 ft east of TCS4
Returned to Hole	TCS4	TCS4-N-05	03/01/16	4	5	Soil	Backhoe			5 ft north of TCS4
Returned to Hole	TCS4	TCS4-N-06	03/01/16	5	6	Soil	Backhoe			5 ft north of TCS4
Returned to Hole	TCS4	TCS4-S-05	03/01/16	4	5	Soil	Backhoe			5 ft south of TCS4
Returned to Hole	TCS4	TCS4-S-06	03/01/16	5	6	Soil	Backhoe			5 ft south of TCS4
Returned to Hole	SD	TD-3	11/12/15	0	0	Soil	Hand Tools			
Returned to Hole	SD	TD-4	11/12/15	0	0	Soil	Hand Tools			

TABLE B-2

Waste Summary Table

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

No	Type	Size	Bin No.	No. of Times Filled	Matrix	Waste Type	Estimated Volume (cubic yards)	Estimated Weight (tons)	Shipped Weight (tons)	Accumulation Start Date	Accumulation End Date	Sample ID	Receiving Facility or Current Location	Date Shipped	Shipper	Waste Stream Profile No.	Manifest No.	Sources
1	Roll Off Bin	16'x8'x4'	5985	1	Soil	Non-Hazardous	12	13	NA	12/01/15	12/18/15	Soil-IDW-01-5985	US Ecology, Beatty, Nevada	8/11/2020	Hoyt Transportation Inc.	070294128-0	070294128-3	AOCs: 4, 5, 7, 8, 13, 17, 18, 19, 20, 23, 26, 28, Storm Drains, SWMUs: 5, 6, 8, Unit 4.3
2	Roll Off Bin	16'x8'x4'	6582	1	Soil	Non-Hazardous	11	12	NA	01/05/16	03/21/16	Soil-IDW-01-6582	US Ecology, Beatty, Nevada	8/11/2020	Hoyt Transportation Inc.	070294128-0	070294128-3	AOCs: 1, 4, 7, 8, 9, 11, 13, 16, 18, 21, 22, 23, 24, 26, Storm Drains, SWMU1
3	Roll Off Bin	16'x8'x4'	6666	1	Soil	Non-Hazardous	12	13	NA	01/13/16	02/03/16	Soil-IDW-1-6666	US Ecology, Beatty, Nevada	8/11/2020	Hoyt Transportation Inc.	070294128-0	070294128-3	AOCs: 1, 5, 6, 9, 10, 11, 15, 26, Storm Drains, SMUWs: 1, 11
4	Roll Off Bin	16'x8'x4'	6590	1	Soil	Non-RCRA Hazardous	8	NA	8.5	01/23/16	03/21/16	Soil-IDW-01-6590	US Ecology, Beatty, Nevada	4/21/2016	Mpe	070238370-1	014901521JJK	AOCs: 1, 5, 6, 11, 19, 20, SWMUs: 1, 11
5	Roll Off Bin	16'x8'x4'	6657	1	Soil	RCRA Hazardous	11	NA	11.2	01/27/16	03/21/16	Soil-IDW-01-6657	US Ecology, Beatty, Nevada	4/21/2016	Mpe	070238364-0	014901522JJK	SWMU1-25, Catch Basin material, AOC-10
6	Roll Off Bin	16'x8'x4'	6238	1	Soil	Non-Hazardous	12	13	NA	03/08/16	03/21/16	Soil-IDW-01-6238	US Ecology, Beatty, Nevada	8/4/2020	Hoyt Transportation Inc.	070294128-0	070294128-1	TCS4 gabions
7	Roll Off Bin	16'x8'x4'	6253	1	Soil	Non-Hazardous	11	12	NA	01/07/17	02/06/17	Soil-IDW-01-6253	US Ecology, Beatty, Nevada	8/4/2020	Hoyt Transportation Inc.	070294128-0	070294128-1	AOCs: 1, 4, 5, 6, 9, 10, 13, 15, 19, 21, 22, 23, Perimeter Area, Storm Drains, SWMUs: 1, 5, 6
8	Poly Tank	50 gallon	NA	5	Water	Non-Hazardous	200 Gallons	NA	NA	11/07/15	07/19/17	NA	Interim Measure No 3 Treatment Plant	NA	NA	NA	NA	Decon water

TABLE B3

Field Activities Summary Table and Deviations from Work Plan

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

No.	AOC	Sample Location	Sample Date	Sample Time	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Analytical Suite[a]																									Collection Method	Deviation from Work Plan	Notes	Field Duplicate	Below Asphalt (A) or Concrete [C]	Trench Sample	Opportunistic Sample	Debris Sample	DTSC Split Sample	Waste Bin Number
								Metals	Hexavalent Chromium	CLP-Cn, CLP-Metals	Cyanide (SW9014)	Mercury (7470A)	Dioxins	PAHs	PCBs	Pesticides	TPHs 8015M	TPH-Purgable (8015B-P) TPH-g	TPH-Extractable (8015B-E) TPH-d, TPH-mo	SVOCs	VOCs	pH (9045)	Water Content General D2216	Water E821R91100	Water Anion 300	Water General 2320B	Water General 3501	Water General LYDKHN	Water General SM4500N H3DM	Water General SM4500 S2-D	Water General SM5310C										
1	1	AOC1-1-150	01/23/16	16:25	0	0.5	Soil	X	X				X	X	X							X	X									Rotosonic								6590
2	1	AOC1-1-151	01/23/16	16:26	2	3	Soil	X	X				X	X	X							X	X									Rotosonic								6590
3	1	AOC1-1-152	01/23/16	16:27	5	6	Soil	X	X					X								X										Rotosonic								6590
4	1	AOC1-1-153	01/23/16	16:28	9	10	Soil	X	X					X								X										Rotosonic								6590
5	1	AOC1-1-154	01/23/16	16:29	14	15	Soil	X	X					X								X										Rotosonic								6590
6	1	AOC1-1-155	01/23/16	16:30	14	15	Soil	X	X					X								X										Rotosonic			X					6590
7	1	AOC1-1-156	01/24/16	09:40	19	20	Soil	X	X					X								X										Rotosonic								6590
8	1	AOC1-1-157	01/24/16	09:55	29	30	Soil	X	X					X								X										Rotosonic								6590
9	1	AOC1-2-158	01/23/16	11:40	0	0.5	Soil	X	X				X		X								X									Rotosonic								6590
10	1	AOC1-2-159	01/23/16	11:41	2	3	Soil	X	X				X		X								X									Rotosonic								6590
11	1	AOC1-2-160	01/23/16	11:42	5	6	Soil	X	X																							Rotosonic								6590
12	1	AOC1-2-161	01/23/16	11:43	9	10	Soil	X	X																							Rotosonic								6590
13	1	AOC1-2-162	01/23/16	11:44	14	15	Soil	X	X																							Rotosonic								6590
14	1	AOC1-2-163	01/23/16	12:05	19	20	Soil	X	X																							Rotosonic								6590
15	1	AOC1-2-164	01/23/16	12:06	19	20	Soil	X	X																							Rotosonic			X					6590
16	1	AOC1-2-165	01/23/16	12:50	29	30	Soil	X	X																							Rotosonic								6590
17	1	AOC1-3-166	01/25/16	08:30	0	0.5	Soil	X	X				X	X	X							X	X									Rotosonic								6590
18	1	AOC1-3-167	01/25/16	08:31	2	3	Soil	X	X				X	X	X							X	X									Rotosonic								6590
19	1	AOC1-3-168	01/25/16	08:32	5	6	Soil	X	X				X	X								X	X									Rotosonic								6590
20	1	AOC1-3-169	01/25/16	08:33	9	10	Soil	X	X				X	X								X	X									Rotosonic								6590
21	1	AOC1-3-170	01/25/16	08:34	14	15	Soil	X	X					X								X										Rotosonic								6590
22	1	AOC1-3-171	01/25/16	08:35	14	15	Soil	X	X					X								X										Rotosonic			X					6590
23	1	AOC1-3-172	01/25/16	08:45	19	20	Soil	X	X					X								X										Rotosonic								6590
24	1	AOC1-3-173	01/25/16	12:45	29	30	Soil	X	X					X								X										Rotosonic								6590
25	1	AOC1-3-174	01/25/16	14:30	39	40	Soil	X	X					X								X										Rotosonic								6590
26	1	AOC1-3-175	01/25/16	15:10	49	50	Soil	X	X					X								X										Rotosonic								6590
27	1	AOC1-3-176	01/25/16	15:50	59	60	Soil	X	X					X								X										Rotosonic								6590
28	1	AOC1-3-177	01/26/16	08:50	69	70	Soil	X	X					X								X										Rotosonic								6590
29	1	AOC1-3-178	01/26/16	09:40	79	80	Soil	X	X					X								X										Rotosonic								6590
30	1	AOC1-4-179	01/23/16	14:20	0	0.5	Soil	X	X				X	X	X							X	X									Rotosonic								6590
31	1	AOC1-4-180	01/23/16	14:21	2	3	Soil	X	X				X	X	X							X	X									Rotosonic								6590
32	1	AOC1-4-181	01/23/16	14:22	5	6	Soil	X	X					X								X										Rotosonic								6590
33	1	AOC1-4-182	01/23/16	14:23	9	10	Soil	X	X					X								X										Rotosonic								6590
34	1	AOC1-4-183	01/23/16	14:50	14	15	Soil	X	X					X								X										Rotosonic								6590
35	1	AOC1-4-184	01/23/16	14:51	19	20	Soil	X	X					X								X										Rotosonic								6590
36	1	AOC1-4-185	01/23/16	14:52	19	20	Soil	X	X					X								X										Rotosonic			X					6590
37	1	AOC1-4-186	01/23/16	15:30	29	30	Soil	X	X					X								X										Rotosonic								6590
38	1	AOC1-5-365	01/09/17	10:40	0.0	0.5	Soil	X	X				X																			Rotosonic								6253
39	1	AOC1-5-366	01/09/17	10:50	2.0	3.0	Soil	X	X				X																			Rotosonic								6253
40	1	AOC1-5-367	01/09/17	11:00	5.0	6.0	Soil	X	X				X																			Rotosonic								6253
41	1	AOC1-5-368	01/09/17	11:10	9.0	10.0	Soil	X	X				X																			Rotosonic								6253
42	1	AOC1-5-369	01/09/17	11:30	14.0	15.0	Soil	X	X				X																			Rotosonic								6253
43	1	AOC1-6-370	01/09/17	12:30	0.0	0.5	Soil	X	X				X																			Rotosonic								6253
44	1	AOC1-6-371	01/09/17	12:40	2.0	3.0	Soil	X	X				X																			Rotosonic								6253
45	1	AOC1-6-372	01/09/17	13:00	5.0	6.0	Soil	X	X				X																			Rotosonic								6253
46	1	AOC1-6-373	01/09/17	13:10	9.0	10.0	Soil	X	X				X																			Rotosonic								6253
47	1	AOC1-6-374	01/09/17	13:20	14.0	15.0	Soil	X	X				X																			Rotosonic								6253
48	1	AOC1-7-375	01/09/17	14:00	0.0	0.5	Soil	X	X	X			X				X				X											Rotosonic								6253
49	1	AOC1-7-376	01/09/17	14:30	2.0	3.0	Soil	X	X				X		X																	Rotosonic								6253
50	1	AOC1-7-377	01/09/17	14:40	2.0	3.0	Soil	X	X				X		X																	Rotosonic			X					6253
51	1	AOC1-7-378	01/09/17	14:50	5.0	6.0	Soil	X	X				X		X																	Rotosonic								6253
52	1	AOC1-7-379	01/09/17	15:00	9.0	10.0	Soil	X	X				X		X																	Rotosonic								6253
53	1	AOC1-7-380	01/09/17	15:10	14.0	15.0	Soil	X	X				X		X																	Rotosonic								6253
54	1	AOC1-8-381	01/05/17	08:45	0.0	0.5	Soil	X	X	X			X				X				X											Hand Tools								RTH
55	1	AOC1-8-382	01/05/17	09:30	2.0	3.0	Soil	X	X				X																			Hand Tools								RTH
56	1	AOC1-BCW10-187	02/04/16	10:19	0	0.5	Soil	X	X				X		X		X															Rotosonic								6590
57	1	AOC1-BCW10-188	02/04/16	10:20	2	3	Soil	X	X				X		X		X															Rotosonic								6590
58	1	AOC1-BCW10-189	02/04/16	10:21	5	6	Soil	X	X				X		X		X															Rotosonic								6590
59	1	AOC1-BCW10-190	02/04/16	10:22	9	10	Soil	X	X				X		X		X															Rotosonic								6590
60	1	AOC1-BCW10-191	02/04/16	10:23	9	10	Soil	X	X				X		X		X															Rotosonic								6590
61	1	AOC1-BCW11-192	02/04/16	10:35	0	0.5	Soil	X	X				X		X		X															Rotosonic								6590
62	1	AOC1-BCW11-193	02/04/16	10:36	2	3	Soil	X	X				X		X		X															Rotosonic								6590
63	1	AOC1-BCW11-194	02/04/16	10:37	5	6	Soil	X	X				X		X		X															Rotosonic								6590
64	1	AOC1-BCW11-195	02/04/16	10:38	9	10	Soil	X	X				X		X		X															Rotosonic								6590
65	1	AOC1-BCW12-196	02/04/16	10:55	0	0.5	Soil	X	X				X		X								X									Rotosonic								6590
66	1	AOC1-BCW12-197	02/04/16	10:56	2	3	Soil	X	X				X		X								X									Rotosonic								6590
67	1	AOC1-BCW12-198	02/04/16	10:57	5	6	Soil	X	X				X										X									Rotosonic								6590
68	1	AOC1-BCW12-199	02/04/16	10:58	9	10	Soil	X	X																							Rotosonic								6590
69	1	AOC1-BCW13-200	02/04/16	11:15	0	0.5	Soil	X	X				X	X	X		X															Rotosonic								6590
70	1	AOC1-BCW13-201	02/04/16	11:16	2	3	Soil	X	X				X	X	X		X															Rotosonic								6590
71	1	AOC1-BCW13-202	02/04/16	11:17	5	6	Soil	X	X				X	X	X		X															Rotosonic								6590
72	1	AOC1-BCW13-203	02/04/16	11:18	9	10	Soil	X	X				X	X	X		X															Rotosonic								6590
73	1	AOC1-BCW14-204	02/04/16	12:00	0	0.5	Soil	X	X				X										X									Rotosonic								6590
74	1	AOC1-BCW14-205	02/04/16	12:01	2	3	Soil	X	X				X										X									Rotosonic								6590
75	1	AOC1-BCW14-206	02/04/16	12:02	5	6	Soil	X	X																							Rotosonic								6590
76	1	AOC1-BCW14-207	02/04/16	12:03	9	10	Soil	X	X																							Rotosonic								6590
77	1	AOC1-BCW15-208	02/04/16	13:20	0	0.5	Soil	X	X				X										X									Rotosonic								6590
78	1	AOC1-BCW15-209	02/04/16	13:21	2	3	Soil	X	X																							Rotosonic								6590
79	1	AOC1-BCW15-210	02/04/16	13:22	5	6	Soil	X	X																							Rotosonic								6590
80	1	AOC1-BCW15-211	02/04/16	13:23	9	10	Soil	X	X																							Rotosonic								6590
81	1	AOC1-BCW16-212	02/04/16	13:40	0	0.5	Soil	X	X				X		X		X															Rotosonic								6590
82	1	AOC1-BCW16-213	02/04/16	13:41	2	3	Soil	X	X				X		X		X															Rotosonic								6590
83	1	AOC1-BCW16-214	02/04/16	13:42	5	6	Soil	X	X				X		X		X															Rotosonic								6590
84	1	AOC1-BCW16-215	02/04/16	13:43	9	10	Soil	X	X				X		X		X															Rotosonic								6590
85	1	AOC1-BCW17-216	02/04/16	13:20	0	0.5	Soil	X	X				X										X									Rotosonic								6590
86	1	AOC1-BCW17-217	02/04/16	13:21	2	3	Soil	X	X				X										X									Rotosonic								6590
87	1	AOC1-BCW17-218	02/04/16	13:22	5	6	Soil	X	X																							Rotosonic								6590
88	1	AOC1-BCW17-219	02/04/16	13:23	9	10	Soil	X	X																							Rotosonic								6590
89	1	AOC1-BCW18-220	02/05/16	11:30	0	0.5	Soil	X	X				X		X		X															Rotosonic								6590
90	1	AOC1-BCW18-221	02/05/16	11:31	2	3	Soil	X	X				X		X		X															Rotosonic								6590
91	1	AOC1-BCW18-222	02/05/16	11:32	5	6	Soil	X	X				X		X		X															Rotosonic								6590
92	1	AOC1-BCW18-223	02/05/16	11:33	9	10	Soil	X	X				X		X		X															Rotosonic								6590
93	1	AOC1-BCW19-224	02/05/16	11:15	0	0.5	Soil	X	X				X										X									Rotosonic								6590
94	1	AOC1-BCW19-225	02/05/16	11:16	2	3	Soil	X	X																							Rotosonic								6590
95	1	AOC1-BCW19-226	02/05/16	11:17	5	6	Soil	X	X																							Rotosonic								6590

TABLE B3

Field Activities Summary Table and Deviations from Work Plan

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

No.	AOC	Sample Location	Sample Date	Sample Time	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Analytical Suite[a]																									Collection Method	Deviation from Work Plan	Notes	Field Duplicate	Below Asphalt (A) or Concrete [C]	Trench Sample	Opportunistic Sample	Debris Sample	DTSC Split Sample	Waste Bin Number
								Metals	Hexavalent Chromium	CLP-Cn, CLP-Metals	Cyanide (SW9014)	Mercury (7470A)	Dioxins	PAHs	PCBs	Pesticides	TPHs 8015M	TPH-Purgable (8015B-P) TPH-g	TPH-Extractable (8015B-E) TPH-d, TPH-mo	SVOCs	VOCs	pH (9045)	Water Content General D2216	Water E821R91100	Water Anion 300	Water General 2320B	Water General 3501	Water General LYDKHN	Water General SM4500N H3DM	Water General SM4500 S2-D	Water General SM5310C											
96	1	AOC1-BCW19-227	02/05/16	11:18	9	10	Soil	X	X																							Rotosonic										6590
97	1	AOC1-BCW20-228	02/05/16	11:50	0	0.5	Soil	X	X				X		X	X																	Rotosonic										6590
98	1	AOC1-BCW20-229	02/05/16	11:51	2	3	Soil	X	X				X		X	X																	Rotosonic										6590
99	1	AOC1-BCW20-230	02/05/16	11:52	5	6	Soil	X	X				X		X	X																	Rotosonic										6590
100	1	AOC1-BCW20-231	02/05/16	11:53	9	10	Soil	X	X				X		X	X																	Rotosonic										6590
101	1	AOC1-BCW21-232	02/05/16	12:00	0	0.5	Soil	X	X				X		X	X																	Rotosonic										6590
102	1	AOC1-BCW21-233	02/05/16	12:01	2	3	Soil	X	X				X		X	X																	Rotosonic										6590
103	1	AOC1-BCW21-234	02/05/16	12:02	5	6	Soil	X	X				X		X	X																	Rotosonic										6590
104	1	AOC1-BCW21-235	02/05/16	12:03	9	10	Soil	X	X				X		X	X																	Rotosonic										6590
105	1	AOC1-BCW22-236	02/05/16	10:30	0	0.5	Soil	X	X				X											X									Rotosonic										6590
106	1	AOC1-BCW22-237	02/05/16	10:31	2	3	Soil	X	X																								Rotosonic										6590
107	1	AOC1-BCW22-238	02/05/16	10:32	5	6	Soil	X	X																								Rotosonic										6590
108	1	AOC1-BCW22-239	02/05/16	10:33	9	10	Soil	X	X																								Rotosonic										6590
109	1	AOC1-BCW23-240	02/05/16	10:45	0	0.5	Soil	X	X				X											X									Rotosonic										6590
110	1	AOC1-BCW23-241	02/05/16	10:46	2	3	Soil	X	X				X											X									Rotosonic										6590
111	1	AOC1-BCW23-242	02/05/16	10:47	5	6	Soil	X	X																								Rotosonic										6590
112	1	AOC1-BCW23-243	02/05/16	10:48	9	10	Soil	X	X																								Rotosonic										6590
113	1	AOC1-BCW24-244	02/05/16	11:00	0	0.5	Soil	X	X				X	X										X									Rotosonic										6590
114	1	AOC1-BCW24-245	02/05/16	11:01	2	3	Soil	X	X				X	X										X									Rotosonic										6590
115	1	AOC1-BCW24-246	02/05/16	11:02	5	6	Soil	X	X				X											X									Rotosonic										6590
116	1	AOC1-BCW24-247	02/05/16	11:03	9	10	Soil	X	X																								Rotosonic										6590
117	1	AOC1-BCW25-248	02/05/16	10:00	0	0.5	Soil	X	X				X	X	X	X																	Rotosonic										6590
118	1	AOC1-BCW25-249	02/05/16	10:01	2	3	Soil	X	X				X	X	X	X																	Rotosonic										6590
119	1	AOC1-BCW25-250	02/05/16	10:02	5	6	Soil	X	X				X	X		X																	Rotosonic										6590
120	1	AOC1-BCW25-251	02/05/16	10:03	9	10	Soil	X	X				X	X		X																	Rotosonic										6590
121	1	AOC1-BCW26-252	02/04/16	14:50	0	0.5	Soil	X	X				X	X										X									Rotosonic										6590
122	1	AOC1-BCW26-253	02/04/16	14:51	2	3	Soil	X	X				X	X										X									Rotosonic										6590
123	1	AOC1-BCW26-254	02/04/16	14:52	5	6	Soil	X	X																								Rotosonic										6590
124	1	AOC1-BCW26-255	02/04/16	14:53	9	10	Soil	X	X																								Rotosonic										6590
125	1	AOC1-BCW27-256	02/05/16	09:15	0	0.5	Soil	X	X				X		X	X																	Rotosonic										6590
126	1	AOC1-BCW27-257	02/05/16	09:16	2	3	Soil	X	X				X		X	X																	Rotosonic										6590
127	1	AOC1-BCW27-258	02/05/16	09:17	5	6	Soil	X	X				X			X																	Rotosonic										6590
128	1	AOC1-BCW27-259	02/05/16	09:18	9	10	Soil	X	X				X			X																	Rotosonic										6590
129	1	AOC1-BCW28-260	02/05/16	09:35	0	0.5	Soil	X	X				X		X	X																	Rotosonic										6590
130	1	AOC1-BCW28-261	02/05/16	09:36	2	3	Soil	X	X				X		X	X																	Rotosonic										6590
131	1	AOC1-BCW28-262	02/05/16	09:37	5	6	Soil	X	X				X			X																	Rotosonic										6590
132	1	AOC1-BCW28-263	02/05/16	09:38	9	10	Soil	X	X				X			X																	Rotosonic										6590
133	1	AOC1-BCW29-264	02/04/16	15:15	0	0.5	Soil	X	X				X		X	X																	Rotosonic										6590
134	1	AOC1-BCW29-265	02/04/16	15:16	2	3	Soil	X	X				X		X	X																	Rotosonic										6590
135	1	AOC1-BCW29-266	02/04/16	15:17	5	6	Soil	X	X				X			X																	Rotosonic										6590
136	1	AOC1-BCW29-267	02/04/16	15:18	9	10	Soil	X	X				X			X																	Rotosonic										6590
137	1	AOC1-BCW30-268	02/04/16	14:20	0	0.5	Soil	X	X				X											X									Rotosonic										6590
138	1	AOC1-BCW30-269	02/04/16	14:21	2	3	Soil	X	X				X											X									Rotosonic										6590
139	1	AOC1-BCW30-270	02/04/16	14:22	5	6	Soil	X	X																								Rotosonic										6590
140	1	AOC1-BCW30-271	02/04/16	14:23	9	10	Soil	X	X																								Rotosonic										6590
141	1	AOC1-BCW31-272	02/20/17	12:30	0.0	0.5	Sediment						X																				Hand Tools						X				RTH
142	1	AOC1-BCW31-273	02/20/17	13:00	2.0	3.0	Sediment						X																				Hand Tools						X				RTH
143	1	AOC1-BCW32-274	02/20/17	13:45	0.0	0.5	Sediment						X																				Hand Tools						X				RTH
144	1	AOC1-BCW32-275	02/20/17	14:15	2.0	3.0	Sediment						X																				Hand Tools						X				RTH
145	1	AOC1-BCW7-272	02/05/16	14:00	0	0.5	Soil	X	X				X	X	X																		Rotosonic										6590
146	1	AOC1-BCW7-273	02/05/16	14:01	2	3	Soil	X	X				X	X	X																		Rotosonic										6590
147	1	AOC1-BCW7-274	02/05/16	14:02	2	3	Soil	X	X				X	X	X																		Rotosonic										6590
148	1	AOC1-BCW7-275	02/05/16	14:03	5	6	Soil	X	X				X	X	X																		Rotosonic										6590
149	1	AOC1-BCW7-276	02/05/16	14:04	9	10	Soil	X	X				X	X	X																		Rotosonic										6590
150	1	AOC1-BCW7-277	02/05/16	14:05	14	15	Soil	X	X					X	X																		Rotosonic										6590
151	1	AOC1-BCW7-278	02/05/16	14:06	19	20	Soil	X	X					X	X																		Rotosonic										6590
152	1	AOC1-BCW7-279	02/05/16	14:07	19	20	Soil	X	X					X	X																		Rotosonic			X							6590
153	1	AOC1-BCW8-280	02/04/16	09:50	0	0.5	Soil	X	X				X											X									Rotosonic										6590
154	1	AOC1-BCW8-281	02/04/16	09:51	2	3	Soil	X	X				X											X									Rotosonic										6590
155	1	AOC1-BCW8-282	02/04/16	09:52	5	6	Soil	X	X				X											X									Rotosonic										6590
156	1	AOC1-BCW8-283	02/04/16	09:53	9	10	Soil	X	X																								Rotosonic										6590
157	1	AOC1-BCW8-284	02/04/16	09:54	9	10	Soil	X	X																								Rotosonic			X							6590
158	1	AOC1-BCW9-285	02/04/16	10:07	0	0.5	Soil	X	X				X		X									X									Rotosonic										6590
159	1	AOC1-BCW9-286	02/04/16	10:08	2	3	Soil	X	X				X		X									X									Rotosonic										6590
160	1	AOC1-BCW9-287	02/04/16	10:09	5	6	Soil	X	X																								Rotosonic										6590
161	1	AOC1-BCW9-288	02/04/16	10:10	9	10	Soil	X	X																								Rotosonic										6590
162	1	AOC1-T1e-289	01/11/16	15:20	0	1	Soil	X	X				X	X	X							X	X										Rotosonic										6582
163	1	AOC1-T1e-290	01/11/16	15:24	2	3	Soil	X	X				X	X	X							X	X										Rotosonic										6582
164	1	AOC1-T1e-291	01/11/16	15:27	5	6	Soil	X	X				X	X								X	X										Rotosonic										6582
165	1	AOC1-T1e-292	01/11/16	15:33	9	10	Soil	X	X				X	X								X	X										Rotosonic										6582
166	1	AOC1-T1e-293	01/11/16	15:39	9	10	Soil	X	X					X								X											Rotosonic			X							6582
167	1	AOC1-T1e-294	01/11/16	15:41	14	15	Soil	X	X					X								X											Rotosonic										6582
168	1	AOC1-T1f-295	01/12/16	09:30	0	1	Soil	X	X				X	X	X							X	X										Rotosonic										6582
169	1	AOC1-T1f-296	01/12/16	09:34	2	3	Soil	X	X				X	X	X							X	X										Rotosonic										6582
170	1	AOC1-T1f-297	01/12/16	09:36	5	6	Soil	X	X				X	X								X	X										Rotosonic										6582
171	1	AOC1-T1f-298	01/12/16	09:41	9	10	Soil	X	X				X	X								X	X										Rotosonic										6582
172	1	AOC1-T1f-299	01/12/16	09:49	9	10	Soil	X	X					X								X											Rotosonic			X							6582
173	1	AOC1-T1f-300	01/12/16	09:53	14	15	Soil	X	X					X								X											Rotosonic										6582
174	1	AOC1-T1g-351	02/17/17	09:15	0.0	0.5	Soil	X	X				X																				Backhoe					X					RTH
175	1	AOC1-T1g-352	02/17/17	09:20	0.0	0.5	Soil	X	X				X																				Backhoe			X		X					RTH
176	1	AOC1-T1g-353	02/17/17	09:45	2.0	3.0	Soil	X	X				X																				Backhoe					X					RTH
177	1	AOC1-T1g-354	02/17/17	10:15	5.0	6.0	Soil	X	X				X																				Backhoe					X					RTH
178	1	AOC1-T1g-355	02/17/17	11:00	9.0	10.0	Soil	X	X				X																				Backhoe					X					RTH
179	1	AOC1-T2f-301	12/17/15	16:00	0	1	Soil	X	X						X						X												Hand Tools										RTH
180	1	AOC1-T2f-302	12/17/15	16:15	2	3	Soil	X	X						X						X												Hand Tools										RTH
181	1	AOC1-T2g-320	03/03/16	09:30	9	10	Soil	X	X				X	X	X	X																	Rotosonic	Red										6590
182	1	AOC1-T2g-321	03/03/16	10:00	14	15	Soil	X	X				X	X	X	X																	Rotosonic										6590
183	1	AOC1-T2g-322	03/03/16	11:00	19	20	Soil	X	X				X	X	X	X																	Rotosonic										6590
184	1	AOC1-T2g-323	03/03/16	11:30	29	30	Soil	X	X					X	X	X																	Rotosonic										6590
185	1	AOC1-T2g-324	03/03/16	12:00	39	40	Soil	X	X					X	X	X																	Rotosonic										6590

TABLE B3

Field Activities Summary Table and Deviations from Work Plan

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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

No.	AOC	Sample Location	Sample Date	Sample Time	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Analytical Suite[a]																								Collection Method	Deviation from Work Plan	Notes	Field Duplicate	Below Asphalt (A) or Concrete [C]	Trench Sample	Opportunistic Sample	Debris Sample	DTSC Split Sample	Waste Bin Number
								Metals	Hexavalent Chromium	CLP-Cn, CLP-Metals	Cyanide (SW9014)	Mercury (7470A)	Dioxins	PAHs	PCBs	Pesticides	TPHs 8015M	TPH-Purgable (8015B-P) TPH-g	TPH-Extractable (8015B-E) TPH-d, TPH-mo	SVOCs	VOCs	pH (9045)	Water Content General D2216	Water E821R91100	Water Anion 300	Water General 2320B	Water General 3501	Water General LYDKHN	Water General SM4500N H3DM	Water General SM4500 S2-D	Water General SM5310C									
186	1	AOC1-T2g-325	03/03/16	12:10	39	40	Soil	X	X					X	X	X															Rotosonic			X						6590
187	1	AOC1-T2g-326	03/03/16	12:35	49	50	Soil	X	X					X	X	X															Rotosonic									6590
188	1	AOC1-T2g-327	03/03/16	13:20	59	60	Soil	X	X					X	X	X															Rotosonic									6590
189	1	AOC1-T2g-328	03/03/16	13:40	69	70	Soil	X	X					X	X	X															Rotosonic	Drilled 50 feet deeper due to observed staining in the soil. Continued drilling until staining was no longer observed.								6590
190	1	AOC1-T2h-329	03/04/16	10:45	0	1	Soil	X	X				X	X	X	X															Rotosonic									6590
191	1	AOC1-T2h-330	03/04/16	10:50	2	3	Soil	X	X				X	X	X	X																Rotosonic									6590
192	1	AOC1-T2h-331	03/04/16	10:55	5	6	Soil	X	X				X	X	X	X																Rotosonic									6590
193	1	AOC1-T2h-332	03/04/16	11:20	9	10	Soil	X	X				X	X	X	X																Rotosonic									6590
194	1	AOC1-T2h-333	03/04/16	11:30	14	15	Soil	X	X					X	X	X																Rotosonic									6590
195	1	AOC1-T2h-334	03/04/16	11:55	19	20	Soil	X	X					X	X	X																Rotosonic		Green staining on rocks							6590
196	1	AOC1-T2h-335	03/04/16	13:45	29	30	Soil	X	X					X	X	X																Rotosonic		Green staining on rocks							6590
197	1	AOC1-T2h-336	03/04/16	15:30	39	40	Soil	X	X					X	X	X																Rotosonic	Drilled 20 feet deeper due to observed staining in the soil. Continued drilling until staining was no longer observed.								6590
198	1	AOC1-T2i-337	03/05/16	10:20	0	1	Soil	X	X				X	X	X	X																Rotosonic									6590
199	1	AOC1-T2i-338	03/05/16	10:25	2	3	Soil	X	X				X	X	X	X																Rotosonic									6590
200	1	AOC1-T2i-339	03/05/16	10:30	5	6	Soil	X	X				X	X	X	X																Rotosonic									6590
201	1	AOC1-T2i-340	03/05/16	10:55	9	10	Soil	X	X				X	X	X	X																Rotosonic									6590
202	1	AOC1-T2i-341	03/05/16	11:00	14	15	Soil	X	X					X	X	X																Rotosonic									6590
203	1	AOC1-T2i-342	03/05/16	11:15	19	20	Soil	X	X					X	X	X																Rotosonic									6590
204	1	AOC1-T2j-343	03/05/16	12:50	0	1	Soil	X	X				X	X	X	X																Rotosonic									6590
205	1	AOC1-T2j-344	03/05/16	12:55	2	3	Soil	X	X				X	X	X	X																Rotosonic									6590
206	1	AOC1-T2j-345	03/05/16	13:00	2	3	Soil	X	X				X	X	X	X																Rotosonic			X						6590
207	1	AOC1-T2j-346	03/05/16	13:10	5	6	Soil	X	X				X	X	X	X																Rotosonic									6590
208	1	AOC1-T2j-347	03/05/16	14:10	9	10	Soil	X	X				X	X	X	X																Rotosonic									6590
209	1	AOC1-T2j-348	03/05/16	14:30	14	15	Soil	X	X					X	X	X																Rotosonic									6590
210	1	AOC1-T2j-349	03/05/16	14:50	19	20	Soil	X	X					X	X	X																Rotosonic									6590
211	1	AOC1-T2j-350	03/05/16	15:10	19	20	Soil	X	X					X	X	X																Rotosonic			X						6590
212	1	AOC1-T5D-304	01/12/16	10:46	0	1	Soil	X	X				X	X	X																	Rotosonic									6666
213	1	AOC1-T5D-305	01/12/16	10:52	2	3	Soil	X	X				X	X	X																	Rotosonic									6666
214	1	AOC1-T5D-306	01/12/16	10:54	2	3	Soil	X	X				X	X	X	X																Rotosonic			X						6666
215	1	AOC1-T5D-307	01/12/16	11:00	5	6	Soil	X	X				X	X	X																	Rotosonic									6666
216	1	AOC1-T5D-308	01/12/16	11:06	9	10	Soil	X	X				X	X	X																	Rotosonic									6666
217	1	AOC1-T5D-309	01/12/16	11:11	14	15	Soil	X	X				X	X	X																	Rotosonic									6666
218	1	AOC1-T5D-310	01/12/16	11:18	19	20	Soil	X	X				X	X	X																	Rotosonic									6666
219	1	AOC1-T5D-311	01/12/16	11:22	19	20	Soil	X	X				X	X	X																	Rotosonic			X						6666
220	1	AOC1-T6D-312	02/09/16	12:30	0	0.5	Soil	X	X				X	X	X	X																Rotosonic									6590
221	1	AOC1-T6D-313	02/09/16	12:31	2	3	Soil	X	X				X	X	X	X																Rotosonic									6590
222	1	AOC1-T6D-314	02/09/16	12:32	5	6	Soil	X	X				X	X	X																	Rotosonic									6590
223	1	AOC1-T6D-315	02/09/16	12:33	9	10	Soil	X	X				X	X	X																	Rotosonic									6590
224	1	AOC1-T6D-316	02/09/16	12:34	9	10	Soil	X	X				X	X	X																	Rotosonic			X						6590
225	1	AOC1-T6D-317	02/09/16	12:35	14	15	Soil	X	X					X	X																	Rotosonic									6590
226	1	AOC1-T6D-318	02/09/16	12:36	14	15	Soil	X	X					X	X																	Rotosonic			X						6590
227	1	AOC1-T6D-319	02/09/16	12:37	19	20	Soil	X	X					X	X																	Rotosonic									6590
228	1	AOC1-T7-356	02/19/17	08:15	0.0	0.5	Soil	X	X	X			X			X				X											Backhoe					X				RTH
229	1	AOC1-T7-357	02/19/17	09:00	2.0	3.0	Soil	X	X				X																		Backhoe					X				RTH
230	1	AOC1-T7-358	02/19/17	10:00	5.0	6.0	Soil	X	X				X																		Backhoe					X				RTH
231	1	AOC1-T7-359	02/19/17	11:00	9.0	10.0	Soil	X	X				X																		Backhoe					X				RTH
232	1	AOC1-T8-360	02/18/17	08:00	0.0	0.5	Soil	X	X				X																		Backhoe					X				RTH
233	1	AOC1-T8-361	02/18/17	08:45	2.0	3.0	Soil	X	X				X																		Backhoe					X				RTH
234	1	AOC1-T8-362	02/18/17	09:30	5.0	6.0	Soil	X	X				X																		Backhoe					X				RTH
235	1	AOC1-T8-363	02/18/17	10:45	9.0	10.0	Soil	X	X				X																		Backhoe					X				RTH
236	1	AOC1-T8-364	02/18/17	10:50	9.0	10.0	Soil	X	X				X																		Backhoe			X		X				RTH
237	4	AOC4-17-3100	12/01/15	12:12	2	3	Soil	X					X		X						X										Vac Truck	Bedrock refusal at 4.8 ft; not able to collect proposed soil samples at 5-6 and 9-10 ft bgs.								5985
238	4	AOC4-18-3103	12/01/15	15:07	2	3	Soil	X					X		X						X										Vac Truck	Bedrock refusal at 3.0 ft; not able to collect proposed soil samples at 5-6 and 9-10 ft bgs. Did not collect sample for physical parameters.								5985
239	4	AOC4-19-3106	11/20/15	09:50	0	1	Soil	X					X	X	X						X										Hand Tools									RTH
240	4	AOC4-19-3107	11/20/15	10:10	2	3	Soil	X					X	X	X						X										Hand Tools									RTH
241	4	AOC4-20-3108	11/20/15	10:30	0	1	Soil	X					X	X	X						X										Hand Tools	Bedrock refusal at 1.0 ft; not able to collect proposed soil sample at 2-3 ft bgs.								RTH
242	4	AOC4-21-3110	11/20/15	10:50	0	1	Soil	X					X	X	X						X										Hand Tools	Bedrock refusal at 1.5 ft; not able to collect proposed soil sample at 2-3 ft bgs.								RTH
243	4	AOC4-22-3112	11/20/15	11:05	0	1	Soil	X					X	X	X						X										Hand Tools	Bedrock refusal at 1.0 ft; not able to collect proposed soil sample at 2-3 ft bgs.								RTH
244	4	AOC4-23-3114	12/06/15	07:38	0	1	Soil	X					X	X	X																Hand Tools									RTH
245	4	AOC4-23-3115	12/06/15	07:48	2	3	Soil	X					X	X	X																Hand Tools									RTH
246	4	AOC4-24-3116	12/06/15	08:12	0	1	Soil	X					X	X	X																Hand Tools									RTH
247	4	AOC4-24-3117	12/06/15	08:27	2	3	Soil	X					X	X	X																Hand Tools									RTH
248	4	AOC4-25-3118	11/20/15	13:00	0	1	Soil	X					X	X	X						X										Hand Tools	Bedrock refusal at 1.5 ft; not able to collect proposed soil sample at 2-3 ft bgs.								RTH
249	4	AOC4-26-3120	11/20/15	12:20	0	1	Soil	X					X	X	X						X										Hand Tools									RTH
250	4	AOC4-26-3121	11/20/15	12:30	2	3	Soil	X					X	X	X						X										Hand Tools									RTH
251	4	AOC4-26-3172	02/01/17	14:30	5.0	6.0	Soil	X	X				X	X	X																Vac Truck	Bedrock refusal at 6.0 ft; not able to collect proposed soil sample at 9-10 ft bgs.								6253
252	4	AOC4-27-3122	11/20/15	11:40	0	1	Soil	X					X	X	X						X										Hand Tools									RTH
253	4	AOC4-27-3123	11/20/15	12:05	2	3	Soil	X					X	X	X						X										Hand Tools									RTH

TABLE B3

Field Activities Summary Table and Deviations from Work Plan

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

No.	AOC	Sample Location	Sample Date	Sample Time	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Analytical Suite[a]																						Collection Method	Deviation from Work Plan	Notes	Field Duplicate	Below Asphalt (A) or Concrete [C]	Trench Sample	Opportunistic Sample	Debris Sample	DTSC Split Sample	Waste Bin Number
								Metals	Hexavalent Chromium	CLP-Cn, CLP-Metals	Cyanide (SW9014)	Mercury (7470A)	Dioxins	PAHs	PCBs	Pesticides	TPHs 8015M	TPH-Purgable (8015B-P) TPH-g	TPH-Extractable (8015B-E) TPH-d, TPH-mo	SVOCs	VOCs	pH (9045)	Water Content General D2216	Water E821R91100	Water Anion 300	Water General 2320B	Water General 3501	Water General LYDKHN	Water General SM4500N H3DM	Water General SM4500 S2-D	Water General SM5310C									
254	4	AOC4-27-3174	02/01/17	10:30	5.0	5.5	Soil	X	X				X	X	X															Vac Truck	Bedrock refusal at 5.5 ft; not able to collect proposed soil sample at 9-10 ft bgs.								6253
255	4	AOC4-28-3124	11/20/15	11:30	0	1	Soil	X					X	X	X								X							Hand Tools	Bedrock refusal at 1.0 ft; not able to collect proposed soil sample at 2-3 ft bgs.								RTH
256	4	AOC4-29-3153	12/02/15	08:55	0	1	Soil	X	X				X										X							Vac Truck									5985
257	4	AOC4-29-3154	12/03/15	15:40	2	3	Soil	X	X				X										X							Vac Truck									5985
258	4	AOC4-29-3155	12/03/15	15:50	5	6	Soil	X	X				X										X							Vac Truck	Cobbles refusal at 6.0 ft; not able to collect proposed soil sample at 9-10 ft bgs.								5985
259	4	AOC4-30-3157	12/02/15	08:50	0	1	Soil	X	X				X		X								X							Vac Truck									5985
260	4	AOC4-30-3158	12/03/15	13:40	2	3	Soil	X	X				X										X							Vac Truck									5985
261	4	AOC4-30-3159	12/03/15	15:05	5	6	Soil	X	X				X										X							Vac Truck	Boulders/cobbles refusal at 8.0 ft; not able to collect proposed soil sample at 9-10 ft bgs.								5985
262	4	AOC4-31-3161	12/02/15	08:40	0	1	Soil	X	X				X										X							Vac Truck									5985
263	4	AOC4-31-3162	12/02/15	11:30	2	3	Soil	X	X				X										X							Vac Truck									5985
264	4	AOC4-31-3163	12/02/15	12:00	5	6	Soil	X	X				X										X							Vac Truck	Cobbles refusal at 6.0 ft; not able to collect proposed soil sample at 9-10 ft bgs.								5985
265	4	AOC4-32-3164	12/02/15	08:30	0	1	Soil	X	X				X		X								X							Vac Truck									5985
266	4	AOC4-32-3165	12/02/15	09:25	2	3	Soil	X	X				X										X							Vac Truck									5985
267	4	AOC4-32-3166	12/02/15	10:10	5	6	Soil	X	X				X										X							Vac Truck	Cobbles refusal at 6.0 ft; not able to collect proposed soil sample at 9-10 ft bgs.								5985
268	4	AOC4-33-3182	02/14/17	08:30	0.0	0.5	Soil						X	X	X															Hand Tools									RTH
269	4	AOC4-33-3183	02/14/17	09:00	2.0	3.0	Soil						X	X	X															Hand Tools									RTH
270	4	AOC4-34-3184	02/14/17	10:45	0.0	0.5	Soil						X	X	X															Hand Tools	Bedrock refusal at 0.5 ft; not able to collect proposed soil sample at 2-3 ft bgs.								RTH
271	4	AOC4-35-3186	02/14/17	10:00	0.0	0.5	Soil						X	X	X															Hand Tools	Bedrock refusal at 0.5 ft; not able to collect proposed soil sample at 2-3 ft bgs.		X						RTH
272	4	AOC4-36-3188	01/05/17	11:30	0.0	0.5	Soil	X	X				X	X	X															Hand Tools									RTH
273	4	AOC4-36-3189	01/05/17	11:45	0.9	1.0	Soil	X	X				X	X	X															Hand Tools	Bedrock refusal at 1.0 ft; not able to collect proposed soil samples at 2-3, 5-6 and 9-10 ft bgs.								RTH
274	4	AOC4-37-3192	02/04/17	15:00	0.0	0.5	Soil	X	X	X			X	X	X	X				X										Hand Tools	Bedrock refusal at 0.5 ft; not able to collect proposed soil samples at 2-3, 5-6 and 9-10 ft bgs.								RTH
275	4	AOC4-38-3196	02/02/17	13:15	0.0	0.5	Soil	X	X				X	X	X															Vac Truck									6253
276	4	AOC4-38-3197	02/02/17	13:45	2.0	2.2	Soil	X	X				X	X	X															Vac Truck	Bedrock refusal at 2.2 ft; not able to collect proposed soil samples at 5-6 and 9-10 ft bgs.								6253
277	4	AOC4-39-3200	01/05/17	10:30	0.0	0.5	Soil	X	X				X	X	X															Hand Tools									RTH
278	4	AOC4-39-3201	01/05/17	10:35	0.0	0.5	Soil	X	X				X	X	X															Hand Tools			X						RTH
279	4	AOC4-39-3202	01/05/17	11:00	1.5	1.7	Soil	X	X				X	X	X															Hand Tools	Bedrock refusal at 1.7 ft; not able to collect proposed soil samples at 2-3, 5-6 and 9-10 ft bgs.								RTH
280	4	AOC4-40-3205	02/06/17	14:00	0.0	0.5	Soil	X	X				X	X	X															Hand Tools									RTH
281	4	AOC4-40-3206	02/06/17	14:05	0.0	0.5	Soil	X	X				X	X	X															Hand Tools			X						RTH
282	4	AOC4-40-3207	02/06/17	14:30	0.5	1.0	Soil	X	X				X	X	X															Hand Tools	Bedrock refusal at 1.0 ft; not able to collect proposed soil samples at 2-3, 5-6 and 9-10 ft bgs.								RTH
283	4	AOC4-41-3210	02/02/17	11:00	0.0	0.5	Soil	X	X				X	X	X															Vac Truck	Bedrock refusal at 0.5 ft; not able to collect proposed soil samples at 2-3, 5-6 and 9-10 ft bgs.								6253
284	4	AOC4-42-3177	02/04/17	08:00	0.0	0.5	Soil	X	X	X			X	X	X	X				X										Vac Truck									6253
285	4	AOC4-42-3178	02/04/17	09:00	2.0	3.0	Soil	X	X				X	X	X															Vac Truck									6253
286	4	AOC4-42-3179	02/04/17	09:45	5.0	6.0	Soil	X	X				X	X	X															Vac Truck									6253
287	4	AOC4-42-3181	02/04/17	10:30	7.0	7.5	Soil	X	X				X	X	X															Vac Truck	Bedrock refusal at 7.5 ft; not able to collect proposed soil sample at 9-10 ft bgs.								6253
288	4	AOC4-BCW1-3126	01/06/16	15:01	0	1	Soil	X	X				X	X	X									X						Rotosonic									6582
289	4	AOC4-BCW1-3127	01/06/16	15:04	2	3	Soil	X	X				X	X	X									X						Rotosonic									6582
290	4	AOC4-BCW1-3128	01/06/16	15:08	5	6	Soil	X	X				X	X	X									X						Rotosonic									6582
291	4	AOC4-BCW1-3129	01/06/16	15:11	9	10	Soil	X	X				X	X	X									X						Rotosonic									6582
292	4	AOC4-BCW2-3130	01/06/16	14:44	0	1	Soil	X	X				X	X	X									X						Rotosonic									6582
293	4	AOC4-BCW2-3131	01/06/16	14:46	2	3	Soil	X	X				X	X	X									X						Rotosonic									6582
294	4	AOC4-BCW2-3132	01/06/16	14:49	5	6	Soil	X	X				X	X	X									X						Rotosonic									6582
295	4	AOC4-BCW2-3133	01/06/16	14:51	9	10	Soil	X	X				X	X	X									X						Rotosonic									6582
296	4	AOC4-BCW2-3134	01/06/16	14:53	9	10	Soil	X	X				X	X	X									X						Rotosonic			X						6582
297	4	AOC4-BCW3-3135	01/06/16	14:05	0	1	Soil	X	X				X	X	X									X						Rotosonic									6582
298	4	AOC4-BCW3-3136	01/06/16	14:07	0	1	Soil	X	X				X	X	X									X						Rotosonic			X						6582
299	4	AOC4-BCW3-3137	01/06/16	14:09	2	3	Soil	X	X				X	X	X									X						Rotosonic									6582
300	4	AOC4-BCW3-3138	01/06/16	14:13	5	6	Soil	X	X				X	X	X									X						Rotosonic									6582
301	4	AOC4-BCW3-3139	01/06/16	14:31	9	10	Soil	X	X				X	X	X									X						Rotosonic									6582
302	4	AOC4-BCW4-3140	01/06/16	13:30	0	1	Soil	X	X				X	X	X									X						Rotosonic									6582
303	4	AOC4-BCW4-3141	01/06/16	13:33	2	3	Soil	X	X				X	X	X									X						Rotosonic									6582
304	4	AOC4-BCW4-3142	01/06/16	13:36	5	6	Soil	X	X				X	X	X									X						Rotosonic									6582
305	4	AOC4-BCW4-3143	01/06/16	13:40	9	10	Soil	X	X				X	X	X									X						Rotosonic									6582
306	4	AOC4-BCW5-3144	01/06/16	13:07	0	1	Soil	X	X				X	X	X									X						Rotosonic									6582
307	4	AOC4-BCW5-3145	01/06/16	13:10	0	1	Soil	X	X				X	X	X									X						Rotosonic			X						6582
308	4	AOC4-BCW5-3146	01/06/16	13:12	2	3	Soil	X	X				X	X	X									X						Rotosonic									6582
309	4	AOC4-BCW5-3147	01/06/16	13:16	5	6	Soil	X	X				X	X	X									X						Rotosonic									6582
310	4	AOC4-BCW5-3148	01/06/16	13:18	9	10	Soil	X	X				X	X	X									X						Rotosonic									6582
311	4	AOC4-BCW6-3149	01/06/16	12:09	0	1	Soil	X	X				X	X	X									X						Rotosonic									6582

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312	4	AOC4-BCW6-3150	01/06/16	12:12	2	3	Soil	X	X				X	X	X								X								Rotosonic								6582
313	4	AOC4-BCW6-3151	01/06/16	12:16	5	6	Soil	X	X				X	X	X								X								Rotosonic								6582
314	4	AOC4-BCW6-3152	01/06/16	12:21	9	10	Soil	X	X				X	X	X								X								Rotosonic								6582
315	4	AOC4-K05	02/07/17	NA	NA	NA	Soil																							Hand Tools	Bedrock refusal at 1.0 ft; not able to collect proposed soil sample at 2-3, 5-6 ft bgs.								NA
316	4	AOC4-M06-10822	02/07/17	10:00	2.0	3.0	Soil						X																	Hand Tools	Bedrock refusal at 3.5 ft; not able to collect proposed soil sample at 5-6 ft bgs.								RTH
317	4	AOC4-tar	02/06/17	13:00	0.0	0.5	Debris	X	X				X	X	X						X									Hand Tools							X		NA
318	4	AOC4DAM-OS1-3214	02/22/17	14:30	0.0	0.2	Soil	X	X				X	X	X																Hand Tools						X			RTH
319	4	AOC4DAM-OS1-3215	02/22/17	15:00	1.0	1.5	Soil	X	X				X	X	X																Hand Tools						X			RTH
320	4	AOC4DAM-OS2-3217	02/22/17	15:30	0.0	0.2	Soil	X	X				X	X	X																Hand Tools						X			RTH
321	4	AOC4DAM-OS2-3218	02/22/17	16:00	1.0	1.5	Soil	X	X				X	X	X																Hand Tools						X			RTH
322	5	AOC5-1-13000	01/19/16	10:10	0	0.5	Soil	X	X		X		X		X							X	X								Vac Truck									6666
323	5	AOC5-1-13001	01/19/16	10:25	2	3	Soil	X	X		X		X		X							X	X								Vac Truck									6666
324	5	AOC5-1-13002	01/19/16	10:35	5	6	Soil	X	X				X		X							X	X								Vac Truck									6666
325	5	AOC5-1-13003	01/19/16	10:50	9	10	Soil	X	X													X									Vac Truck									6666
326	5	AOC5-2-13004	12/08/15	11:25	0	0.5	Soil	X	X				X		X							X	X								Vac Truck									5985
327	5	AOC5-2-13005	12/08/15	11:40	2	3	Soil	X	X				X		X							X	X								Vac Truck									5985
328	5	AOC5-2-13019	01/18/17	09:15	5.0	6.0	Soil		X																					Vac Truck	Refusal at 6.5 ft (Concrete?); not able to collect proposed soil sample at 9-10 ft bgs.								6253
329	5	AOC5-2-Scale	01/18/17	10:15	0.5	0.5	Debris	X	X													X								Vac Truck		White scale layer, 0.25 inches thick.					X		6253
330	5	AOC5-3-13006	01/23/16	09:45	0	0.5	Soil	X	X													X								Vac Truck									6590
331	5	AOC5-3-13007	01/23/16	11:05	2	3	Soil	X	X													X								Vac Truck	Concrete refusal at 3.5 ft; not able to collect proposed soil samples at 5-6, 9-10 ft bgs.								6590
332	5	AOC5-4-13010	01/23/16	11:15	0	0.5	Soil	X	X				X	X	X							X	X								Vac Truck									6590
333	5	AOC5-4-13011	01/23/16	11:40	2	3	Soil	X	X				X	X	X							X	X								Vac Truck									6590
334	5	AOC5-4-13021	01/19/17	09:45	5.0	5.5	Soil		X																					Vac Truck									6253
335	5	AOC5-4-13022	01/19/17	13:15	6.5	7.0	Soil		X																					Vac Truck	Refusal at 7.0 ft; not able to collect proposed soil sample at 9-10 ft bgs.								6253
336	5	AOC5-5-13012	01/14/16	11:20	0	0.5	Soil	X	X				X	X	X							X	X								Vac Truck									6666
337	5	AOC5-5-13013	01/14/16	11:40	2	3	Soil	X	X				X	X	X							X	X								Vac Truck									6666
338	5	AOC5-5-13014	01/14/16	11:55	5	6	Soil	X	X				X	X	X							X	X								Vac Truck									6666
339	5	AOC5-5-13015	01/14/16	12:10	9	10	Soil	X	X				X		X							X	X								Vac Truck									6666
340	5	AOC5-6-13016	01/19/16	11:25	0	0.5	Soil	X	X				X		X							X	X								Vac Truck									6666
341	5	AOC5-6-13017	01/19/16	11:30	0.5	1	Soil	X	X													X									Vac Truck			X						6666
342	5	AOC5-6-13018	01/19/16	11:35	2	3	Soil	X	X				X		X							X	X								Vac Truck									6666
343	6	AOC6-1-14000	01/20/16	13:30	0	0.5	Soil	X	X				X		X							X	X								Vac Truck									6666
344	6	AOC6-1-14001	01/20/16	13:50	2	3	Soil	X	X						X							X									Vac Truck									6666
345	6	AOC6-1-14002	01/20/16	13:55	2	3	Soil	X	X						X							X									Vac Truck			X						6666
346	6	AOC6-2-14003	01/20/16	12:40	0	0.5	Soil	X	X				X	X	X							X	X								Vac Truck									6666
347	6	AOC6-2-14004	01/20/16	13:00	2	3	Soil	X	X				X	X	X							X	X								Vac Truck									6666
348	6	AOC6-3-14005	01/20/16	10:00	0	0.5	Soil	X	X						X							X									Vac Truck									6666
349	6	AOC6-3-14006	01/20/16	10:05	0	0.5	Soil	X	X						X							X									Vac Truck			X						6666
350	6	AOC6-3-14007	01/20/16	10:15	2	3	Soil	X	X						X							X									Vac Truck									6666
351	6	AOC6-4-14008	01/20/16	09:25	0	0.5	Soil	X	X				X	X	X							X	X								Vac Truck									6666
352	6	AOC6-4-14009	01/20/16	09:40	2	3	Soil	X	X						X							X									Vac Truck									6666
353	6	AOC6-5-14010	01/19/16	15:10	0	0.5	Soil	X	X		X		X	X	X							X	X								Vac Truck									6666
354	6	AOC6-5-14011	01/19/16	15:20	2	3	Soil	X	X		X		X		X							X	X								Vac Truck			X						6666
355	6	AOC6-5-14012	01/19/16	15:25	2	3	Soil	X	X		X											X									Vac Truck									6666
356	6	AOC6-5-14019	01/24/17	13:30	5.0	6.0	Soil	X	X																						Vac Truck									6253
357	6	AOC6-5-14020	01/24/17	15:00	9.0	10.0	Soil	X	X																						Vac Truck									6253
358	6	AOC6-7-14013	01/19/16	15:45	0	0.5	Soil	X	X				X	X	X							X	X								Vac Truck									6666
359	6	AOC6-7-14014	01/19/16	15:55	2	3	Soil	X	X				X	X	X							X	X								Vac Truck									6666
360	6	AOC6-7-14021	01/24/17	09:45	5.0	6.0	Soil	X	X	X					X	X														Vac Truck									6253
361	6	AOC6-7-14022	01/24/17	10:45	9.0	10.0	Soil	X	X						X															Vac Truck									6253
362	6	AOC6-8-14015	01/25/16	13:45	0	0.5	Soil	X	X				X	X	X							X	X								Vac Truck									6590
363	6	AOC6-8-14016	01/25/16	14:00	2	3	Soil	X	X						X							X									Vac Truck									6590
364	6	AOC6-8-14017	01/25/16	14:10	5	6	Soil	X	X						X							X									Vac Truck									6590
365	6	AOC6-8-14018	01/25/16	14:40	7.5	8	Soil	X	X						X							X									Vac Truck	Refusal at 8.0 ft; not able to collect proposed soil sample at 9-10 ft bgs.								6590
366	7	AOC7-1-15000	01/06/16	13:30	0	0.5	Soil	X	X				X	X	X	X	X		X	X	X	X									Vac Truck									6582
367	7	AOC7-1-15001	01/06/16	13:45	2	3	Soil	X	X					X	X	X	X		X	X	X										Vac Truck									6582
368	7	AOC7-2-15002	01/06/16	13:55	0	0.5	Soil	X	X					X	X	X	X		X	X	X										Vac Truck									6582
369	7	AOC7-2-15003	01/06/16	13:58	0	0.5	Soil	X	X					X	X	X	X		X	X	X										Vac Truck			X						6582
370	7	AOC7-2-15004	01/06/16	14:15	2	3	Soil	X	X					X	X	X	X		X	X	X										Vac Truck									6582
371	7	AOC7-3-15005	12/09/15	09:10	0	1	Soil	X	X					X	X	X	X		X	X	X										Vac Truck				A					5985
372	7	AOC7-3-15006	12/09/15	09:15	2	3	Soil	X	X					X	X	X	X		X	X	X										Vac Truck									5985
373	7	AOC7-4-15007	12/09/15	09:35	0	1	Soil	X	X		X			X	X	X	X		X	X	X										Vac Truck				A			DTSC		5985
374	7	AOC7-4-15008	12/09/15	09:55	2	3	Soil	X	X		X			X	X	X	X		X	X	X										Vac Truck									5985
375	7	AOC7-5-15009	01/06/16	12:55	0	0.5	Soil	X	X					X	X	X	X		X	X	X										Vac Truck									6582
376	7	AOC7-5-15010	01/06/16	13:10	2	3	Soil	X	X					X	X	X	X		X	X	X										Vac Truck									6582
377	8	AOC8-1-16000	01/07/16	10:40	0	0.5	Soil	X			X						X														Vac Truck									6582
378	8	AOC8-1-16001	01/07/16	11:00	2	3	Soil	X			X			X			X			X											Vac Truck									6582
379	8	AOC8-2-16002	12/09/15	08:50	0	1	Soil	X									X														Vac Truck				A			DTSC		5985
380	8	AOC8-2-16003	12/09/15	09:00	2	3	Soil	X						X			X			X											Vac Truck									5985
381	9	AOC9-15-4100	12/06/15	08:50	0	1	Soil	X	X				X	X	X	X							X									Hand Tools									RTH
382	9	AOC9-15-4101	12/06/15	09:05	2	3	Soil	X	X				X	X	X	X							X									Hand Tools	Refusal at 3 ft; not able to collect proposed soil samples at 5-6, 9-10 ft bgs.								RTH
383	9	AOC9-16-4105	01/13/16	10:37	0	0.5	Soil	X	X				X	X	X	X							X									Rotosonic									6666
384	9	AOC9-16-4106	01/13/16	10:38	2	3	Soil	X	X				X	X	X	X							X									Rotosonic									6666
385	9	AOC9-16-4107	01/13/16	10:39	5	6	Soil	X	X				X	X	X	X							X									Rotosonic									6666
386	9	AOC9-16-4108	01/13/16	10:40	9	10	Soil	X	X					X	X	X																Rotosonic									6666

TABLE B3

Field Activities Summary Table and Deviations from Work Plan

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

No.	AOC	Sample Location	Sample Date	Sample Time	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Analytical Suite[a]																						Collection Method	Deviation from Work Plan	Notes	Field Duplicate	Below Asphalt (A) or Concrete [C]	Trench Sample	Opportunistic Sample	Debris Sample	DTSC Split Sample	Waste Bin Number
								Metals	Hexavalent Chromium	CLP-Cn, CLP-Metals	Cyanide (SW9014)	Mercury (7470A)	Dioxins	PAHs	PCBs	Pesticides	TPHs 8015M	TPH-Purgable (8015B-P) TPH-g	TPH-Extractable (8015B-E) TPH-d, TPH-mo	SVOCs	VOCs	pH (9045)	Water Content General D2216	Water E821R91100	Water Anion 300	Water General 2320B	Water General 3501	Water General LYDKHN	Water General SM4500N H3DM	Water General SM4500 S2-D	Water General SM5310C									
387	9	AOC9-17-4109	01/10/16	16:40	9	10	Soil		X				X	X	X								X								Hand Tools								RTH
388	9	AOC9-17-4110	01/14/16	14:50	14	15	Soil		X					X																	Vac Truck								6666
389	9	AOC9-18-4111	01/10/16	11:25	5	6	Soil	X	X				X	X	X								X								Vac Truck								6582
390	9	AOC9-18-4112	01/10/16	11:50	9	10	Soil	X	X					X																	Vac Truck	Refusal at 10 ft; not able to collect proposed soil sample at 14-15 ft bgs.							6582
391	9	AOC9-19-4114	01/13/16	10:55	0	0.5	Soil	X					X	X	X	X							X								Backhoe								RTH
392	9	AOC9-19-4115	01/13/16	11:02	2	3	Soil	X					X	X	X	X							X								Backhoe								RTH
393	9	AOC9-19-4116	01/13/16	11:09	5	6	Soil	X					X	X	X	X							X								Backhoe								RTH
394	9	AOC9-19-4117	01/13/16	11:15	9	10	Soil	X						X	X	X															Backhoe								RTH
395	9	AOC9-20-4118	01/13/16	10:02	0	0.5	Soil	X					X	X	X	X							X								Rotosonic								6666
396	9	AOC9-20-4119	01/13/16	10:03	2	3	Soil	X					X	X	X	X							X								Rotosonic								6666
397	9	AOC9-20-4120	01/13/16	10:04	2	3	Soil	X						X	X	X															Rotosonic			X					6666
398	9	AOC9-20-4121	01/13/16	10:05	5	6	Soil	X					X	X	X	X							X								Rotosonic								6666
399	9	AOC9-20-4122	01/13/16	10:06	9	10	Soil	X						X	X	X															Rotosonic								6666
400	9	AOC9-21-4123	01/08/17	13:45	0.0	0.5	Soil	X		X			X	X	X	X					X										Rotosonic								6253
401	9	AOC9-21-4124	01/08/17	14:00	0.0	0.5	Soil	X					X	X	X																Rotosonic			X					6253
402	9	AOC9-21-4125	01/08/17	14:05	2.0	3.0	Soil	X					X	X	X																Rotosonic								6253
403	9	AOC9-21-4126	01/08/17	14:10	5.0	6.0	Soil	X					X	X	X																Rotosonic								6253
404	9	AOC9-22-4127	01/04/17	14:00	0.0	0.5	Soil	X					X	X	X																Hand Tools								RTH
405	9	AOC9-22-4128	01/04/17	14:15	2.0	3.0	Soil	X					X	X	X																Hand Tools		Includes composite of white debris and soil							RTH
406	9	AOC9-22-4129	01/04/17	15:15	4.5	5.0	Soil	X					X	X	X																Hand Tools	Refusal at 5.0 ft; not able to collect proposed soil sample at 5-6 ft bgs.							RTH
407	9	AOC9-22-Debris	01/04/17	14:20	2.5	2.6	Debris	X	X																						Hand Tools		White debris					X	RTH
408	10	AOC10-10-5200	01/22/16	15:42	0	1	Soil	X	X				X	X	X								X								Rotosonic								6666
409	10	AOC10-10-5201	01/22/16	15:43	2	3	Soil	X	X				X	X	X								X								Rotosonic								6666
410	10	AOC10-10-5202	01/22/16	15:44	5	6	Soil	X	X				X	X	X								X								Rotosonic								6666
411	10	AOC10-10-5203	01/22/16	15:45	9	10	Soil	X	X																						Rotosonic								6666
412	10	AOC10-10-5204	01/22/16	15:46	9	10	Soil	X	X																						Rotosonic			X					6666
413	10	AOC10-11-5205	01/22/16	15:20	0	1	Soil	X	X				X	X	X	X	X			X	X	X									Rotosonic	Did not collect sample for physical parameters							6666
414	10	AOC10-11-5206	01/22/16	15:22	0	1	Soil	X	X				X	X	X	X	X			X	X	X									Rotosonic	Did not collect sample for physical parameters		X					6666
415	10	AOC10-11-5207	01/22/16	15:24	2	3	Soil	X	X				X	X	X	X	X			X	X	X									Rotosonic	Did not collect sample for physical parameters							6666
416	10	AOC10-11-5208	01/22/16	15:26	5	6	Soil	X	X				X	X	X	X	X			X	X	X									Rotosonic	Did not collect sample for physical parameters							6666
417	10	AOC10-11-5209	01/22/16	15:28	9	10	Soil	X	X				X	X	X	X	X			X	X	X									Rotosonic	Did not collect sample for physical parameters							6666
418	10	AOC10-12-5210	01/22/16	14:23	0	0.5	Soil	X	X				X	X	X								X								Rotosonic								6666
419	10	AOC10-12-5211	01/22/16	14:24	2	3	Soil	X	X				X	X	X								X								Rotosonic								6666
420	10	AOC10-12-5212	01/22/16	14:25	5	6	Soil	X	X				X	X	X								X								Rotosonic								6666
421	10	AOC10-12-5213	01/22/16	14:26	9	10	Soil	X	X					X																	Rotosonic								6666
422	10	AOC10-13-5214	12/03/15	13:15	0	1	Soil	X	X					X									X								Hand Tools								RTH
423	10	AOC10-13-5215	12/03/15	15:00	0	1	Soil	X	X					X									X								Hand Tools			X					RTH
424	10	AOC10-14-5216	12/03/15	12:55	0	1	Soil	X	X					X									X								Hand Tools								RTH
425	10	AOC10-15-5217	12/15/15	11:15	0	1	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
426	10	AOC10-15-5218	12/15/15	11:20	0	1	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe			X					RTH
427	10	AOC10-15-5219	12/15/15	11:30	2	3	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
428	10	AOC10-15-5220	12/15/15	11:55	5	6	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe							DTSC	RTH
429	10	AOC10-15-5221	12/15/15	12:35	9	10	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
430	10	AOC10-16-5222	12/15/15	14:27	0	1	Soil	X	X				X	X	X	X				X	X	X									Backhoe								RTH
431	10	AOC10-16-5223	12/15/15	14:44	2	3	Soil	X	X				X	X	X	X				X	X	X									Backhoe								RTH
432	10	AOC10-16-5224	12/15/15	14:55	5	6	Soil	X	X				X	X	X	X				X	X	X									Backhoe								RTH
433	10	AOC10-16-5225	12/15/15	15:10	9	10	Soil	X	X				X	X	X	X				X	X	X									Backhoe								RTH
434	10	AOC10-17-5226	12/03/15	11:45	0	1	Soil	X	X					X									X								Hand Tools								RTH
435	10	AOC10-18-5227	12/06/15	09:40	0	1	Soil	X	X				X	X	X									X								Hand Tools								RTH
436	10	AOC10-18-5228	12/06/15	09:52	2	3	Soil	X	X				X	X	X									X								Hand Tools								RTH
437	10	AOC10-19-5262	02/24/16	10:00	0	1	Soil	X	X				X	X										X								Hand Tools								RTH
438	10	AOC10-19-5263	02/24/16	10:35	2	3	Soil	X	X				X	X										X								Hand Tools								RTH
439	10	AOC10-19-5264	02/24/16	10:55	2	3	Soil	X	X					X																	Hand Tools			X					RTH
440	10	AOC10-19-5265	02/24/16	11:35	5	6	Soil	X	X					X																	Hand Tools	Refusal at 6 ft; not able to collect proposed soil samples at 9-10 ft bgs.		X					RTH
441	10	AOC10-20-5247	02/17/16	15:20	0	0.5	Soil	X	X				X	X	X	X	X			X	X	X	X								Hand Tools		Light green material					DTSC	6657
442	10	AOC10-20-5248	02/25/16	19:00	2	3	Soil	X	X				X	X	X	X	X			X	X	X	X								Hand Tools	Stopped advancing hole at 3.0 ft per DTSC direction. Did not collect proposed soil samples at 5-6, 9-10 ft bgs.							6657
443	10	AOC10-21-5251	02/25/16	09:30	0	0.5	Soil	X	X				X	X	X	X	X			X	X	X									Hand Tools		Oily debris						RTH
444	10	AOC10-21-5252	02/25/16	10:00	2	3	Soil	X	X				X	X	X	X	X			X	X	X	X								Hand Tools	Stopped advancing hole at 3.0 ft per DTSC direction. Did not collect proposed soil samples at 5-6, 9-10 ft bgs.	Appears clean						RTH
445	10	AOC10-22-5254	02/17/16	15:55	0	0.5	Soil	X	X				X	X	X	X	X			X	X	X									Hand Tools		Black, oily soil						RTH
446	10	AOC10-22-5255	02/17/16	16:10	1	2	Soil	X	X				X	X	X	X	X			X	X	X									Hand Tools		White dusty soil					DTSC	RTH
447	10	AOC10-22-5256	02/17/16	16:30	2	3	Soil	X	X				X	X	X	X	X			X	X	X									Hand Tools		Appears clean					DTSC	RTH
448	10	AOC10-22-5257	02/17/16	17:05	5	6	Soil	X	X				X	X	X	X	X			X	X	X									Hand Tools	Stopped advancing hole at 6.0 ft per DTSC direction. Did not collect proposed soil sample at 9-10 ft bgs.	Appears clean						RTH
449	10	AOC10-23-5258	02/25/16	10:30	0	1	Soil	X	X				X	X	X	X	X			X	X	X	X								Hand Tools		White scale					DTSC	RTH
450	10	AOC10-23-5259	02/25/16	10:40	2	3	Soil	X	X				X	X	X	X	X			X	X	X	X								Hand Tools	Stopped advancing hole at 3.0 ft per DTSC direction. Did not collect proposed soil samples at 5-6, 9-10 ft bgs.	No debris observed						RTH
451	10	AOC10-23-5260	02/25/16	12:00	1	2	Soil	X	X				X	X	X	X	X			X	X	X									Hand Tools		Black soil						RTH
452	10	AOC10-24-5261	03/07/16	09:45	0	1	Soil						X																		Hand Tools								RTH
453	10	AOC10-24-5262	03/07/16	10:50	2	3	Soil						X																		Hand Tools								RTH
454	10	AOC10-25-5266	01/08/17	15:30	0.0	0.5	Soil	X	X	X			X	X	X	X					X										Rotosonic								6253

TABLE B3

Field Activities Summary Table and Deviations from Work Plan

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

No.	AOC	Sample Location	Sample Date	Sample Time	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Analytical Suite[a]																						Collection Method	Deviation from Work Plan	Notes	Field Duplicate	Below Asphalt (A) or Concrete [C]	Trench Sample	Opportunistic Sample	Debris Sample	DTSC Split Sample	Waste Bin Number
								Metals	Hexavalent Chromium	CLP-Cn, CLP-Metals	Cyanide (SW9014)	Mercury (7470A)	Dioxins	PAHs	PCBs	Pesticides	TPHs 8015M	TPH-Purgable (8015B-P) TPH-g	TPH-Extractable (8015B-E) TPH-d, TPH-mo	SVOCs	VOCs	pH (9045)	Water Content General D2216	Water E821R91100	Water Anion 300	Water General 2320B	Water General 3501	Water General LYDKHN	Water General SM4500N H3DM	Water General SM4500 S2-D	Water General SM5310C									
455	10	AOC10-25-5267	01/08/17	15:35	0.0	0.5	Soil	X	X	X			X	X	X	X					X										Rotosonic			X					6253
456	10	AOC10-25-5268	01/08/17	15:40	2.0	3.0	Soil	X	X				X	X	X																Rotosonic								6253
457	10	AOC10-25-5269	01/08/17	15:55	5.0	6.0	Soil	X	X				X	X	X																Rotosonic								6253
458	10	AOC10-25-5270	01/08/17	16:00	9.0	10.0	Soil	X	X				X	X	X																Rotosonic								6253
459	10	AOC10-26-5271	02/21/17	08:45	0.0	0.5	Soil						X																		Hand Tools								RTH
460	10	AOC10-26-5272	02/21/17	10:45	2.0	3.0	Soil						X																		Hand Tools								RTH
461	10	AOC10-26-5273	02/21/17	10:50	2.0	3.0	Soil						X																		Hand Tools			X					RTH
462	10	AOC10-26-5274	02/21/17	11:45	4.5	5.0	Soil						X																		Hand Tools	Refusal at 5.0 ft; not able to collect proposed soil sample at 5-6 ft bgs.								RTH
463	10	AOC10-26-Debris	02/21/17	11:15	2.5	2.7	Debris	X	X				X																		Hand Tools		White debris					X		RTH
464	10	AOC10-27-5275	01/04/17	12:15	0.0	0.5	Soil						X																		Hand Tools								RTH
465	10	AOC10-27-5276	01/04/17	12:45	2.0	3.0	Soil						X																		Hand Tools								RTH
466	10	AOC10-27-5277	01/04/17	13:15	4.5	5.0	Soil						X																		Hand Tools	Refusal at 5.0 ft; not able to collect proposed soil sample at 5-6 ft bgs.								RTH
467	10	AOC10-9-5229	12/07/15	09:20	0	1	Soil	X	X					X																	Hand Tools								RTH
468	10	AOC10-9-5230	12/07/15	10:00	2	3	Soil	X	X					X																	Hand Tools	Refusal at 3 ft; not able to collect proposed soil samples at 5-6, 9-10 ft bgs.								RTH
469	10	AOC10a-2-5233	01/13/16	11:30	0	1	Soil	X	X				X	X	X	X							X								Rotosonic								6666
470	10	AOC10a-2-5234	01/13/16	11:35	2	3	Soil	X	X				X	X	X	X							X								Rotosonic								6666
471	10	AOC10a-2-5235	01/13/16	11:40	5	6	Soil	X	X					X	X	X															Rotosonic								6666
472	10	AOC10a-2-5236	01/13/16	11:45	9	10	Soil	X	X					X	X	X															Rotosonic								6666
473	10	AOC10a-3-5237	01/13/16	11:50	0	1	Soil	X	X				X	X	X	X							X								Rotosonic								6666
474	10	AOC10a-3-5238	01/13/16	11:55	2	3	Soil	X	X				X	X	X	X							X								Rotosonic								6666
475	10	AOC10a-3-5239	01/13/16	12:00	5	6	Soil	X	X				X	X	X	X							X								Rotosonic								6666
476	10	AOC10a-3-5240	01/13/16	12:05	9	10	Soil	X	X				X	X	X	X							X								Rotosonic								6666
477	10	AOC10a-4-5278	01/08/17	14:30	0.0	0.5	Soil	X																							Rotosonic								6253
478	10	AOC10a-4-5279	01/08/17	14:40	2.0	3.0	Soil	X																							Rotosonic								6253
479	10	AOC10a-4-5280	01/08/17	14:50	5.0	6.0	Soil	X																							Rotosonic								6253
480	10	AOC10a-4-5281	01/08/17	15:00	9.0	10.0	Soil	X																							Rotosonic								6253
481	10	AOC10c-6-5241	01/21/16	16:10	14	15	Soil	X	X				X	X	X								X								Rotosonic								6666
482	10	AOC10c-6-5242	01/22/16	09:10	19	20	Soil	X	X																						Rotosonic								6666
483	10	AOC10c-6-5247	01/22/16	09:20	29	30	Soil	X	X																						Rotosonic								6666
484	10	AOC10c-6-5248	01/22/16	09:50	49	50	Soil	X	X																						Rotosonic								6666
485	10	AOC10c-6-5249	01/22/16	09:50	40	50	Soil	X	X																						Rotosonic			X					6666
486	10	AOC10c-6-5250	01/22/16	10:40	59	60	Soil	X	X																						Rotosonic								6666
487	10	AOC10d-9-5243	12/15/15	12:55	0	1	Soil	X	X				X	X	X								X								Backhoe								RTH
488	10	AOC10d-9-5244	12/15/15	13:10	2	3	Soil	X	X				X	X	X								X								Backhoe								RTH
489	10	AOC10d-9-5245	12/15/15	13:40	5	6	Soil	X	X				X	X									X								Backhoe								RTH
490	10	AOC10d-9-5246	12/15/15	13:55	9	10	Soil	X	X				X	X	X								X								Backhoe								RTH
491	10	AOC13-33-Debris	02/18/17	13:30	2.0	3.0	Debris	X	X					X	X																Hand Tools						X	X	NA
492	10	AOC13-33-Scale	02/18/17	13:00	2.0	3.0	Debris	X	X					X	X																Hand Tools		Brown scale				X	X	NA
493	11	AOC11-1-6100	01/05/16	12:00	0	1	Soil	X	X				X	X		X	X		X	X	X	X								Rotosonic								6582
494	11	AOC11-1-6101	01/05/16	12:00	0	1	Soil	X	X					X		X	X		X	X	X									Rotosonic			X					6582
495	11	AOC11-1-6102	01/05/16	12:06	2	3	Soil	X	X				X	X		X	X		X	X	X	X								Rotosonic								6582
496	11	AOC11-1-6103	01/05/16	12:09	5	6	Soil	X	X					X		X	X		X	X	X									Rotosonic								6582
497	11	AOC11-1-6104	01/05/16	12:12	9	10	Soil	X	X					X		X	X		X	X	X									Rotosonic								6582
498	11	AOC11-2-6105	01/05/16	13:07	0	1	Soil	X	X				X	X	X	X	X		X	X	X	X								Rotosonic								6582
499	11	AOC11-2-6106	01/05/16	13:10	2	3	Soil	X	X				X	X	X	X	X		X	X	X	X								Rotosonic								6582
500	11	AOC11-2-6107	01/05/16	13:14	5	6	Soil	X	X				X	X	X	X	X		X	X	X	X								Rotosonic								6582
501	11	AOC11-2-6108	01/05/16	13:20	9	10	Soil	X	X				X	X	X	X	X		X	X	X	X								Rotosonic								6582
502	11	AOC11-2-6109	01/05/16	13:20	9	10	Soil	X	X				X	X	X	X	X		X	X	X	X								Rotosonic			X					6582
503	11	AOC11-3-6110	01/05/16	13:39	0	1	Soil	X	X				X	X	X	X	X		X	X	X	X								Rotosonic								6582
504	11	AOC11-3-6111	01/05/16	13:41	2	3	Soil	X	X				X	X	X	X	X		X	X	X	X								Rotosonic								6582
505	11	AOC11-3-6112	01/05/16	13:44	5	6	Soil	X	X				X	X	X	X	X		X	X	X	X								Rotosonic								6582
506	11	AOC11-3-6113	01/05/16	13:45	9	10	Soil	X	X				X	X	X	X	X		X	X	X	X								Rotosonic								6582
507	11	AOC11-3-6114	01/05/16	13:45	9	10	Soil	X	X				X	X	X	X	X		X	X	X	X								Rotosonic			X					6582
508	11	AOC11-4-6115	01/05/16	15:07	0	1	Soil	X	X				X	X		X	X		X	X	X	X								Rotosonic								6582
509	11	AOC11-4-6116	01/05/16	15:16	2	3	Soil	X	X				X	X		X	X		X	X	X	X								Rotosonic	Boring drilled to 10 ft bgs, but no recovery below 5 ft bgs; not able to collect proposed soil samples at 5-6, 9-10 ft bgs..								6582
510	11	AOC11-5-6119	02/03/16	14:22	0	0.5	Soil	X	X				X	X		X	X		X	X	X									Rotosonic								6590
511	11	AOC11-5-6120	02/03/16	14:23	2	3	Soil	X	X				X	X		X	X		X	X	X									Rotosonic								6590
512	11	AOC11-5-6121	02/03/16	14:24	5	6	Soil	X	X				X	X		X	X		X	X	X									Rotosonic								6590
513	11	AOC11-5-6122	02/03/16	14:25	9	10	Soil	X	X				X	X		X	X		X	X	X									Rotosonic								6590
514	11	AOC11-6-6123	01/06/16	08:50	0	1	Soil	X	X				X	X		X	X		X	X	X	X								Rotosonic								6582
515	11	AOC11-6-6124	01/06/16	08:51	2	3	Soil	X	X				X	X		X	X		X	X	X	X								Rotosonic								6582
516	11	AOC11-6-6125	01/06/16	08:52	5	6	Soil	X	X					X		X	X		X	X	X									Rotosonic								6582
517	11	AOC11-6-6126	01/06/16	08:53	9	10	Soil	X	X					X		X	X		X	X	X									Rotosonic								6582
518	11	AOC11-7-6127	01/06/16	09:21	0	1	Soil	X	X				X	X		X	X		X	X	X	X								Rotosonic								6582
519	11	AOC11-7-6128	01/06/16	09:22	2	3	Soil	X	X				X	X		X	X		X	X	X	X								Rotosonic								6582
520	11	AOC11-7-6129	01/06/16	09:23	5	6	Soil	X	X					X		X	X		X	X	X									Rotosonic								6582
521	11	AOC11-8-6131	12/06/15	12:15	0	1	Soil	X	X		X		X	X	X	X	X		X	X	X	X									Hand Tools								RTH

TABLE B3

Field Activities Summary Table and Deviations from Work Plan

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

No.	AOC	Sample Location	Sample Date	Sample Time	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Analytical Suite[a]																							Collection Method	Deviation from Work Plan	Notes	Field Duplicate	Below Asphalt (A) or Concrete [C]	Trench Sample	Opportunistic Sample	Debris Sample	DTSC Split Sample	Waste Bin Number
								Metals	Hexavalent Chromium	CLP-Cn, CLP-Metals	Cyanide (SW9014)	Mercury (7470A)	Dioxins	PAHs	PCBs	Pesticides	TPHs 8015M	TPH-Purgable (8015B-P) TPH-g	TPH-Extractable (8015B-E) TPH-d, TPH-mo	SVOCs	VOCs	pH (9045)	Water Content General D2216	Water E821R91100	Water Anion 300	Water General 2320B	Water General 3501	Water General LYDKHN	Water General SM4500N H3DM	Water General SM4500 S2-D	Water General SM5310C										
522	11	AOC11-8-6132	12/06/15	12:55	2	2.5	Soil	X	X		X		X	X	X	X	X			X	X	X	X									Hand Tools	Refusal at 2.5 ft; not able to collect proposed soil samples at 5-6, 9-10 ft bgs.								RTH
523	11	AOC11-9-6135	12/06/15	11:44	0	1	Soil	X	X		X		X	X	X	X	X			X	X	X	X									Hand Tools									RTH
524	11	AOC11-9-6136	12/06/15	11:59	2	3	Soil	X	X		X		X	X	X	X	X			X	X	X	X									Hand Tools	Refusal at 3 ft; not able to collect proposed soil samples at 5-6, 9-10 ft bgs.								RTH
525	11	AOC11c-3-6139	02/03/16	09:45	14	15	Soil	X	X					X	X	X															Rotosonic									6590
526	11	AOC11c-3-6140	02/03/16	09:50	19	20	Soil	X	X					X	X	X															Rotosonic									6590
527	11	AOC11c-3-6141	02/03/16	10:15	29	30	Soil	X	X					X	X	X															Rotosonic	Boring drilled to 45 ft bgs, groundwater encountered at 38 ft bgs.								6590
528	11	AOC11c-4-6146	01/28/16	12:20	0	1	Soil	X	X				X	X	X	X							X								Rotosonic									6590
529	11	AOC11c-4-6147	01/28/16	12:21	2	3	Soil	X	X				X	X	X	X							X								Rotosonic									6590
530	11	AOC11c-4-6148	01/28/16	12:22	5	6	Soil	X	X				X	X	X	X							X								Rotosonic									6590
531	11	AOC11c-4-6149	01/28/16	12:23	9	10	Soil	X	X					X	X	X															Rotosonic									6590
532	11	AOC11c-4-6150	01/28/16	12:24	9	10	Soil	X	X					X	X	X															Rotosonic			X						6590
533	11	AOC11c-4-6151	02/02/16	10:05	14	15	Soil	X	X					X	X	X															Rotosonic									6590
534	11	AOC11c-4-6152	02/02/16	10:08	19	20	Soil	X	X					X	X	X															Rotosonic									6590
535	11	AOC11e-3-6153	01/08/16	12:05	0	1	Soil	X	X				X	X	X	X							X								Vac Truck									6582
536	11	AOC11e-3-6154	01/08/16	12:10	0	1	Soil	X	X					X	X	X															Vac Truck			X						6582
537	11	AOC11e-3-6155	01/10/16	08:40	2	3	Soil	X	X				X	X	X	X							X								Vac Truck									6582
538	11	AOC11e-3-6156	01/10/16	09:30	5	6	Soil	X	X				X	X	X	X							X								Vac Truck									6582
539	11	AOC11e-3-6157	01/10/16	09:45	9	10	Soil	X	X				X	X	X	X							X								Vac Truck									6582
540	11	AOC11e-3-6158	01/10/16	10:20	13	14	Soil	X	X					X	X	X															Vac Truck									6582
541	11	AOC11e-4-6159	01/28/16	11:30	0	1	Soil	X	X				X	X	X	X							X								Rotosonic									6666
542	11	AOC11e-4-6160	01/28/16	11:31	2	3	Soil	X	X				X	X	X	X							X								Rotosonic									6666
543	11	AOC11e-4-6161	01/28/16	11:32	5	6	Soil	X	X				X	X	X	X							X								Rotosonic									6666
544	11	AOC11e-4-6164	01/28/16	11:45	14	15	Soil	X	X					X	X	X															Rotosonic	Boring drilled to 15 ft bgs, but no recovery from 8-10 ft bgs; not able to collect proposed soil sample at 9-10 ft bgs..								6666
545	11	AOC11e-5-6165	01/19/16	13:50	14	15	Soil	X	X					X	X	X															Rotosonic									6666
546	11	AOC11e-5-6166	01/19/16	14:30	19	20	Soil	X	X					X	X	X															Rotosonic									6666
547	11	AOC11e-5-6167	01/19/16	14:55	29	30	Soil	X	X					X	X	X															Rotosonic									6666
548	11	AOC11e-5-6168	01/19/16	15:35	39	40	Soil	X	X					X	X	X															Rotosonic									6666
549	11	AOC11e-5-6169	01/20/16	08:45	49	50	Soil	X	X					X	X	X															Rotosonic									6666
550	11	AOC11e-5-6170	01/21/16	09:35	59	60	Soil	X	X					X	X	X															Rotosonic									6666
551	11	AOC11e-5-6171	01/21/16	10:40	69	70	Soil	X	X					X	X	X															Rotosonic									6666
552	11	AOC11E-6-6172	12/03/15	11:16	0	1	Soil	X	X				X	X							X	X									Hand Tools									RTH
553	13	AOC13-1-17000	12/05/15	10:45	0	1	Soil	X	X					X	X	X	X			X	X										Vac Truck				A					5985
554	13	AOC13-1-17001	12/05/15	10:45	0	1	Soil	X	X					X	X	X	X			X	X										Vac Truck			X						5985
555	13	AOC13-1-17002	12/05/15	11:15	2	3	Soil	X	X					X	X	X	X			X	X										Vac Truck									5985
556	13	AOC13-10-17003	12/14/15	12:50	0	0.5	Soil	X	X		X		X	X	X	X	X			X	X	X										Vac Truck									5985
557	13	AOC13-10-17004	12/14/15	13:05	2	3	Soil	X	X		X		X	X	X	X	X			X	X	X										Vac Truck									5985
558	13	AOC13-11-17005	01/05/16	14:45	0	0.5	Soil	X	X				X	X	X	X	X			X	X	X										Vac Truck									6582
559	13	AOC13-11-17006	01/05/16	14:50	0	0.5	Soil	X	X					X	X	X	X			X	X										Vac Truck			X						6582
560	13	AOC13-11-17007	01/05/16	15:10	2	3	Soil	X	X				X	X	X	X	X			X	X	X										Vac Truck									6582
561	13	AOC13-11-SG04	01/13/16	18:02	2	3	Soil Gas														X										Soil Gas									NA
562	13	AOC13-11-SG04_021117	02/11/17	11:25	4.0	4.0	Soil Gas														X										Soil Gas									NA
563	13	AOC13-12-17008	12/05/15	13:30	0	1	Soil	X	X					X	X	X	X			X	X										Vac Truck				A					5985
564	13	AOC13-12-17009	12/05/15	13:30	0	1	Soil	X	X					X	X	X	X			X	X										Vac Truck			X						5985
565	13	AOC13-12-17010	12/05/15	13:45	2	3	Soil	X	X				X	X	X	X	X			X	X	X										Vac Truck									5985
566	13	AOC13-13-17011	01/09/16	16:00	0	0.5	Soil	X	X				X	X	X	X	X			X	X	X										Vac Truck									6582
567	13	AOC13-13-17012	01/09/16	16:15	2	3	Soil	X	X				X	X	X	X	X			X	X	X										Vac Truck									6582
568	13	AOC13-14-17013	12/14/15	11:30	0	0.5	Soil	X	X					X	X	X	X			X	X										Vac Truck									5985
569	13	AOC13-14-17014	12/14/15	11:45	2	3	Soil	X	X					X	X	X	X			X	X										Vac Truck									5985
570	13	AOC13-15-17015	12/14/15	14:45	0	0.5	Soil	X	X				X	X	X	X	X			X	X	X										Vac Truck									5985
571	13	AOC13-15-17016	12/14/15	14:55	2	3	Soil	X	X				X	X	X	X	X			X	X	X										Vac Truck									5985
572	13	AOC13-15-17017	12/14/15	15:10	5	6	Soil	X	X				X	X	X	X	X			X	X	X										Vac Truck	Refusal at 5.5 ft; not able to collect proposed soil sample at 9-10 ft bgs.								5985
573	13	AOC13-16-17019	01/05/16	16:05	0	1	Soil	X	X				X	X	X	X	X			X	X	X										Vac Truck				A					6582
574	13	AOC13-16-17020	01/05/16	16:15	2	3	Soil	X	X				X	X	X	X	X			X	X	X										Vac Truck									6582
575	13	AOC13-16-SG04	01/14/16	10:45	4	4	Soil Gas														X										Soil Gas									NA
576	13	AOC13-16-SG04_021117	02/11/17	15:35	4.0	4.0	Soil Gas														X										Soil Gas									NA
577	13	AOC13-17-17021	12/08/15	10:45	0	0.5	Soil	X	X				X	X	X	X	X			X	X	X										Vac Truck				A					5985
578	13	AOC13-17-17022	12/08/15	10:55	2	3	Soil	X	X				X	X	X	X	X			X	X	X										Vac Truck									5985
579	13	AOC13-18-17023	01/06/16	11:30	0	0.5	Soil	X	X				X	X	X	X	X			X	X	X										Vac Truck									6582
580	13	AOC13-18-17024	01/06/16	11:35	0	0.5	Soil	X	X					X	X	X	X			X	X										Vac Truck			X						6582
581	13	AOC13-18-17025	01/06/16	11:45	2	3	Soil	X	X					X	X	X	X			X	X										Vac Truck									6582
582	13	AOC13-19-17026	01/08/16	12:55	0	0.5	Soil	X	X				X	X	X	X	X			X	X	X										Vac Truck									6582
583	13	AOC13-19-17027	01/08/16	13:20	2	3	Soil	X	X				X	X	X	X	X			X	X	X										Vac Truck									6582
584	13	AOC13-2-17028	12/05/15	09:40	0	1	Soil	X	X					X	X	X	X			X	X										Vac Truck				A					5985
585	13	AOC13-2-17029	12/05/15	09:55	2	3	Soil	X	X					X	X	X	X			X	X										Vac Truck									5985
586	13	AOC13-20-17030	01/08/16	13:45	0	0.5	Soil	X	X					X	X	X	X			X	X										Vac Truck									6582
587	13	AOC13-20-17031	01/08/16	14:00	2	3	Soil	X	X					X	X	X	X			X	X										Vac Truck									6582
588	13	AOC13-21-17032	01/08/16	14:35	0	0.5	Soil	X	X					X	X	X	X			X	X										Vac Truck									6582
589	13	AOC13-21-17033	01/08/16	14:40	0	0.5	Soil	X	X					X	X	X	X			X	X										Vac Truck			X						6582
590	13	AOC13-21-17034	01/08/16	15:15	2	3	Soil	X	X					X	X	X	X			X	X										Vac Truck			X						6582
591	13	AOC13-22-17035	01/08/16	11:05	0	0.5	Soil	X	X		X		X	X	X	X	X			X	X	X										Vac Truck									6582
592	13	AOC13-22-17036	01/08/16	11:25	2	3	Soil	X	X		X		X	X	X	X	X			X	X	X										Vac Truck									6582
593	13	AOC13-23-17037	01/08/16	15:55	0	0.5	Soil	X	X				X	X	X	X	X			X	X	X										Vac Truck									6582
594	13	AOC13-23-17038	01/08/16	16:05	2	3	Soil	X	X				X	X	X	X	X			X	X	X										Vac Truck									6582
595	13	AOC13-24-17039	01/08/16	10:00	0	0.5	Soil	X	X					X	X	X	X			X	X										Vac Truck									6582
596	13	AOC13-24-17040	01/08/16	10:05	0	0.5	Soil	X	X					X	X	X	X			X	X										Vac Truck			X						6582
597	13	AOC13-24-17041	01/08/16	10:25	2	3	Soil	X	X					X	X	X	X			X	X										Vac Truck									6582
598	13	AOC13-25-17042	01/09/16	09:35	0	0.5	Soil	X	X				X	X	X	X	X			X	X	X										Vac Truck									6582
599	13	AOC13-25-17043	01/09/16	10:05	2	3	Soil	X	X					X	X	X	X			X	X										Vac Truck									6582
600	13	AOC13-26-17044	01/09/16	14:30	0	0.5	Soil	X	X					X	X	X	X			X	X										Vac Truck									6582
601	13	AOC13-26-17045	01/09/16	14:40	2	3	Soil	X	X					X	X	X	X			X	X										Vac Truck									6582
602	13	AOC13-26-17046	01/09/16	14:45	2	3	Soil	X	X					X	X	X	X			X	X										Vac Truck			X						6582
603	13	AOC13-27-17047	01/09/16	10:55	0	0.5	Soil	X	X				X	X	X	X	X			X	X	X										Vac Truck									6582
604	13	AOC13-27-17048	01/09/16	11:05	2	3	Soil	X	X				X	X	X	X	X			X	X	X										Vac Truck									6582

TABLE B3

Field Activities Summary Table and Deviations from Work Plan

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

No.	AOC	Sample Location	Sample Date	Sample Time	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Analytical Suite[a]																						Collection Method	Deviation from Work Plan	Notes	Field Duplicate	Below Asphalt (A) or Concrete [C]	Trench Sample	Opportunistic Sample	Debris Sample	DTSC Split Sample	Waste Bin Number
								Metals	Hexavalent Chromium	CLP-Cn, CLP-Metals	Cyanide (SW9014)	Mercury (7470A)	Dioxins	PAHs	PCBs	Pesticides	TPHs 8015M	TPH-Purgable (8015B-P) TPH-g	TPH-Extractable (8015B-E) TPH-d, TPH-mo	SVOCs	VOCs	pH (9045)	Water Content General D2216	Water E821R91100	Water Anion 300	Water General 2320B	Water General 3501	Water General LYDKHN	Water General SM4500N H3DM	Water General SM4500 S2-D	Water General SM5310C									
605	13	AOC13-28-17049	01/09/16	13:25	0	0.5	Soil	X	X				X	X	X	X	X			X	X		X								Vac Truck								6582
606	13	AOC13-28-17050	01/09/16	13:45	2	3	Soil	X	X				X	X	X	X	X			X	X		X								Vac Truck								6582
607	13	AOC13-29-17051	01/09/16	11:30	0	0.5	Soil	X	X					X	X	X	X			X	X										Vac Truck								6582
608	13	AOC13-29-17052	01/09/16	11:35	0	0.5	Soil	X	X					X	X	X	X			X	X										Vac Truck			X					6582
609	13	AOC13-29-17053	01/09/16	11:50	2	3	Soil	X	X					X	X	X	X			X	X										Vac Truck								6582
610	13	AOC13-3-17054	12/14/15	10:00	0	0.5	Soil	X	X					X	X	X	X			X	X										Vac Truck				A				5985
611	13	AOC13-3-17055	12/14/15	10:20	2	3	Soil	X	X					X	X	X	X			X	X										Vac Truck								5985
612	13	AOC13-30-17056	01/07/16	15:00	0	0.5	Soil	X	X				X	X	X	X	X			X	X		X								Vac Truck								6582
613	13	AOC13-30-17057	01/07/16	15:15	2	3	Soil	X	X				X	X	X	X	X			X	X		X								Vac Truck								6582
614	13	AOC13-31-17058	01/07/16	15:43	0	0.5	Soil	X	X				X	X	X	X	X			X	X		X								Vac Truck								6582
615	13	AOC13-31-17059	01/07/16	15:45	0	0.5	Soil	X	X					X	X	X	X			X	X										Vac Truck			X					6582
616	13	AOC13-31-17060	01/07/16	15:55	2	3	Soil	X	X				X	X	X	X	X			X	X		X								Vac Truck								6582
617	13	AOC13-32-17061	12/04/15	14:00	0	0.5	Soil	X	X					X	X	X	X			X	X										Vac Truck								5985
618	13	AOC13-32-17062	12/04/15	14:30	2	3	Soil	X	X					X	X	X	X			X	X										Vac Truck								5985
619	13	AOC13-33-17077	02/15/17	08:30	0.0	0.5	Debris	X	X				X	X	X						X										Hand Tools		Soil and brown scale					X		NA
620	13	AOC13-33-17078	02/15/17	08:35	0.0	0.5	Debris	X	X				X	X	X																Hand Tools		Soil and brown scale	X				X		NA
621	13	AOC13-33-17079	02/15/17	09:00	2.0	3.0	Soil	X	X				X	X	X																Hand Tools								RTH
622	13	AOC13-33-Asphalt	04/26/17	18:40	0.0	0.3	Debris						X	X	X						X										Hand Tools		Asphalt debris					X	X	NA
623	13	AOC13-34-17080	01/21/17	08:15	0.0	0.5	Soil	X		X							X														Vac Truck				A				6253
624	13	AOC13-34-17081	01/21/17	08:35	2.0	3.0	Soil	X																							Vac Truck								6253
625	13	AOC13-34-17082	01/21/17	09:00	5.0	6.0	Soil	X																							Vac Truck								6253
626	13	AOC13-4-17063	12/14/15	13:35	0	0.5	Soil	X	X				X	X	X	X	X			X	X		X								Vac Truck								5985
627	13	AOC13-4-17064	12/14/15	13:40	0	0.5	Soil	X	X					X	X	X	X			X	X										Vac Truck			X					5985
628	13	AOC13-4-17065	12/14/15	14:00	2	3	Soil	X	X				X	X	X	X	X			X	X		X								Vac Truck								5985
629	13	AOC13-5-17066	01/05/16	13:40	0	0.5	Soil	X	X					X	X	X	X			X	X										Vac Truck								6582
630	13	AOC13-5-17067	01/05/16	13:50	2	3	Soil	X	X					X	X	X	X			X	X										Vac Truck								6582
631	13	AOC13-5-SG04	01/13/16	16:05	4	4	Soil Gas														X										Soil Gas								NA
632	13	AOC13-5-SG04_021017	02/10/17	11:10	4.0	4.0	Soil Gas														X										Soil Gas								NA
633	13	AOC13-6-17068	01/05/16	11:50	0	0.5	Soil	X	X					X	X	X	X			X	X										Vac Truck								6582
634	13	AOC13-6-17069	01/05/16	12:00	2	3	Soil	X	X					X	X	X	X			X	X										Vac Truck								6582
635	13	AOC13-6-SG04	01/13/16	20:02	4	4	Soil Gas														X										Soil Gas								NA
636	13	AOC13-6-SG04_021017	02/10/17	14:50	4.0	4.0	Soil Gas														X										Soil Gas								NA
637	13	AOC13-7-17070	12/14/15	15:55	0	0.5	Soil	X	X				X	X	X	X	X			X	X		X								Vac Truck								5985
638	13	AOC13-7-17071	12/14/15	16:00	2	3	Soil	X	X				X	X	X	X	X			X	X		X								Vac Truck								5985
639	13	AOC13-8-17072	12/05/15	11:55	0	1	Soil	X	X					X	X	X	X			X	X										Vac Truck				A				5985
640	13	AOC13-8-17073	12/05/15	11:55	0	1	Soil	X	X					X	X	X	X			X	X										Vac Truck			X					5985
641	13	AOC13-8-17074	12/05/15	12:10	2	3	Soil	X	X					X	X	X	X			X	X										Vac Truck								5985
642	13	AOC13-9-17075	01/09/16	15:25	0	0.5	Soil	X	X				X	X	X	X	X		X	X	X										Vac Truck								6582
643	13	AOC13-9-17076	01/09/16	15:35	2	3	Soil	X	X				X	X	X	X	X		X	X	X										Vac Truck								6582
644	13	AOC13-Asphalt1	04/26/17	18:10	0.0	0.3	Debris						X	X	X						X										Hand Tools		Asphalt debris					X	X	NA
645	13	AOC13-Asphalt2	04/26/17	18:25	0.0	0.3	Debris						X	X	X						X										Hand Tools		Asphalt debris					X	X	NA
646	13	AOC13-Debris	04/26/17	18:45	0.0	0.3	Debris	X	X				X	X	X								X								Hand Tools		Light green color					X	X	NA
647	13	AOC13-OS15-1001	04/25/17	15:00	3.0	3.1	Soil						H	X	X			X	X												Hand Tools		West side of trench			X	X			RTH
648	13	AOC13-OS16-1002	04/25/17	15:30	2.8	2.9	Soil						H	X	X			X	X												Hand Tools		East side of trench			X	X			RTH
649	13	AOC13-OS17-1003	04/26/17	08:30	3.8	3.9	Soil						H	X	X			X	X												Hand Tools		North side of trench			X	X			RTH
650	13	AOC13-OS18-1004	04/25/17	16:30	3.8	3.9	Soil						H	X	X			X	X												Hand Tools		South side of trench			X	X			RTH
651	13	AOC13-OS19-1005	04/26/17	07:30	4.4	4.5	Soil						X	X	X			X	X												Hand Tools		Bottom, center of trench			X	X			RTH
652	13	AOC13-Putty	04/26/17	18:15	0.0	0.3	Debris						X	X	X						X										Hand Tools		Putty debris					X	X	NA
653	13	AOC13-Tar	04/26/17	18:00	0.0	0.3	Debris						X	X	X						X										Hand Tools		Tar debris					X	X	NA
654	13	AOC13-Wood	04/26/17	18:20	0.0	0.3	Debris	X	X														X								Hand Tools		Wood debris					X	X	NA
655	14	AOC14-14E-8127	02/18/16	10:20	0	1	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
656	14	AOC14-14E-8128	02/18/16	10:30	2	3	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
657	14	AOC14-14E-8129	02/18/16	10:45	2	3	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe			X					RTH
658	14	AOC14-14E-8130	02/18/16	11:05	5	5.5	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
659	14	AOC14-14E-8131	02/18/16	11:20	6	7	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
660	14	AOC14-14E-8132	02/18/16	11:45	9	10	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe	Trenches were excavated using a backhoe to evaluate nature of debris. Total depths typically excavated using the backhoe was 10 ft bgs.								RTH
661	14	AOC14-14W-8100	02/16/16	14:30	0	1	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
662	14	AOC14-14W-8101	02/16/16	14:50	2	3	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
663	14	AOC14-14W-8102	02/16/16	15:30	5	5.5	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe							DTSC	RTH
664	14	AOC14-14W-8103	02/16/16	16:15	6	7	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
665	14	AOC14-14W-8104	02/16/16	16:40	9	10	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe	Trenches were excavated using a backhoe to evaluate nature of debris. Total depths typically excavated using the backhoe was 10 ft bgs.								RTH
666	14	AOC14-15-8105	02/18/16	13:55	0	1	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
667	14	AOC14-15-8106	02/18/16	14:05	2	3	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
668	14	AOC14-15-8108	02/18/16	14:25	5	6	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
669	14	AOC14-15-8109	02/18/16	15:15	7	8	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe	Trenches were excavated using a backhoe to evaluate nature of debris. Total depths typically excavated using the backhoe was 10 ft bgs.								RTH
670	14	AOC14-16E-8133	02/23/16	10:00	0	1	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
671	14	AOC14-16E-8134	02/23/16	10:10	2	3	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
672	14	AOC14-16E-8135	02/23/16	10:30	5	6	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH

TABLE B3

Field Activities Summary Table and Deviations from Work Plan

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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

No.	AOC	Sample Location	Sample Date	Sample Time	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Analytical Suite[a]																							Collection Method	Deviation from Work Plan	Notes	Field Duplicate	Below Asphalt (A) or Concrete [C]	Trench Sample	Opportunistic Sample	Debris Sample	DTSC Split Sample	Waste Bin Number
								Metals	Hexavalent Chromium	CLP-Cn, CLP-Metals	Cyanide (SW9014)	Mercury (7470A)	Dioxins	PAHs	PCBs	Pesticides	TPHs 8015M	TPH-Purgable (8015B-P) TPH-g	TPH-Extractable (8015B-E) TPH-d, TPH-mo	SVOCs	VOCs	pH (9045)	Water Content General D2216	Water E821R91100	Water Anion 300	Water General 2320B	Water General 3501	Water General LYDKHN	Water General SM4500N H3DM	Water General SM4500 S2-D	Water General SM5310C									
673	14	AOC14-16E-8136	02/23/16	11:15	9	10	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe	Trenches were excavated using a backhoe to evaluate nature of debris. Total depths typically excavated using the backhoe was 10 ft bgs.								RTH
674	14	AOC14-16W-8111	02/22/16	10:00	0	1	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
675	14	AOC14-16W-8112	02/22/16	10:40	2	3	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
676	14	AOC14-16W-8113	02/22/16	11:00	5	6	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
677	14	AOC14-16W-8114	02/22/16	11:15	7	8	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
678	14	AOC14-16W-8115	02/22/16	11:55	9	10	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
679	14	AOC14-16W-8116	02/22/16	12:10	9	10	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe			X					RTH
680	14	AOC14-17E-8137	02/24/16	14:50	9	10	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
681	14	AOC14-17W-8117	02/24/16	13:15	0	1	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
682	14	AOC14-17W-8118	02/24/16	13:35	2	3	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
683	14	AOC14-17W-8119	02/24/16	14:05	5	6	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe								RTH
684	14	AOC14-17W-8120	02/24/16	14:25	9	10	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe	Trenches were excavated using a backhoe to evaluate nature of debris. Total depths typically excavated using the backhoe was 10 ft bgs.								RTH
685	14	AOC14-17W-8121	02/24/16	13:45	1	2	Soil	X	X				X	X	X	X	X			X	X	X									Backhoe							DTSC	RTH
686	14	AOC14-18-8122	02/17/16	13:25	0	1	Soil	X	X																						Hand Tools								RTH
687	14	AOC14-18-8123	02/17/16	13:27	2	3	Soil	X	X																						Hand Tools								RTH
688	14	AOC14-18-8124	02/17/16	14:10	5	6	Soil	X	X																						Hand Tools	Refusal at 6.0 ft; not able to collect proposed soil sample at 9-10 ft bgs.								RTH
689	14	AOC14-19-8125	02/17/16	12:05	2	3	Soil	X	X				X	X	X	X	X			X	X	X									Hand Tools							DTSC	RTH
690	14	AOC14-19-8126	02/17/16	12:15	3	4	Soil	X	X				X	X	X	X	X			X	X	X									Hand Tools								RTH
691	14	AOC14-20-8138	04/26/17	09:00	0.0	0.5	Soil	X	X	X			X			X					X										Backhoe					X			RTH
692	14	AOC14-20-8139	04/26/17	09:30	2.0	3.0	Soil	X	X				X																		Backhoe					X			RTH
693	14	AOC14-20-8140	04/26/17	10:00	5.0	6.0	Soil	X	X				X																		Backhoe					X			RTH
694	14	AOC14-20-8141	04/26/17	10:30	8.0	9.0	Soil	X	X				X																		Backhoe					X			RTH
695	14	AOC14-21-8142	04/26/17	11:30	0.0	0.5	Soil	X	X				X																		Backhoe					X			RTH
696	14	AOC14-21-8143	04/26/17	12:00	2.0	3.0	Soil	X	X				X																		Backhoe					X			RTH
697	14	AOC14-21-8144	04/26/17	12:05	2.0	3.0	Soil	X	X				X																		Backhoe			X		X			RTH
698	14	AOC14-21-8145	04/26/17	12:30	5.0	6.0	Soil	X	X				X																		Backhoe					X			RTH
699	14	AOC14-21-8146	04/26/17	13:30	9.0	10.0	Soil	X	X				X																		Backhoe					X			RTH
700	15	AOC15-1-18000	01/22/16	15:00	0	0.5	Soil	X	X					X	X						X										Vac Truck								6666
701	15	AOC15-1-18001	01/22/16	15:25	2	3	Soil	X	X					X	X						X										Vac Truck								6666
702	15	AOC15-1-18018	01/19/17	14:50	5.0	6.0	Soil	X	X																						Vac Truck								6253
703	15	AOC15-1-18019	01/20/17	12:15	9.0	10.0	Soil	X	X																						Vac Truck								6253
704	15	AOC15-1-18020	01/20/17	12:45	14.0	14.5	Soil	X	X																						Vac Truck	Flowing sand at 14.5 ft								6253
705	15	AOC15-2-18002	01/22/16	14:30	0	0.5	Soil	X	X												X										Vac Truck								6666
706	15	AOC15-2-18003	01/22/16	14:45	2	3	Soil	X	X												X										Vac Truck								6666
707	15	AOC15-3-18004	01/22/16	11:00	0	0.5	Soil	X	X												X										Vac Truck								6666
708	15	AOC15-3-18005	01/22/16	11:15	2	3	Soil	X	X												X										Vac Truck								6666
709	15	AOC15-3-18006	01/22/16	11:20	2	3	Soil	X	X												X										Vac Truck			X					6666
710	15	AOC15-4-18007	01/22/16	13:40	0	0.5	Soil	X	X												X										Vac Truck								6666
711	15	AOC15-4-18008	01/22/16	13:40	2	3	Soil	X	X												X										Vac Truck								6666
712	15	AOC15-5-18009	01/22/16	14:05	0	0.5	Soil	X	X												X										Vac Truck								6666
713	15	AOC15-5-18010	01/22/16	14:10	0	0.5	Soil	X	X												X										Vac Truck			X					6666
714	15	AOC15-5-18011	01/22/16	14:15	2	3	Soil	X	X												X										Vac Truck								6666
715	15	AOC15-6-18012	01/22/16	11:36	0	0.5	Soil	X	X		X			X	X	X				X	X	X									Vac Truck								6666
716	15	AOC15-6-18013	01/22/16	11:40	0	0.5	Soil	X	X		X			X	X	X				X	X	X									Vac Truck			X					6666
717	15	AOC15-6-18014	01/22/16	11:50	2	3	Soil	X	X		X			X	X	X				X	X	X									Vac Truck								6666
718	15	AOC15-7-18015	01/22/16	10:15	0	0.5	Soil	X	X		X			X	X	X				X	X	X									Vac Truck								6666
719	15	AOC15-7-18016	01/22/16	10:20	0	0.5	Soil	X	X		X			X	X	X				X	X	X									Vac Truck			X					6666
720	15	AOC15-7-18017	01/22/16	10:25	2	3	Soil	X	X		X			X	X	X				X	X	X									Vac Truck								6666
721	16	AOC16-1-19000	01/11/16	14:30	0	0.5	Soil	X			X																				Vac Truck								6582
722	16	AOC16-1-19001	01/11/16	14:45	2	3	Soil	X			X																				Vac Truck								6582
723	16	AOC16-2-19002	01/11/16	15:05	0	0.5	Soil	X																							Vac Truck								6582
724	16	AOC16-2-19003	01/11/16	15:20	2	3	Soil	X																							Vac Truck								6582
725	16	AOC16-3-19004	01/11/16	13:45	0	0.5	Soil	X																							Vac Truck								6582
726	16	AOC16-3-19005	01/11/16	14:00	2	3	Soil	X																							Vac Truck								6582
727	16	AOC16-4-19006	01/11/16	14:55	0	1	Soil	X					X										X								Vac Truck								6582
728	16	AOC16-5-19008	02/20/17	09:30	0.0	0.5	Soil	X	X	X			X	X	X	X				X											Hand Tools								RTH
729	16	AOC16-5-19009	02/20/17	09:35	0.0	0.5	Soil	X	X				X	X	X																Hand Tools			X					RTH
730	16	AOC16-5-19010	02/20/17	10:30	2.0	3.0	Soil	X	X				X	X	X																Hand Tools								RTH
731	16	AOC16-grit-19007	01/05/17	10:15	0.0	0.5	Debris	X						X	X																Hand Tools	Black sand blast grit debris						X		NA
732	17	AOC17-1-20000	12/06/15	14:15	0	1	Soil	X	X					X	X	X	X			X	X										Vac Truck				A				5985
733	17	AOC17-1-20001	12/06/15	14:15	0	1	Soil	X	X					X	X	X	X			X	X										Vac Truck			X					5985
734	17	AOC17-1-20002	12/06/15	14:35	2	3	Soil	X	X					X		X	X			X	X										Vac Truck								5985
735	17	AOC17-1-20003	12/06/15	14:55	5	6	Soil	X	X					X		X	X			X	X										Vac Truck								5985
736	17	AOC17-1-20022	12/06/15	15:10	9	10	Soil	X	X					X		X	X			X	X										Vac Truck								5985
737	17	AOC17-2-20004	12/06/15	09:15	0	1	Soil	X	X				X	X	X	X	X			X	X										Vac Truck				A				5985
738	17	AOC17-2-20005	12/06/15	09:25	2	3	Soil	X	X				X	X	X	X	X			X	X										Vac Truck								5985
739	17	AOC17-2-20006	12/06/15	09:35	5	6	Soil	X	X					X		X	X			X	X										Vac Truck								5985
740	17	AOC17-2-20007	12/06/15	09:55	9	10	Soil	X	X					X		X	X			X	X										Vac Truck								5985

TABLE B3

Field Activities Summary Table and Deviations from Work Plan

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

No.	AOC	Sample Location	Sample Date	Sample Time	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Analytical Suite[a]																								Collection Method	Deviation from Work Plan	Notes	Field Duplicate	Below Asphalt (A) or Concrete [C]	Trench Sample	Opportunistic Sample	Debris Sample	DTSC Split Sample	Waste Bin Number
								Metals	Hexavalent Chromium	CLP-Cn, CLP-Metals	Cyanide (SW9014)	Mercury (7470A)	Dioxins	PAHs	PCBs	Pesticides	TPHs 8015M	TPH-Purgable (8015B-P) TPH-g	TPH-Extractable (8015B-E) TPH-d, TPH-mo	SVOCs	VOCs	pH (9045)	Water Content General D2216	Water E821R91100	Water Anion 300	Water General 2320B	Water General 3501	Water General LYDKHN	Water General SM4500N H3DM	Water General SM4500 S2-D	Water General SM5310C									
741	17	AOC17-3-20008	12/06/15	12:45	0	1	Soil	X	X					X	X	X	X			X	X										Vac Truck				A					5985
742	17	AOC17-3-20009	12/06/15	12:45	0	1	Soil	X	X					X	X	X	X			X	X										Vac Truck			X						5985
743	17	AOC17-3-20010	12/06/15	13:00	2	3	Soil	X	X					X		X	X			X	X										Vac Truck									5985
744	17	AOC17-3-20011	12/06/15	13:15	5	6	Soil	X	X					X		X	X			X	X										Vac Truck									5985
745	17	AOC17-3-20012	12/06/15	13:30	9	10	Soil	X	X					X		X	X			X	X										Vac Truck									5985
746	17	AOC17-4-20013	12/06/15	10:25	0	1	Soil	X	X				X	X	X	X	X			X	X										Vac Truck				A					5985
747	17	AOC17-4-20014	12/06/15	10:45	2	3	Soil	X	X				X	X	X	X	X			X	X										Vac Truck									5985
748	17	AOC17-4-20015	12/06/15	11:00	5	6	Soil	X	X					X		X	X			X	X										Vac Truck	Refusal at 8 ft; not able to collect proposed soil sample at 9-10 ft bgs.								5985
749	17	AOC17-5-20017	12/06/15	14:10	0	1	Soil	X	X		X			X	X	X	X			X	X										Vac Truck				A					5985
750	17	AOC17-5-20018	12/06/15	14:20	2	3	Soil	X	X		X			X		X	X			X	X										Vac Truck									5985
751	17	AOC17-5-20019	12/06/15	14:20	2	3	Soil	X	X		X			X		X	X			X	X										Vac Truck			X						5985
752	17	AOC17-5-20020	12/06/15	14:45	5	6	Soil	X	X					X		X	X			X	X										Vac Truck									5985
753	17	AOC17-5-20021	12/06/15	15:05	9	10	Soil	X	X					X		X	X			X	X										Vac Truck									5985
754	18	AOC18-1-21000	01/12/16	10:15	0	0.5	Soil	X	X				X	X	X	X	X			X	X	X	X								Vac Truck									6582
755	18	AOC18-1-21001	01/12/16	10:18	0	0.5	Soil	X	X					X	X	X	X			X	X	X									Vac Truck			X						6582
756	18	AOC18-1-21002	01/12/16	10:35	2	3	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									6582
757	18	AOC18-1-21003	01/12/16	10:50	5	6	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									6582
758	18	AOC18-10-21004	12/16/15	13:45	0	0.5	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									5985
759	18	AOC18-10-21005	12/16/15	14:00	2	3	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									5985
760	18	AOC18-10-21006	12/16/15	14:25	5	6	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									5985
761	18	AOC18-11-21007	01/11/16	11:45	0	0.5	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									6582
762	18	AOC18-11-21008	01/11/16	11:55	2	3	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									6582
763	18	AOC18-11-21009	01/11/16	12:25	5	6	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									6582
764	18	AOC18-12-21010	12/04/15	13:00	0	0.5	Soil	X	X				X	X	X	X	X			X	X	X	X								Vac Truck									5985
765	18	AOC18-12-21011	12/04/15	13:15	2	3	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									5985
766	18	AOC18-12-21012	12/04/15	13:30	5	6	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									5985
767	18	AOC18-2-21013	01/12/16	11:35	0	0.5	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									6582
768	18	AOC18-2-21014	01/12/16	11:50	2	3	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									6582
769	18	AOC18-2-21015	01/12/16	12:00	5	6	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									6582
770	18	AOC18-3-21016	01/12/16	13:15	0	0.5	Soil	X	X				X	X	X	X	X			X	X	X	X								Vac Truck									6582
771	18	AOC18-3-21017	01/12/16	13:45	2	3	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									6582
772	18	AOC18-3-21018	01/12/16	14:00	5	6	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									6582
773	18	AOC18-4-21019	12/04/15	15:10	0	0.5	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									5985
774	18	AOC18-4-21020	12/04/15	15:50	2	3	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									5985
775	18	AOC18-4-21021	12/05/15	08:55	5	6	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									5985
776	18	AOC18-5-21022	12/04/15	09:50	0	0.5	Soil	X	X				X	X	X	X	X			X	X	X	X								Vac Truck									5985
777	18	AOC18-5-21023	12/04/15	10:05	2	3	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									5985
778	18	AOC18-5-21024	12/04/15	11:30	5	6	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									5985
779	18	AOC18-6-21025	12/04/15	10:15	0	0.5	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									5985
780	18	AOC18-6-21026	12/04/15	10:45	2	3	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									5985
781	18	AOC18-6-21027	12/04/15	10:45	2	3	Soil	X	X					X	X	X	X			X	X	X									Vac Truck			X						5985
782	18	AOC18-6-21028	12/04/15	11:00	5	6	Soil	X	X					X	X	X	X			X	X	X									Vac Truck									5985
783	18	AOC18-7-21029	12/08/15	12:50	0	0.5	Soil	X	X					X	X	X	X			X	X	X									Vac Truck				A					5985
784	18	AOC18-7-21030	12/08/15	12:55	2	3	Soil	X	X		X			X	X	X	X			X	X	X									Vac Truck	Refusal at 3 ft; not able to collect proposed soil sample at 5-6 ft bgs.								5985
785	18	AOC18-8-21032	12/08/15	13:50	0	1	Soil	X	X		X			X	X	X	X			X	X	X									Vac Truck				A					5985
786	18	AOC18-8-21033	12/08/15	14:20	2	3	Soil	X	X		X			X	X	X	X			X	X	X									Vac Truck	Refusal at 3.5 ft; not able to collect proposed soil sample at 5-6 ft bgs.								5985
787	18	AOC18-9-21036	12/07/15	14:55	0	0.5	Soil	X	X				X	X	X	X	X			X	X	X	X								Vac Truck									5985
788	18	AOC18-9-21037	12/07/15	15:00	0	0.5	Soil	X	X					X	X	X	X			X	X	X									Vac Truck			X						5985
789	18	AOC18-9-21038	12/07/15	15:30	2	3	Soil	X	X					X	X	X	X			X	X	X									Vac Truck	Refusal at 4 ft; not able to collect proposed soil sample at 5-6 ft bgs.								5985
790	19	AOC19-10-22000	12/16/15	09:20	0	0.5	Soil	X	X				X	X	X							X	X								Vac Truck									5985
791	19	AOC19-10-22001	12/16/15	09:30	2	3	Soil	X	X				X	X	X							X	X								Vac Truck									5985
792	19	AOC19-10-22021	01/22/17	09:30	5.0	5.5	Soil	X	X	X						X															Vac Truck									6253
793	19	AOC19-10-22022	01/22/17	10:45	6.5	7.0	Soil	X	X																						Vac Truck	Refusal at 7.0 ft (Boulder); not able to collect proposed soil sample at 9-10 ft bgs.								6253
794	19	AOC19-11-22018	03/10/16	10:00	0	1	Soil	X	X				X	X	X							X	X								Vac Truck				A					RTH
795	19	AOC19-11-22019	03/10/16	11:00	2	3	Soil	X	X													X									Vac Truck									RTH
796	19	AOC19-11-22020	03/10/16	11:00	2	3	Soil	X	X													X									Vac Truck			X						RTH
797	19	AOC19-11-22023	01/23/17	10:00	5.0	6.0	Soil	X	X																						Vac Truck									6253
798	19	AOC19-11-22024	01/23/17	12:30	9.0	10.0	Soil	X	X																						Vac Truck									6253
799	19	AOC19-12-22025	01/21/17	11:00	0.0	0.5	Soil	X	X					X	X	X															Vac Truck									6253
800	19	AOC19-12-22026	01/21/17	12:30	2.0	3.0	Soil	X	X	X				X	X	X	X				X										Vac Truck									6253
801	19	AOC19-12-22027	01/21/17	12:35	2.0	3.0	Soil	X	X					X	X	X															Vac Truck			X						6253
802	19	AOC19-12-22028	01/21/17	13:10	4.0	5.0	Soil	X	X					X	X	X															Vac Truck									6253
803	19	AOC19-13-22029	01/22/17	12:00	0.0	0.5	Soil	X	X					X	X	X															Vac Truck									6253
804	19	AOC19-13-22030	01/22/17	12:45	2.0	3.0	Soil	X	X					X	X	X															Vac Truck									6253
805	19	AOC19-13-22031	01/22/17	13:30	5.0	6.0	Soil	X	X					X	X	X															Vac Truck									6253
806	19	AOC19-14-22032	01/21/17	14:00	0.0	0.5	Soil	X	X					X	X	X															Vac Truck									6253
807	19	AOC19-14-22033	01/21/17	14:05	0.0	0.5	Soil	X	X					X	X	X															Vac Truck			X						6253
808	19	AOC19-14-22034	01/21/17	14:35	2.0	3.0	Soil	X	X					X	X	X															Vac Truck									6253
809	19	AOC19-14-22035	01/21/17	15:30	5.0	6.0	Soil	X	X					X	X	X															Vac Truck									6253

TABLE B3

Field Activities Summary Table and Deviations from Work Plan

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

No.	AOC	Sample Location	Sample Date	Sample Time	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Analytical Suite[a]																								Collection Method	Deviation from Work Plan	Notes	Field Duplicate	Below Asphalt (A) or Concrete [C]	Trench Sample	Opportunistic Sample	Debris Sample	DTSC Split Sample	Waste Bin Number
								Metals	Hexavalent Chromium	CLP-Cn, CLP-Metals	Cyanide (SW9014)	Mercury (7470A)	Dioxins	PAHs	PCBs	Pesticides	TPHs 8015M	TPH-Purgable (8015B-P) TPH-g	TPH-Extractable (8015B-E) TPH-d, TPH-mo	SVOCs	VOCs	pH (9045)	Water Content General D2216	Water E821R91100	Water Anion 300	Water General 2320B	Water General 3501	Water General LYDKHN	Water General SM4500N H3DM	Water General SM4500 S2-D	Water General SM5310C										
810	19	AOC19-15-22036	01/21/17	09:30	0.0	0.5	Soil	X	X				X	X	X																Vac Truck									6253
811	19	AOC19-15-22037	01/21/17	10:00	2.0	3.0	Soil	X	X				X	X	X																Vac Truck									6253
812	19	AOC19-15-22038	01/21/17	10:30	5.0	6.0	Soil	X	X				X	X	X																Vac Truck									6253
813	19	AOC19-5-22002	12/06/15	08:05	0	0.5	Soil	X	X													X									Vac Truck				A					5985
814	19	AOC19-5-22003	12/06/15	08:22	2	3	Soil	X	X				X	X	X							X	X								Vac Truck									5985
815	19	AOC19-6-22006	01/23/16	13:50	0	0.5	Soil	X	X				X	X	X							X	X								Vac Truck									6590
816	19	AOC19-6-22007	01/23/16	14:00	2	3	Soil	X	X													X									Vac Truck									6590
817	19	AOC19-7-22008	01/23/16	14:20	0	0.5	Soil	X	X				X	X	X							X	X								Vac Truck									6590
818	19	AOC19-7-22009	01/23/16	14:25	0	0.5	Soil	X	X													X									Vac Truck			X						6590
819	19	AOC19-7-22010	01/23/16	14:40	2	3	Soil	X	X				X	X	X							X	X								Vac Truck									6590
820	19	AOC19-8-22011	12/16/15	09:55	0	0.5	Soil	X	X		X		X	X	X							X	X								Vac Truck									5985
821	19	AOC19-8-22012	12/16/15	10:10	2	3	Soil	X	X		X											X									Vac Truck									5985
822	19	AOC19-8-22013	12/16/15	10:25	5	6	Soil	X	X													X									Vac Truck									5985
823	19	AOC19-8-22014	12/16/15	10:55	9	10	Soil	X	X													X									Vac Truck									5985
824	19	AOC19-9-22015	12/05/15	15:00	0	0.5	Soil	X	X													X									Vac Truck				A					5985
825	19	AOC19-9-22016	12/05/15	15:10	2	3	Soil	X	X													X									Vac Truck									5985
826	19	AOC19-9-22017	12/06/15	07:20	5	6	Soil	X	X													X									Vac Truck	Refusal at 6.5 ft; not able to collect proposed soil sample at 9-10 ft bgs.								5985
827	20	AOC20-08-OS1-1001	12/18/16	14:00	0.0	0.5	Soil	X	X					X	X				X	X	X										Vac Truck						X			RTH
828	20	AOC20-08-OS1-1002	12/18/16	15:15	4.0	5.0	Soil	X	X					X	X				X	X	X										Vac Truck		Collected below red clay "Y" junction				X			RTH
829	20	AOC20-09-OS1-1001	12/20/16	15:00	0.0	0.5	Soil	X	X					X	X				X	X	X										Vac Truck						X			RTH
830	20	AOC20-09-OS1-1002	12/20/16	15:30	4.0	5.0	Soil	X	X					X	X				X	X	X										Vac Truck		Collected below mainline and FD-39 lateral				X			RTH
831	20	AOC20-09-OS1-1003	12/20/16	15:35	4.0	5.0	Soil	X	X					X	X				X	X	X										Vac Truck		Collected below mainline and FD-39 lateral	X			X			RTH
832	20	AOC20-1-23000	01/26/16	11:15	0	1	Soil	X	X					X	X			X													Vac Truck				C					6590
833	20	AOC20-1-23001	01/26/16	11:30	2	3	Soil	X	X					X	X			X				X									Vac Truck									6590
834	20	AOC20-1-23002	01/26/16	11:35	2	3	Soil	X	X					X	X			X				X									Vac Truck			X						6590
835	20	AOC20-11-OS1-1001	12/21/16	12:45	0.0	0.5	Soil	X	X					X	X				X	X	X										Vac Truck						X			RTH
836	20	AOC20-11-OS1-1002	12/21/16	13:00	2.0	3.0	Soil	X	X					X	X				X	X	X										Vac Truck			X			X			RTH
837	20	AOC20-11-OS1-1003	12/21/16	13:30	6.0	7.0	Soil	X	X					X	X				X	X	X										Vac Truck		Collected below "T" flange fitting				X			RTH
838	20	AOC20-12-OS1-1001	12/21/16	11:15	0.0	0.5	Soil	X	X					X	X				X	X	X										Vac Truck						X			RTH
839	20	AOC20-12-OS1-1002	12/21/16	11:30	2.0	3.0	Soil	X	X					X	X				X	X	X										Vac Truck		Collected below mainline and FD-41 lateral				X			RTH
840	20	AOC20-12-OS1-1003	12/21/16	12:00	5.0	6.0	Soil	X	X					X	X				X	X	X										Vac Truck						X			RTH
841	20	AOC20-13-OS1-1001	12/21/16	09:50	0.0	0.5	Soil	X	X					X	X				X	X	X										Vac Truck						X			RTH
842	20	AOC20-13-OS1-1002	12/21/16	10:20	2.0	3.0	Soil	X	X					X	X				X	X	X										Vac Truck		Collected below mainline and FD-42 lateral				X			RTH
843	20	AOC20-13-OS1-1003	12/21/16	10:25	2.0	3.0	Soil	X	X					X	X				X	X	X										Vac Truck		Collected below mainline and FD-42 lateral	X			X			RTH
844	20	AOC20-13-OS1-1004	12/21/16	10:45	5.0	6.0	Soil	X	X					X	X				X	X	X										Vac Truck						X			RTH
845	20	AOC20-14-OS1-1001	12/19/16	13:45	0.0	0.5	Soil	X	X					X	X				X	X	X										Vac Truck				A		X			RTH
846	20	AOC20-14-OS1-1002	12/19/16	14:45	2.0	3.0	Soil	X	X					X	X				X	X	X										Vac Truck						X			RTH
847	20	AOC20-14-OS1-1003	12/20/16	09:45	6.0	7.0	Soil	X	X					X	X				X	X	X										Vac Truck		Collected below red clay pipe/lateral junction				X			RTH
848	20	AOC20-14-OS1-1004	12/20/16	09:50	6.0	7.0	Soil	X	X					X	X				X	X	X										Vac Truck		Collected below red clay pipe/lateral junction	X			X			RTH
849	20	AOC20-16-OS1-1001	12/19/16	09:00	0.0	0.5	Soil	X	X					X	X				X	X	X										Vac Truck				A		X			RTH
850	20	AOC20-16-OS1-1002	12/19/16	09:30	2.0	3.0	Soil	X	X					X	X				X	X	X										Vac Truck						X			RTH
851	20	AOC20-16-OS1-1003	12/19/16	10:30	5.0	6.0	Soil	X	X					X	X				X	X	X										Vac Truck						X			RTH
852	20	AOC20-16-OS1-1004	12/19/16	12:30	9.0	9.5	Soil	X	X					X	X				X	X	X										Vac Truck		Collected below red clay pipe/lateral junction				X			RTH
853	20	AOC20-16-OS1-1005	12/19/16	12:35	9.0	9.5	Soil	X	X					X	X				X	X	X										Vac Truck		Collected below red clay pipe/lateral junction	X			X			RTH
854	20	AOC20-18-OS1-1001	12/17/16	12:00	0.0	0.5	Soil	X	X					X	X				X	X	X										Vac Truck				A		X			RTH
855	20	AOC20-18-OS1-1002	12/17/16	13:30	3.0	3.5	Soil	X	X					X	X				X	X	X										Vac Truck		Collected below PVC/Steel/PVC flange spool				X			RTH
856	20	AOC20-2-23003	12/18/15	10:45	0	1	Soil	X	X					X	X			X													Vac Truck									5985
857	20	AOC20-2-23004	12/18/15	10:55	2	3	Soil	X	X					X	X			X				X									Vac Truck									5985
858	20	AOC20-2-23016	12/18/15	11:05	5	6	Soil	X	X					X	X			X				X									Vac Truck									5985
859	20	AOC20-2-23017	12/18/15	11:30	9	10	Soil	X	X					X	X			X				X									Vac Truck									5985
860	20	AOC20-21-OS1-1001	12/20/16	11:00	0.0	0.5	Soil	X	X					X	X				X	X	X										Vac Truck						X			RTH
861	20	AOC20-21-OS1-1002	12/20/16	11:30	2.0	3.0	Soil	X	X					X	X				X	X	X										Vac Truck						X			RTH
862	20	AOC20-21-OS1-1003	12/20/16	12:30	5.0	6.0	Soil	X	X					X	X				X	X	X										Vac Truck						X			RTH
863	20	AOC20-21-OS1-1004	12/20/16	14:25	8.5	9.0	Soil	X	X					X	X				X	X	X										Vac Truck		Collected below mainline and west line junction				X			RTH
864	20	AOC20-21-OS1-1005	12/20/16	14:30	8.5	9.0	Soil	X	X					X	X				X	X	X										Vac Truck		Collected below mainline and west line junction	X			X			RTH
865	20	AOC20-3-23005	12/18/15	13:45	0	1	Soil	X	X					X	X			X													Vac Truck									5985
866	20	AOC20-3-23006	12/18/15	13:55	2	3	Soil	X	X					X	X			X				X									Vac Truck									5985
867	20	AOC20-3-23019	12/18/15	14:05	7	8	Soil	X	X					X	X			X				X									Vac Truck									5985

TABLE B3

Field Activities Summary Table and Deviations from Work Plan

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

No.	AOC	Sample Location	Sample Date	Sample Time	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Analytical Suite[a]																						Collection Method	Deviation from Work Plan	Notes	Field Duplicate	Below Asphalt (A) or Concrete [C]	Trench Sample	Opportunistic Sample	Debris Sample	DTSC Split Sample	Waste Bin Number
								Metals	Hexavalent Chromium	CLP-Cn, CLP-Metals	Cyanide (SW9014)	Mercury (7470A)	Dioxins	PAHs	PCBs	Pesticides	TPHs 8015M	TPH-Purgable (8015B-P) TPH-g	TPH-Extractable (8015B-E) TPH-d, TPH-mo	SVOCs	VOCs	pH (9045)	Water Content General D2216	Water E821R91100	Water Anion 300	Water General 2320B	Water General 3501	Water General LYDKHN	Water General SM4500N H3DM	Water General SM4500 S2-D	Water General SM5310C									
868	20	AOC20-4-23007	12/15/15	09:00	0	1	Soil	X	X				X	X	X		X						X								Vac Truck			X					5985
869	20	AOC20-4-23008	12/15/15	09:05	0	1	Soil	X	X					X	X		X														Vac Truck								5985
870	20	AOC20-4-23009	12/15/15	09:20	2	2.5	Soil	X	X					X	X		X					X									Vac Truck		Below concrete utility						5985
871	20	AOC20-4-23016	12/15/15	10:35	1.9	2	Soil	X	X				X	X	X		X						X								Vac Truck	Collected sample by request from Jose Marcos/DTSC from under the pipe, inside the concrete utility vault at SW end of utility corridor under the grate. (this is sand that has collected inside the concrete utility corridor). Depth of bottom of concrete utility is 2.0'.								5985
872	20	AOC20-5-23010	12/15/15	09:55	0	1	Soil	X	X					X	X		X														Vac Truck								5985
873	20	AOC20-5-23011	12/15/15	10:15	2	3	Soil	X	X					X	X		X					X									Vac Truck								5985
874	20	AOC20-6-23012	12/15/15	10:55	0	1	Soil	X	X					X	X		X														Vac Truck								5985
875	20	AOC20-6-23013	12/15/15	12:50	2	3	Soil	X	X					X	X		X					X									Vac Truck								5985
876	20	AOC20-7-23014	12/18/15	12:55	0	1	Soil	X	X					X	X		X														Vac Truck								5985
877	20	AOC20-7-23015	12/18/15	13:05	2	3	Soil	X	X					X	X		X					X									Vac Truck								5985
878	20	AOC20-7-23018	12/18/15	13:10	5	5.5	Soil	X	X					X	X		X					X									Vac Truck								5985
879	21	AOC21-1-24000	01/12/16	08:55	0	0.5	Soil	X	X		X			X	X	X	X			X	X	X									Vac Truck								6582
880	21	AOC21-1-24001	01/12/16	09:20	2	3	Soil	X	X		X			X	X	X	X			X	X	X									Vac Truck								6582
881	21	AOC21-1-24002	01/12/16	09:40	5	6	Soil	X	X		X			X	X	X	X			X	X	X									Vac Truck								6582
882	21	AOC21-1-24003	01/11/17	13:00	9.0	10.0	Soil		X																						Vac Truck								6253
883	21	AOC21-1-24004	01/11/17	14:30	14.0	15.0	Soil		X																						Vac Truck								6253
884	22	AOC22-1-25000	01/06/16	10:05	0	0.5	Soil	X	X					X	X	X	X			X	X	X									Vac Truck								6582
885	22	AOC22-1-25001	01/06/16	10:08	0	0.5	Soil	X	X					X	X	X	X			X	X	X									Vac Truck			X					6582
886	22	AOC22-1-25002	01/06/16	10:30	2	3	Soil	X	X					X	X	X	X			X	X	X									Vac Truck								6582
887	22	AOC22-2-25003	01/06/16	10:45	0	0.5	Soil	X	X				X	X	X	X	X			X	X	X	X								Vac Truck								6582
888	22	AOC22-2-25004	01/06/16	10:55	2	3	Soil	X	X				X	X	X	X	X			X	X	X	X								Vac Truck								6582
889	22	AOC22-2-25005	01/17/17	12:45	5.0	6.0	Soil	X	X	X				X	X	X					X										Vac Truck								6253
890	22	AOC22-2-25006	01/17/17	13:00	5.0	6.0	Soil	X	X					X	X																Vac Truck			X					6253
891	22	AOC22-2-25007	01/17/17	13:30	9.0	10.0	Soil	X	X					X	X																Vac Truck								6253
892	22	AOC22-3-25008	01/17/17	09:00	0.0	0.5	Soil	X	X				X	X	X																Vac Truck								6253
893	22	AOC22-3-25009	01/17/17	09:30	2.0	3.0	Soil	X	X				X	X	X																Vac Truck								6253
894	22	AOC22-3-25010	01/17/17	10:00	5.0	6.0	Soil	X	X				X	X	X																Vac Truck								6253
895	22	AOC22-3-25011	01/17/17	11:00	9.0	10.0	Soil	X	X				X	X	X																Vac Truck								6253
896	23	AOC23-1-26000	12/08/15	15:05	0	1	Soil	X	X					X	X	X	X			X	X	X									Vac Truck				C				5985
897	23	AOC23-1-26001	12/08/15	15:10	0	1	Soil	X	X					X	X	X	X			X	X	X									Vac Truck			X					5985
898	23	AOC23-1-26002	12/08/15	15:35	2	3	Soil	X	X					X	X	X	X			X	X	X									Vac Truck								5985
899	23	AOC23-2-26003	01/07/16	13:25	0	0.5	Soil	X	X				X	X	X	X	X			X	X	X	X								Vac Truck	Refusal at 1.5 ft; not able to collect proposed soil sample at 2-3 ft bgs.							6582
900	23	AOC23-3-26005	01/07/16	12:40	0	0.5	Soil	X	X				X	X	X	X	X			X	X	X	X								Vac Truck	Refusal at 1 ft due to concrete; not able to collect proposed soil sample at 2-3 ft bgs.							6582
901	23	AOC23-4-26006	01/17/17	14:00	0.0	0.5	Soil	X	X					X	X																Vac Truck								6253
902	23	AOC23-4-26007	01/17/17	14:15	2.0	3.0	Soil	X	X					X	X																Vac Truck								6253
903	24	AOC24-1-27000	01/10/16	15:15	0	0.5	Soil	X	X					X	X	X	X			X	X	X									Vac Truck								6582
904	24	AOC24-1-27001	01/10/16	15:30	2	3	Soil	X	X					X	X	X	X			X	X	X									Vac Truck								6582
905	24	AOC24-2-27002	01/11/16	09:50	0	0.5	Soil	X	X				X	X	X	X	X			X	X	X	X								Vac Truck								6582
906	24	AOC24-2-27003	01/11/16	09:55	0	0.5	Soil	X	X					X	X	X	X			X	X	X									Vac Truck			X					6582
907	24	AOC24-2-27004	01/11/16	10:15	2	3	Soil	X	X				X	X	X	X	X			X	X	X	X								Vac Truck								6582
908	24	AOC24-2-27005	01/11/16	10:40	5	6	Soil	X	X					X	X	X	X			X	X	X									Vac Truck	Refusal at 6 ft; not able to collect proposed soil sample at 2-3 ft bgs.							6582
909	26	AOC26-1-28000	12/15/15	13:30	0	0.5	Soil	X	X					X	X	X	X			X	X	X									Vac Truck								5985
910	26	AOC26-1-28001	12/15/15	13:45	2	3	Soil	X	X					X	X	X	X			X	X	X									Vac Truck								5985
911	26	AOC26-1-28002	12/15/15	14:00	5	6	Soil	X	X					X	X	X	X			X	X	X									Vac Truck								5985
912	26	AOC26-1-28003	12/15/15	14:20	9	10	Soil	X	X					X	X	X	X			X	X	X									Vac Truck								5985
913	26	AOC26-1-28004	01/10/16	13:05	24	25	Soil	X	X					X	X	X	X			X	X	X									Rotosonic								6582
914	26	AOC26-1-28005	01/10/16	15:10	49	50	Soil	X	X					X	X	X	X			X	X	X									Rotosonic								6582
915	26	AOC26-1-28006	01/11/16	10:15	74	75	Soil	X	X					X	X	X	X			X	X	X									Rotosonic								6582
916	26	AOC26-1-SG05	01/14/16	15:41	5	6	Soil Gas														X										Soil Gas								NA
917	26	AOC26-1-SG05_021217	02/12/17	10:50	5.0	6.0	Soil Gas														X										Soil Gas								NA
918	26	AOC26-1-SG25	01/14/16	14:13	24	25	Soil Gas														X										Soil Gas								NA
919	26	AOC26-1-SG25_022117	02/21/17	15:15	24.0	25.0	Soil Gas														X										Soil Gas								NA
920	26	AOC26-SGFD_022117	02/21/17	15:15	24.0	25.0	Soil Gas														X										Soil Gas			X					NA
921	26	AOC26-1-SG50	01/14/16	12:43	49	50	Soil Gas														X										Soil Gas								NA
922	26	AOC26-1-SG50_021317	02/13/17	15:10	49.0	50.0	Soil Gas														X										Soil Gas								NA
923	26	AOC26-1-SGFD	01/14/16	12:43	49	50	Soil Gas														X										Soil Gas			X					NA
924	26	AOC26-2-28007	01/14/16	09:05	0	0.5	Soil	X	X					X	X	X	X			X	X	X									Vac Truck								6666
925	26	AOC26-2-28008	01/14/16	09:15	2	3	Soil	X	X					X	X	X	X			X	X	X									Vac Truck								6666
926	26	AOC26-2-28009	01/14/16	09:35	5	6	Soil	X	X					X	X	X	X			X	X	X									Vac Truck	Encountered steel pipe at 6 ft; not able to collect proposed soil sample at 9-10 ft bgs.							6666
927	26	AOC26-3-28011	01/13/16	10:55	0	0.5	Soil	X	X					X	X	X	X			X	X	X									Vac Truck								6666
928	26	AOC26-3-28012	01/13/16	11:05	2	3	Soil	X	X					X	X	X	X			X	X	X									Vac Truck								6666
929	26	AOC26-3-28013	01/13/16	11:35	5	6	Soil	X	X					X	X	X	X			X	X	X									Vac Truck	Refusal at 7 ft; not able to collect proposed soil sample at 9-10 ft bgs.							6666
930	26	AOC26-4-28015	01/13/16	09:25	0	0.5	Soil	X	X				X	X	X	X	X			X	X	X	X								Vac Truck								6666
931	26	AOC26-4-28016	01/13/16	09:40	2	3	Soil	X	X					X	X	X	X			X	X	X									Vac Truck								6666

TABLE B3

Field Activities Summary Table and Deviations from Work Plan

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

No.	AOC	Sample Location	Sample Date	Sample Time	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Analytical Suite[a]																								Collection Method	Deviation from Work Plan	Notes	Field Duplicate	Below Asphalt (A) or Concrete [C]	Trench Sample	Opportunistic Sample	Debris Sample	DTSC Split Sample	Waste Bin Number
								Metals	Hexavalent Chromium	CLP-Cn, CLP-Metals	Cyanide (SW9014)	Mercury (7470A)	Dioxins	PAHs	PCBs	Pesticides	TPHs 8015M	TPH-Purgable (8015B-P) TPH-g	TPH-Extractable (8015B-E) TPH-d, TPH-mo	SVOCs	VOCs	pH (9045)	Water Content General D2216	Water E821R91100	Water Anion 300	Water General 2320B	Water General 3501	Water General LYDKHN	Water General SM4500N H3DM	Water General SM4500 S2-D	Water General SM5310C										
932	26	AOC26-4-28017	01/13/16	09:55	5	6	Soil	X	X					X	X	X	X			X	X	X										Vac Truck								6666
933	26	AOC26-4-28018	01/13/16	10:25	9	10	Soil	X	X					X	X	X	X			X	X	X										Vac Truck								6666
934	26	AOC26-5-28019	01/13/16	13:40	0	0.5	Soil	X	X					X	X	X	X			X	X	X										Vac Truck								6666
935	26	AOC26-5-28020	01/13/16	14:00	2	3	Soil	X	X					X	X	X	X			X	X	X										Vac Truck								6666
936	26	AOC26-5-28021	01/13/16	14:50	5	6	Soil	X	X				X	X	X	X	X			X	X	X	X										Vac Truck								6666
937	26	AOC26-5-28022	01/13/16	15:35	8	9	Soil	X	X				X	X	X	X	X			X	X	X	X										Vac Truck								6666
938	27	AOC27-1-28545	03/18/16	10:00	0	1	Soil	X	X					X	X	X	X			X	X	X										Backhoe	Did not collect sample for physical parameters	No debris			X				RTH
939	27	AOC27-1-28546	03/18/16	10:10	2	3	Soil	X	X				X	X	X	X	X			X	X	X										Backhoe	Did not collect sample for physical parameters	Some wood			X				RTH
940	27	AOC27-1-28547	03/18/16	10:20	5	6	Soil	X	X					X	X	X	X			X	X	X										Backhoe	Did not collect sample for physical parameters	No debris			X				RTH
941	27	AOC27-1-28548	03/18/16	10:35	9	10	Soil	X	X					X	X	X	X			X	X	X										Backhoe	Did not collect sample for physical parameters	No debris			X				RTH
942	27	AOC27-18-28528	03/17/16	10:30	0	1	Soil	X	X				X	X	X	X	X			X	X	X	X										Backhoe		No debris			X				RTH
943	27	AOC27-18-28529	03/17/16	11:00	2	3	Soil	X	X				X	X	X	X	X			X	X	X											Backhoe		Brown debris			X				RTH
944	27	AOC27-18-28530	03/17/16	11:30	5	6	Soil	X	X				X	X	X	X	X			X	X	X											Backhoe		Red debris			X				RTH
945	27	AOC27-18-28531	03/17/16	12:00	4	5	Soil	X	X				X	X	X	X	X			X	X	X											Backhoe		Red debris (East)			X			DTSC	RTH
946	27	AOC27-18-28532	03/17/16	10:00	9	10	Soil	X	X					X	X	X	X			X	X	X										Backhoe		No debris			X				RTH
947	27	AOC27-2-28541	03/18/16	07:30	0	1	Soil	X	X				X	X	X	X	X			X	X	X											Backhoe		Debris			X				RTH
948	27	AOC27-2-28542	03/18/16	08:00	2	3	Soil	X	X				X	X	X	X	X			X	X	X											Backhoe		Debris			X				RTH
949	27	AOC27-2-28543	03/18/16	08:15	5	6	Soil	X	X					X	X	X	X			X	X	X										Backhoe		No debris			X				RTH
950	27	AOC27-2-28544	03/18/16	08:30	9	10	Soil	X	X					X	X	X	X			X	X	X										Backhoe		No debris			X				RTH
951	27	AOC27-20-28508	03/01/16	13:30	0	1	Soil	X	X				X	X	X	X	X			X	X	X	X										Backhoe		No debris			X				RTH
952	27	AOC27-20-28509	03/01/16	13:50	2	3	Soil	X	X				X	X	X	X	X			X	X	X	X										Backhoe		No debris			X				RTH
953	27	AOC27-20-28510	03/01/16	13:55	2	3	Soil	X	X					X	X	X	X			X	X	X										Backhoe		No debris	X		X				RTH
954	27	AOC27-20-28511	03/01/16	14:25	5	6	Soil	X	X				X	X	X	X	X			X	X	X	X										Backhoe		No debris			X				RTH
955	27	AOC27-20-28512	03/01/16	14:45	9	10	Soil	X	X					X	X	X	X			X	X	X										Backhoe		No debris			X				RTH
956	27	AOC27-24-28549	03/18/16	11:15	0	1	Soil	X	X					X	X	X	X			X	X	X										Backhoe		No debris			X				RTH
957	27	AOC27-24-28550	03/18/16	11:30	2	3	Soil	X	X					X	X	X	X			X	X	X										Backhoe		Concrete debris			X				RTH
958	27	AOC27-24-28551	03/18/16	11:45	5	6	Soil	X	X					X	X	X	X			X	X	X										Backhoe		Concrete debris			X				RTH
959	27	AOC27-24-28552	03/18/16	12:00	9	10	Soil	X	X					X	X	X	X			X	X	X										Backhoe		No debris			X				RTH
960	27	AOC27-24SW-2855	03/18/16	12:45	0	1	Soil	X	X					X	X	X	X			X	X	X										Backhoe		No debris			X				RTH
961	27	AOC27-24SW-2855	03/18/16	13:00	2	3	Soil	X	X					X	X	X	X			X	X	X										Backhoe		Concrete debris			X				RTH
962	27	AOC27-24SW-2855	03/18/16	13:15	5	6	Soil	X	X					X	X	X	X			X	X	X										Backhoe		No debris			X				RTH
963	27	AOC27-24SW-2855	03/18/16	13:30	9	10	Soil	X	X					X	X	X	X			X	X	X										Backhoe		No debris			X				RTH
964	27	AOC27-27-28517	03/02/16	15:45	0	1	Soil	X	X					X	X	X	X			X	X	X										Hand Tools		No debris							RTH
965	27	AOC27-27-28518	03/02/16	16:45	2	3	Soil	X	X					X	X	X	X			X	X	X										Hand Tools									RTH
966	27	AOC27-36-28524	03/17/16	09:14	0	1	Soil	X	X					X	X	X	X			X	X	X										Vac Truck		No debris			X				RTH
967	27	AOC27-36-28525	03/17/16	09:40	2	3	Soil	X	X					X	X	X	X			X	X	X										Vac Truck		No debris			X				RTH
968	27	AOC27-36-28526	03/17/16	10:10	5	6	Soil	X	X					X	X	X	X			X	X	X										Vac Truck		No debris			X				RTH
969	27	AOC27-36-28527	03/17/16	10:55	9.6	10	Soil	X	X					X	X	X	X			X	X	X										Vac Truck		No debris			X				RTH
970	27	AOC27-4-28537	03/17/16	15:30	0	1	Soil	X	X				X	X	X	X	X			X	X	X	X										Backhoe	Did not collect sample for physical parameters	Wood debris			X				RTH
971	27	AOC27-4-28538	03/17/16	15:40	0	1	Soil	X	X				X	X	X	X	X			X	X	X	X										Backhoe	Did not collect sample for physical parameters	Wood debris	X		X				RTH
972	27	AOC27-4-28539	03/17/16	16:50	2	3	Soil	X	X				X	X	X	X	X			X	X	X											Backhoe	Did not collect sample for physical parameters	Wood debris			X				RTH
973	27	AOC27-4-28540	03/17/16	16:00	5	6	Soil	X	X				X	X	X	X	X			X	X	X	X										Backhoe	Did not collect sample for physical parameters	Some wood			X				RTH
974	27	AOC27-5-28533	03/17/16	14:30	0	1	Soil	X	X					X	X	X	X			X	X	X										Backhoe		No debris			X				RTH
975	27	AOC27-5-28534	03/17/16	14:40	2	3	Soil	X	X				X	X	X	X	X			X	X	X											Backhoe		Wood debris			X			DTSC	RTH
976	27	AOC27-5-28535	03/17/16	15:00	5	6	Soil	X	X				X	X	X	X	X			X	X	X											Backhoe		Wood debris			X				RTH
977	27	AOC27-5-28536	03/17/16	15:15	9	10	Soil	X	X					X	X	X	X			X	X	X										Backhoe		No debris			X				RTH
978	27	AOC27-50-28513	03/02/16	10:45	0	1	Soil	X	X				X	X	X	X	X			X	X	X											Backhoe		Debris			X				RTH
979	27	AOC27-50-28514	03/02/16	11:00	2	3	Soil	X	X				X	X	X	X	X			X	X	X											Backhoe		Debris			X				RTH
980	27	AOC27-50-28515	03/02/16	12:00	5	6	Soil	X	X				X	X	X	X	X			X	X	X	X										Backhoe		No debris			X				RTH
981	27	AOC27-50-28516	03/02/16	12:35	9	10	Soil	X	X					X	X	X	X			X	X	X										Backhoe		No debris			X				RTH
982	27	AOC27-51-28557	02/17/17	13:30	0.0	0.5	Soil	X	X	X			X	X	X	X		X	X		X											Backhoe		East side of trench (on slope)			X				RTH
983	27	AOC27-51-28558	02/17/17	14:30	2.0	3.0	Soil	X	X				X	X	X			X	X													Backhoe					X				RTH
984	27	AOC27-51-28559	02/17/17	14:50	5.0	6.0	Soil	X	X				X	X	X			X	X													Backhoe					X				RTH
985	27	AOC27-51-28562	02/17/17	15:40	0.0	0.5	Soil	H	H				H	H	H			H	H													Backhoe		West side of trench			X				RTH
986	27	AOC27-51-28563	02/17/17	15:45	0.0	0.5	Soil	H	H				H	H	H			H	H													Backhoe		West side of trench	X		X				RTH
987	27	AOC27-51-28564	02/17/17	16:00	2.0	3.0	Soil	H	H				H	H	H			H	H													Backhoe		West side of trench			X				RTH
988	27	AOC27-51-28565	02/17/17	16:20	5.0	6.0	Soil	H	H				H	H	H			H	H													Backhoe		West side of trench			X				RTH
989	27	AOC27-6-28500	02/29/16	16:20	0	1	Soil	X	X				X	X	X	X	X			X	X	X											Backhoe		Debris			X				RTH
990	27	AOC27-6-28501	02/29/16	16:40	2	3	Soil	X	X				X	X	X	X	X			X	X	X											Backhoe		Debris			X				RTH
991	27	AOC27-6-28502	02/29/16	17:05	5	6	Soil	X	X				X	X	X	X	X			X	X	X	X										Backhoe		No debris			X				RTH
992	27	AOC27-7-28503	02/29/16	15:40	0	1	Soil	X	X				X	X	X	X	X			X	X	X											Backhoe		Debris			X				RTH
993	27	AOC27-7-28504	02/29/16	16:00	2	3	Soil	X	X				X	X	X	X	X			X	X	X											Backhoe		Debris			X			DTSC	RTH
994	27	AOC27-7-28505	03/01/16	11:15	5	6	Soil	X	X				X	X	X	X	X			X	X	X	X										Backhoe		No debris			X				RTH
995	27	AOC27-8-28506	03/01/16	12:30	1	2	Soil	X	X				X	X	X	X	X			X	X	X											Backhoe		Debris			X				RTH
996	27	AOC27-8-28507	03/01/16	12:40	5	6	Soil	X	X				X	X	X	X	X			X	X	X	X										Backhoe		No debris			X				RTH
997	27	AOC27-9-28519	03/08/16	12:30	0	1	Soil	X	X				X	X	X	X	X			X	X	X	X										Backhoe		No debris			X				RTH
998	27	AOC27-9-28520	03/08/16	13:00	0	1	Soil	X	X					X	X	X	X			X	X	X										Backhoe		No debris	X		X				RTH
999	27	AOC27-9-28521	03/08/16	12:30	2	3	Soil	X	X				X	X	X	X	X			X	X	X	X										Backhoe		No debris			X				RTH
1000	27	AOC27-9-28522	03/08/16	14:30	5	6	Soil	X	X				X	X	X	X	X			X	X	X	X										Backhoe		No debris			X				RTH
1001	27	AOC27-9-28523	03/08/16	16:00	9	10	Soil	X	X					X	X	X	X			X	X	X										Backhoe		No debris			X				RTH
1002	28	AOC28a-01-34000	12/17/15	09:55	0	0.5	Soil							X	X		X															Vac Truck									5985
1003	28	AOC28a-01-34001	12/17/15	10:00	2	3	Soil							X	X		X															Vac Truck									5985
1004	28	AOC28a-01-34002	12/17/15	10:10	2	3	Soil							X	X		X															Vac Truck			X						5985
1005	28	AOC28b-01-34003	12/17/15	11:00	0	0.5	Soil							X	X		X															Vac Truck	Bedrock refusal at 3.0 ft; not able to collect proposed soil sample at 3 ft bgs.								5985
1006	28	AOC28c-01-34004	12/17/15	13:05	0	0.5	Soil							X	X		X															Vac Truck									5985

TABLE B3

Field Activities Summary Table and Deviations from Work Plan

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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

No.	AOC	Sample Location	Sample Date	Sample Time	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Analytical Suite[a]																									Collection Method	Deviation from Work Plan	Notes	Field Duplicate	Below Asphalt (A) or Concrete [C]	Trench Sample	Opportunistic Sample	Debris Sample	DTSC Split Sample	Waste Bin Number
								Metals	Hexavalent Chromium	CLP-Cn, CLP-Metals	Cyanide (SW9014)	Mercury (7470A)	Dioxins	PAHs	PCBs	Pesticides	TPHs 8015M	TPH-Purgable (8015B-P) TPH-g	TPH-Extractable (8015B-E) TPH-d, TPH-mo	SVOCs	VOCs	pH (9045)	Water Content General D2216	Water E821R91100	Water Anion 300	Water General 2320B	Water General 3501	Water General LYDKHN	Water General SM4500N H3DM	Water General SM4500 S2-D	Water General SM5310C									
1007	28	AOC28c-01-34005	12/17/15	13:20	2	3	Soil							X	X		X															Vac Truck	Refusal at 4.0 ft; not able to collect proposed soil sample at 5-6 ft bgs.								5985
1008	28	AOC28d-01-34006	12/17/15	14:20	0	0.5	Soil							X	X		X															Vac Truck									5985
1009	28	AOC28d-01-34007	12/17/15	14:40	2	3	Soil							X	X		X															Vac Truck									5985
1010	28	AOC28d-01-34008	12/17/15	14:55	4.5	5	Soil							X	X		X															Vac Truck	Refusal at 5.0 ft; not able to collect proposed soil sample at 5-6 ft bgs.								5985
1011	ER	ERPW-1W-D1	01/28/16	17:15	0	1	Pore Water	X	X			X													X	X			X	X	X	Piezometer	Bedrock refusal at 2.5 ft; not able to collect proposed pore water sample at 6 ft bgs.								NA
1012	ER	ERPW-2W-D1	01/28/16	09:30	0	1	Pore Water	X	X			X													X	X			X	X	X	Piezometer									NA
1013	ER	ERPW-2W-D2	01/28/16	16:30	5	6	Pore Water	X	X																X	X			X	X	X	Piezometer									NA
1014	ER	ERPW-3W-D1	01/28/16	09:45	0	1	Pore Water	X	X			X													X	X			X	X	X	Piezometer									NA
1015	ER	ERPW-3W-D2	01/28/16	14:50	5	6	Pore Water	X	X																X	X			X	X	X	Piezometer									NA
1016	ER	ERPW-4W-D1	01/28/16	17:00	0	1	Pore Water	X	X			X													X	X			X	X	X	Piezometer	6 ft piezometer dry; not able to collect proposed pore water sample at 6 ft bgs.								NA
1017	ER	ERPW-5W-D1	01/28/16	10:00	0	1	Pore Water	X	X			X													X	X			X	X	X	Piezometer									NA
1018	ER	ERPW-5W-D2	01/28/16	16:35	5	6	Pore Water	X	X			X													X	X			X	X	X	Piezometer									NA
1019	ER	ERPW-6W-D1	01/25/16	12:00	0	1	Pore Water	X	X			X													X	X			X	X	X	Piezometer	6 ft piezometer dry; not able to collect proposed pore water sample at 6 ft bgs.								NA
1020	ER	ERPW-7W-D1	01/25/16	12:15	0	1	Pore Water	X	X			X													X	X			X	X	X	Piezometer									NA
1021	ER	ERPW-7W-D1-1	01/25/16	12:20	0	1	Pore Water	X	X			X													X	X			X	X	X	Piezometer			X						NA
1022	ER	ERPW-7W-D2	01/28/16	11:25	5	6	Pore Water	X	X																X	X			X	X	X	Piezometer									NA
1023	ER	ERPW-8W-D1	01/25/16	13:00	0	1	Pore Water	X	X			X													X	X			X	X	X	Piezometer									NA
1024	ER	ERPW-8W-D2	01/28/16	11:00	5	6	Pore Water	X	X																X	X			X	X	X	Piezometer									NA
1025	ER	ERPW-9W-D1	01/25/16	13:30	0	1	Pore Water	X	X			X													X	X			X	X	X	Piezometer	6 ft piezometer dry; not able to collect proposed pore water sample at 6 ft bgs.								NA
1026	ER	ERPW-10W-D2	01/28/16	10:45	5	6	Pore Water	X	X																X	X			X	X	X	Piezometer	1 ft piezometer dry; not able to collect proposed pore water sample at 1 ft bgs.								NA
1027	ER	ERPW-1-D1	01/28/16	13:00	0	0.5	Sediment	X	X				X	X	X	X				X	X		X	X			X	X				Hand Tools	River mud and tule/bamboo roots								RTH
1028	ER	ERPW-1-D2	01/28/16	13:15	1	1.5	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	River mud and tule/bamboo roots								RTH
1029	ER	ERPW-1-D3	01/28/16	13:30	1.5	2	Sediment	X	X				X	X	X	X				X	X		X	X			X	X				Hand Tools	River mud and tule/bamboo roots								RTH
1030	ER	ERPW-2-D1	01/25/16	14:00	0	0.5	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	River mud and tule/bamboo roots								RTH
1031	ER	ERPW-2-D2	01/25/16	14:10	1	1.5	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	River mud and tule/bamboo roots								RTH
1032	ER	ERPW-2-D3	01/25/16	14:25	1.5	2	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	River mud and tule/bamboo roots								RTH
1033	ER	ERPW-3-D1	01/25/16	15:00	0	0.5	Sediment	X	X				X	X	X	X				X	X		X	X			X	X				Hand Tools	River mud and tule/bamboo roots								RTH
1034	ER	ERPW-3-D2	01/25/16	15:15	1	1.5	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	River mud and tule/bamboo roots								RTH
1035	ER	ERPW-3-D3	01/25/16	15:30	1.5	2	Sediment	X	X				X	X	X	X				X	X		X	X			X	X				Hand Tools	River mud and tule/bamboo roots								RTH
1036	ER	ERPW-3-D4	01/28/16	15:30	5.5	6	Sediment	X	X					X	X	X				X	X											Hand Tools	Very fine sand								RTH
1037	ER	ERPW-4-D1	01/28/16	14:15	0	0.5	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	River mud and tule/bamboo roots								RTH
1038	ER	ERPW-4-D2	01/28/16	15:00	1	1.5	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	River mud and tule/bamboo roots								RTH
1039	ER	ERPW-4-D3	01/28/16	15:15	1.5	2	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	River mud and tule/bamboo roots								RTH
1040	ER	ERPW-5-D1	01/25/16	16:00	0	0.5	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	River mud and tule/bamboo roots								RTH
1041	ER	ERPW-5-D2	01/25/16	16:15	1	1.5	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	River mud and tule/bamboo roots								RTH
1042	ER	ERPW-5-D3	01/25/16	16:45	1.5	2	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	River mud and tule/bamboo roots								RTH
1043	ER	ERPW-6-D1	01/24/16	10:55	0	0.5	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	Gravel from weather Miocene conglomerate BR								RTH
1044	ER	ERPW-6-D2	01/24/16	11:00	1	1.5	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	Gravel from weather Miocene conglomerate BR								RTH
1045	ER	ERPW-6-D3	01/24/16	11:20	1.5	2	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	Gravel from weather Miocene conglomerate BR								RTH
1046	ER	ERPW-7-D1	01/24/16	09:30	0	0.5	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	Very fine sand								RTH
1047	ER	ERPW-7-D1D	01/24/16	09:35	0	0.5	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	Very fine sand		X						RTH
1048	ER	ERPW-7-D2	01/24/16	09:45	1	1.5	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	Very fine sand								RTH
1049	ER	ERPW-7-D2D	01/24/16	09:50	1	1.5	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	Very fine sand		X						RTH
1050	ER	ERPW-7-D3	01/24/16	10:05	1.5	2	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	Very fine sand								RTH
1051	ER	ERPW-7-D3D	01/24/16	10:10	1.5	2	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	Very fine sand		X						RTH
1052	ER	ERPW-7-D4	01/25/16	10:30	5.5	6	Sediment	X	X					X	X	X				X	X											Hand Tools	Very fine sand								RTH
1053	ER	ERPW-8-D1	01/24/16	11:45	0	0.5	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	River mud and tule/bamboo roots								RTH
1054	ER	ERPW-8-D2	01/24/16	12:00	1	1.5	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	River mud and tule/bamboo roots								RTH
1055	ER	ERPW-8-D3	01/24/16	12:15	1.5	2	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	River mud and tule/bamboo roots								RTH
1056	ER	ERPW-9-D1	01/23/16	15:00	0	0.5	Sediment	X	X				X	X	X	X				X	X		X	X			X	X				Hand Tools	River mud and tule/bamboo roots								RTH
1057	ER	ERPW-9-D2	01/23/16	15:30	1	1.5	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	River mud and tule/bamboo roots								RTH
1058	ER	ERPW-9-D3	01/23/16	16:00	1.5	2	Sediment	X	X				X	X	X	X				X	X		X	X			X	X				Hand Tools	River mud and tule/bamboo roots								RTH
1059	ER	ERPW-10-D1	01/24/16	13:00	0	0.5	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	Very fine sand, dry								RTH
1060	ER	ERPW-10-D2	01/24/16	13:25	1	1.5	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	Very fine sand, dry								RTH
1061	ER	ERPW-10-D3	01/24/16	13:45	1.5	2	Sediment	X	X					X	X	X				X	X			X			X	X				Hand Tools	Very fine sand, dry								RTH
1062	PA	PA-01-1	11/09/15	08:40	0	1	Soil	X	X					X	X	X		X		X	X											Hand Tools									RTH

TABLE B3

Field Activities Summary Table and Deviations from Work Plan

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

No.	AOC	Sample Location	Sample Date	Sample Time	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Analytical Suite[a]																								Collection Method	Deviation from Work Plan	Notes	Field Duplicate	Below Asphalt (A) or Concrete [C]	Trench Sample	Opportunistic Sample	Debris Sample	DTSC Split Sample	Waste Bin Number
								Metals	Hexavalent Chromium	CLP-Cn, CLP-Metals	Cyanide (SW9014)	Mercury (7470A)	Dioxins	PAHs	PCBs	Pesticides	TPHs 8015M	TPH-Purgable (8015B-P) TPH-g	TPH-Extractable (8015B-E) TPH-d, TPH-mo	SVOCs	VOCs	pH (9045)	Water Content General D2216	Water E821R91100	Water Anion 300	Water General 2320B	Water General 3501	Water General LYDKHN	Water General SM4500N H3DM	Water General SM4500 S2-D	Water General SM5310C											
1063	PA	PA-02-1	11/09/15	09:00	0	1	Soil	X	X					X	X	X	X			X	X										Hand Tools									RTH
1064	PA	PA-03-1	11/09/15	09:15	0	1	Soil	X	X					X	X	X	X			X	X										Hand Tools									RTH
1065	PA	PA-04-1	11/09/15	09:25	0	1	Soil	X	X					X	X	X	X			X	X										Hand Tools									RTH
1066	PA	PA-05-1	11/09/15	09:35	0	1	Soil	X	X					X	X	X	X			X	X										Hand Tools									RTH
1067	PA	PA-06-1	11/09/15	09:55	0	1	Soil	X	X					X	X	X	X			X	X										Hand Tools									RTH
1068	PA	PA-07-1	11/09/15	10:10	0	1	Soil	X	X					X	X	X	X			X	X										Hand Tools									RTH
1069	PA	PA-08-1	11/09/15	10:25	0	1	Soil	X	X					X	X	X	X			X	X										Hand Tools									RTH
1070	PA	PA-08-03	01/12/16	15:04	2	3	Soil	X	X		X			X	X	X	X			X	X										Rotosonic									RTH
1071	PA	PA-08-FD	01/12/16	15:06	2	3	Soil	X	X		X			X	X	X	X			X	X										Rotosonic			X						RTH
1072	PA	PA-08-06	01/12/16	15:08	5	6	Soil	X	X					X	X	X	X			X	X										Rotosonic									RTH
1073	PA	PA-08-10	01/12/16	15:10	9	10	Soil	X	X					X	X	X	X			X	X										Rotosonic									RTH
1074	PA	PA-09-01	01/27/16	12:50	0	1	Soil	X	X				X	X	X	X	X			X	X		X								Hand Tools									RTH
1075	PA	PA-10-01	01/27/16	13:00	0	1	Soil	X	X				X	X	X	X	X			X	X		X								Hand Tools			X						RTH
1076	PA	PA-10-02	01/26/17	09:15	2.0	3.0	Soil							X	X																Vac Truck									6253
1077	PA	PA-10-03	01/26/17	11:00	5.0	6.0	Soil							H	H																Vac Truck									6253
1078	PA	PA-11-01	01/27/16	13:10	0	1	Soil	X	X				X	X	X	X	X			X	X		X								Hand Tools									RTH
1079	PA	PA-11-02	01/25/17	13:15	2.0	3.0	Soil	X		X				X	X	X						X									Vac Truck									6253
1080	PA	PA-11-03	01/25/17	13:20	2.0	3.0	Soil	X						X	X																Vac Truck			X						6253
1081	PA	PA-11-04	01/25/17	14:30	5.0	6.0	Soil	H						H	H																Vac Truck									6253
1082	PA	PA-12-01	01/27/16	13:25	0	1	Soil	X	X				X	X	X	X	X			X	X		X								Hand Tools									RTH
1083	PA	PA-12-02	01/25/17	09:00	2.0	3.0	Soil	X		X				X	X	X						X									Vac Truck									6253
1084	PA	PA-12-03	01/25/17	10:45	5.0	6.0	Soil	H						H	H																Vac Truck									6253
1085	PA	PA-13-01	01/27/16	13:35	0	1	Soil	X	X					X	X	X	X			X	X										Hand Tools									RTH
1086	PA	PA-14-01	01/27/16	13:45	0	1	Soil	X	X				X	X	X	X	X			X	X		X								Hand Tools									RTH
1087	PA	PA-15-01	01/27/16	14:00	0	1	Soil	X	X				X	X	X	X	X			X	X		X								Hand Tools									RTH
1088	PA	PA-16-01	01/27/16	14:10	0	1	Soil	X	X				X	X	X	X	X			X	X		X								Hand Tools									RTH
1089	PA	PA-17-01	01/27/16	14:20	0	1	Soil	X	X				X	X	X	X	X			X	X		X								Hand Tools									RTH
1090	PA	PA-18-01	01/27/16	14:30	0	1	Soil	X	X				X	X	X	X	X			X	X		X								Hand Tools									RTH
1091	PA	PA-18-02	01/26/17	13:00	2.0	3.0	Soil							X	X																Vac Truck									6253
1092	PA	PA-18-03	01/26/17	13:05	2.0	3.0	Soil							X	X																Vac Truck			X						6253
1093	PA	PA-18-04	01/26/17	14:45	5.0	6.0	Soil							H	H																Vac Truck									6253
1094	PA	PA-19-01	01/27/16	14:35	0	1	Soil	X	X				X	X	X	X	X			X	X		X								Hand Tools									RTH
1095	PA	PA-19-02	01/31/17	09:30	2.0	3.0	Soil							X	X																Vac Truck									6253
1096	PA	PA-19-03	01/31/17	10:15	5.0	6.0	Soil							H	H																Vac Truck									6253
1097	PA	PA-20-01	01/27/16	14:40	0	1	Soil	X	X				X	X	X	X	X			X	X		X								Hand Tools									RTH
1098	PA	PA-20-02	01/31/17	12:15	2.0	3.0	Soil							X	X																Vac Truck									6253
1099	PA	PA-20-03	01/31/17	13:00	5.0	6.0	Soil							H	H																Vac Truck									6253
1100	PA	PA-21-01	01/27/16	14:50	0	1	Soil	X	X				X	X	X	X	X			X	X		X								Hand Tools									RTH
1101	PA	PA-21-02	01/31/17	14:00	2.0	3.0	Soil							X	X																Vac Truck									6253
1102	PA	PA-21-03	01/31/17	14:30	5.0	6.0	Soil							H	H																Vac Truck									6253
1103	PA	PA-22-01	01/27/16	15:00	0	1	Soil	X	X					X	X	X	X			X	X										Hand Tools									RTH
1104	PA	PA-23-01	01/27/16	15:15	0	1	Soil	X	X				X	X	X	X	X			X	X		X								Hand Tools			X						RTH
1105	SD	CB-1-01	11/07/15	11:13	NA	NA	Soil	X	X		X			X	X		X														Hand Tools		Cleaned CB on 1/28/16							6657
1106	SD	CB-3-01	11/07/15	11:30	NA	NA	Soil	X	X		X			X	X		X														Hand Tools		Cleaned CB on 1/28/16							6657
1107	SD	CB-6-01	11/07/15	12:00	NA	NA	Soil	X	X		X			X	X		X														Hand Tools		Cleaned CB on 1/28/16							6657
1108	SD	CB-6-02	11/09/15	12:15	NA	NA	Soil	X	X		X			X	X		X														Hand Tools		Cleaned CB on 1/28/16							6657
1109	SD	CB-8-01	11/07/15	13:05	NA	NA	Soil	X	X		X			X	X		X														Hand Tools		Cleaned CB on 1/28/16							6657
1110	SD	CB-9-01	11/07/15	13:15	NA	NA	Soil	X	X		X			X	X		X														Hand Tools		Cleaned CB on 1/28/16							6657
1111	SD	CB-11-01	11/07/15	13:30	NA	NA	Soil	X	X		X			X	X		X														Hand Tools		Cleaned CB on 1/28/16							6657
1112	SD	CB-13-01	11/07/15	13:40	NA	NA	Soil	X	X		X			X	X		X														Hand Tools		Cleaned CB on 1/28/16							6657
1113	SD	CB-15-01	02/02/16	15:30	NA	NA	Soil	X	X		X		X	X	X		X						X								Hand Tools									RTH
1114	SD	CB-16-01	11/07/15	13:50	NA	NA	Soil	X	X		X			X	X		X														Hand Tools		Cleaned CB on 1/28/16							6657
1115	SD	CB-17-01	11/07/15	14:00	NA	NA	Soil	X	X		X			X	X		X														Hand Tools		Cleaned CB on 1/28/16							6657
1116	SD	CB-20-01	11/07/15	14:35	NA	NA	Soil	X	X		X			X	X		X														Hand Tools		Cleaned CB on 1/28/16							6657
1117	SD	CB-21-01	11/07/15	14:40	NA	NA	Soil	X	X		X			X	X		X														Hand Tools		Cleaned CB on 1/28/16							6657
1118	SD	CB-22-01	12/16/16	15:15	NA	NA	Soil	X	X					X	X			X	X												Hand Tools									NA
1119	SD	CB-23-01	11/07/15	14:25	NA	NA	Soil	X	X		X			X	X		X														Hand Tools		Cleaned CB on 1/28/16							6657
1120	SD	CB-26-01	11/07/15	15:05	NA	NA	Soil	X	X		X			X	X		X														Hand Tools		Cleaned CB on 1/28/16							6657
1121	SD	CB-27-01	11/07/15	15:10	NA	NA	Soil	X	X		X			X	X		X														Hand Tools		Cleaned CB on 1/28/16							6657
1122	SD	CB-28-01	11/07/15	15:15	NA	NA	Soil	X	X		X			X	X		X														Hand Tools		Cleaned CB on 1/28/16							6657
1123	SD	CB-30-01	11/07/15	15:00	NA	NA	Soil	X	X		X			X	X		X														Hand Tools		Cleaned CB on 1/28/16							6657
1124	SD	TD-3	11/12/15	13:00	0	0	Soil	X	X					X	X		X														Hand Tools									RTH
1125	SD	TD-4	11/12/15	09:20	0	0	Soil	X	X					X	X		X														Hand Tools									RTH
1126	SD	SD-1-D1	01/13/16	11:17	0	0.5	Soil	X	X					X	X		X														Rotosonic									6666
1127	SD	SD-1-D2	01/13/16	11:19	2	3	Soil	X	X					X	X		X														Rotosonic									6666
1128	SD	SD-1-D3	01/13/16	11:21	5	6	Soil	X	X					X	X		X														Rotosonic									6666
1129	SD	SD-1-D4	01/13/16	11:23	9	10	Soil	X	X					X	X		X														Rotosonic									6666
1130	SD	SD-2-01	11/10/15	09:36	0	1	Soil	X	X					X	X		X														Hand Tools									RTH
1131	SD	SD-2-03	11/10/15	09:55	2	3	Soil	X	X					X	X		X														Hand Tools	Refusal at 3.0 ft; not able to collect proposed soil samples at 5-6, 9-10 ft bgs.								RTH
1132	SD	SD-3-01	11/10/15	10:14	0	1	Soil	X	X		X			X	X		X														Hand Tools									RTH
1133	SD	SD-3-03	11/10/15	10:35	2	3	Soil	X	X		X			X	X		X														Hand Tools	Refusal at 3.0 ft; not able to collect proposed soil samples at 5-6, 9-10 ft bgs.								RTH
1134	SD	SD-4-01	11/10/15	10:58	0	1	Soil	X	X					X	X		X					X									Hand Tools									RTH
1135	SD	SD-4-03	11/10/15	11:18	2	3	Soil	X	X					X	X		X					X									Hand Tools	Refusal at 3.0 ft; not able to collect proposed soil samples at 5-6, 9-10 ft bgs.								RTH
1136	SD	SD-5-01	11/10/15	11:54	0	1	Soil	X	X		X			X	X		X														Hand Tools									RTH
1137	SD	SD-5-01-FD	11/10/15	11:54	0	1	Soil	X	X		X			X	X		X														Hand Tools			X						RTH
1138	SD	SD-5-03	11/10/15	12:01	2	3	Soil	X	X					X	X		X														Hand Tools	Refusal at 3.0 ft; not able to collect proposed soil samples at 5-6, 9-10 ft bgs.								RTH
1139	SD	SD-6-01	11/10/15	12:26	0	1	Soil	X	X					X	X		X														Hand Tools									RTH
1140	SD	SD-6-03	11/10/15	12:30	2	3	Soil	X	X					X	X		X														Hand Tools									RTH
1141	SD	SD-6-05	11/10/15	12:40	5	6	Soil	X	X					X	X		X														Hand Tools	Refusal at 6.0 ft; not able to collect proposed soil samples at 9-10 ft bgs.								RTH
1142	SD	SD-7-D1	12/17/15	15:45	0	1	Soil	X	X					X	X		X														Vac Truck									5985
1143	SD	SD-7-D2	12/17/15	16:05	2	3	Soil	X	X					X	X		X														Vac Truck									5985
1144	SD	SD-7-D3	12/18/15	09:05	5	6	Soil	X	X					X	X		X														Vac Truck									5985
1145	SD	SD-7-D4	12/18/15	09:30	9	10	Soil	X	X					X	X		X														Vac Truck									5985
1146	SD	SD-7-D5	12/18/15	09:35	9	10	Soil	X	X					X	X		X														Vac Truck			X						5985

TABLE B3

Field Activities Summary Table and Deviations from Work Plan

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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

No.	AOC	Sample Location	Sample Date	Sample Time	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Analytical Suite[a]																						Collection Method	Deviation from Work Plan	Notes	Field Duplicate	Below Asphalt (A) or Concrete [C]	Trench Sample	Opportunistic Sample	Debris Sample	DTSC Split Sample	Waste Bin Number
								Metals	Hexavalent Chromium	CLP-Cn, CLP-Metals	Cyanide (SW9014)	Mercury (7470A)	Dioxins	PAHs	PCBs	Pesticides	TPHs 8015M	TPH-Purgable (8015B-P) TPH-g	TPH-Extractable (8015B-E) TPH-d, TPH-mo	SVOCs	VOCs	pH (9045)	Water Content General D2216	Water E821R91100	Water Anion 300	Water General 2320B	Water General 3501	Water General LYDKHN	Water General SM4500N H3DM	Water General SM4500 S2-D	Water General SM5310C									
1147	SD	SD-8-01	11/11/15	08:45	0	1	Soil	X	X		X			X	X		X													Hand Tools								RTH
1148	SD	SD-8-01-FD	11/11/15	08:45	0	1	Soil	X	X		X			X	X		X													Hand Tools			X					RTH
1149	SD	SD-8-03	11/11/15	08:50	2	3	Soil	X	X		X			X	X		X													Hand Tools	Refusal at 3.0 ft; not able to collect proposed soil samples at 5-6, 9-10 ft bgs.							RTH
1150	SD	SD-9-01	11/10/15	14:30	0	1	Soil	X	X					X	X		X													Hand Tools								RTH
1151	SD	SD-9-03	11/10/15	14:37	2	3	Soil	X	X					X	X		X													Hand Tools								RTH
1152	SD	SD-9-05	11/10/15	14:52	5	6	Soil	X	X					X	X		X													Hand Tools	Refusal at 6.0 ft; not able to collect proposed soil samples at 9-10 ft bgs.							RTH
1153	SD	SD-10-01	11/10/15	15:20	0	1	Soil	X	X					X	X		X													Hand Tools								RTH
1154	SD	SD-10-03	11/10/15	15:30	2	3	Soil	X	X					X	X		X													Hand Tools	Refusal at 3.0 ft; not able to collect proposed soil samples at 5-6, 9-10 ft bgs.							RTH
1155	SD	SD-11-01	12/06/15	12:15	0	0.5	Soil	X	X		X			X	X		X													Hand Tools		Location is at the southern pipe outfall of legacy SDL-8						RTH
1156	SD	SD-11-03	12/06/15	12:55	2	3	Soil	X	X		X			X	X		X													Hand Tools	Refusal at 3.0 ft; not able to collect proposed soil samples at 5-6, 9-10 ft bgs.	Location is at the southern pipe outfall of legacy SDL-8						RTH
1157	SD	SD-11-01	03/07/16	14:00	0	1	Soil	X	X				X	X	X		X					X								Hand Tools		Location is at the northern pipe outfall of active SDL-8						RTH
1158	SD	SD-11-02	03/07/16	14:45	2	3	Soil	X	X				X	X	X		X					X								Hand Tools		Location is at the northern pipe outfall of active SDL-8						RTH
1159	SD	SD-11-04	03/07/16	15:15	3	4	Soil	X	X				X	X	X		X					X								Hand Tools	Refusal at 4.0 ft; not able to collect proposed soil samples at 5-6, 9-10 ft bgs.	Location is at the northern pipe outfall of active SDL-8						RTH
1160	SD	SD-12-01	11/10/15	15:42	0	1	Soil	X	X					X	X		X													Hand Tools								RTH
1161	SD	SD-12-03	11/10/15	15:54	2	3	Soil	X	X					X	X		X													Hand Tools								RTH
1162	SD	SD-13-01	11/10/15	16:10	0	1	Soil	X	X		X			X	X		X													Hand Tools								RTH
1163	SD	SD-13-03	11/10/15	16:22	2	3	Soil	X	X		X			X	X		X													Hand Tools	Refusal at 3.0 ft; not able to collect proposed soil samples at 5-6, 9-10 ft bgs.							RTH
1164	SD	SD-14-01	01/11/16	14:53	0	1	Soil	X	X		X		X	X	X		X													Rotosonic								6582
1165	SD	SD-14-03	01/11/16	15:02	2	3	Soil	X	X		X		X	X	X		X													Rotosonic								6582
1166	SD	SD-14-06	01/11/16	15:09	5	6	Soil	X	X		X		X	X	X		X													Rotosonic								6582
1167	SD	SD-14-10	01/11/16	15:15	9	10	Soil	X	X		X		X	X	X		X													Rotosonic								6582
1168	SD	SD-15-01	01/12/16	13:06	0	0.5	Soil	X	X		X		X	X	X		X													Rotosonic								6582
1169	SD	SD-15-03	01/12/16	13:11	2	3	Soil	X	X		X		X	X	X		X													Rotosonic								6582
1170	SD	SD-15-06	01/12/16	13:13	5	6	Soil	X	X		X		X	X	X		X													Rotosonic								6582
1171	SD	SD-15-10	01/12/16	13:15	9	10	Soil	X	X		X		X	X	X		X													Rotosonic								6582
1172	SD	SD-16-01	01/12/16	13:31	0	0.5	Soil	X	X		X		X	X	X		X													Rotosonic								6582
1173	SD	SD-16-03	01/12/16	13:33	2	3	Soil	X	X		X		X	X	X		X													Rotosonic								6582
1174	SD	SD-16-06	01/12/16	13:35	5	6	Soil	X	X		X		X	X	X		X													Rotosonic								6582
1175	SD	SD-16-10	01/12/16	13:37	9	10	Soil	X	X		X		X	X	X		X													Rotosonic								6582
1176	SD	SD-17-01	12/17/15	16:25	0	0.5	Soil	X	X					X	X		X													Hand Tools								RTH
1177	SD	SD-17-02	12/17/15	16:35	2	3	Soil	X	X					X	X		X													Hand Tools	Refusal at 3.0 ft; not able to collect proposed soil samples at 5-6, 9-10 ft bgs.	Collected below 45 elbow of SDL-12 line						RTH
1178	SD	SD-18-01	12/17/15	13:50	0	0.5	Soil	X	X					X	X		X													Hand Tools	Refusal at 1.0 ft; not able to collect proposed soil samples at 2-3, 5-6, 9-10 ft bgs.							RTH
1179	SD	SD-19-D1	01/13/16	14:20	0	0.5	Soil	X	X					X	X		X													Backhoe								RTH
1180	SD	SD-19-D7	01/13/16	14:25	0	0.5	Soil	X	X					X	X		X													Backhoe								RTH
1181	SD	SD-19-D2	01/13/16	14:30	2	3	Soil	X	X					X	X		X													Backhoe			X					RTH
1182	SD	SD-19-D3	01/13/16	14:40	5	6	Soil	X	X					X	X		X													Backhoe								RTH
1183	SD	SD-19-D4	01/13/16	15:00	8	8.5	Soil	X	X					X	X		X													Backhoe	Refusal at 8.5 ft; not able to collect proposed soil sample at 9-10 ft bgs.							RTH
1184	SD	SD-20-01	11/11/15	09:30	0	1	Soil	X	X		X			X	X		X													Hand Tools								RTH
1185	SD	SD-20-01-FD	11/11/15	09:30	0	1	Soil	X	X		X			X	X		X													Hand Tools			X					RTH
1186	SD	SD-20-03	11/11/15	09:45	2	3	Soil	X	X		X			X	X		X													Hand Tools	Refusal at 3.0 ft; not able to collect proposed soil samples at 5-6, 9-10 ft bgs.	Collected below large hole of SDL-9 line were much of the storm water discharges						RTH
1187	SD	SD-21-01	03/10/16	11:45	0	1	Soil	X	X				X	X	X		X					X								Hand Tools								RTH
1188	SD	SD-21-03	03/10/16	12:30	2	3	Soil	X	X				X	X	X		X					X								Hand Tools	Refusal at 3.0 ft; not able to collect proposed soil samples at 5-6, 9-10 ft bgs.							RTH
1189	SD	SD-22-01	03/09/16	14:40	0	1	Soil	X	X					X	X		X													Hand Tools								RTH
1190	SD	SD-22-03	03/09/16	15:35	2	3	Soil	X	X					X	X		X													Hand Tools	Refusal at 3.0 ft; not able to collect proposed soil samples at 5-6, 9-10 ft bgs.							RTH
1191	SD	SD-23-01	03/09/16	11:50	0	1	Soil	X	X				X	X	X		X					X								Hand Tools								RTH
1192	SD	SD-23-03	03/09/16	12:45	2	3	Soil	X	X					X	X		X													Hand Tools	Refusal at 3.0 ft; not able to collect proposed soil samples at 5-6, 9-10 ft bgs.							RTH
1193	SD	SD-24-01	03/09/16	14:15	0	1	Soil	X	X				X	X	X		X					X								Hand Tools								RTH
1194	SD	SD-24-03	03/09/16	16:10	2	3	Soil	X	X					X	X		X													Hand Tools	Refusal at 3.0 ft; not able to collect proposed soil samples at 5-6, 9-10 ft bgs.							RTH
1195	SD	SD-25-01	03/10/16	14:00	0	1	Soil	X	X				X	X	X		X					X								Hand Tools	Refusal at 1.0 ft; not able to collect proposed soil samples at 2-3, 5-6, 9-10 ft bgs.							RTH
1196	SD	SD-26-01	03/10/16	15:00	0	1	Soil	X	X				X	X	X		X					X								Hand Tools	Refusal at 1.0 ft; not able to collect proposed soil samples at 2-3, 5-6, 9-10 ft bgs.							RTH
1197	SD	SD-27-02	02/15/17	13:00	2.0	3.0	Soil	X	X					X	X			X	X											Hand Tools		Collected below SD-8 pipe						RTH
1198	SD	SD-27-03	02/15/17	13:30	4.0	5.0	Soil	H	H					H	H			H	H											Hand Tools	Refusal at 5.0 ft; not able to collect proposed soil samples at 5-6, 9-10 ft bgs. Also, pipe located at the surface, so unable to collect soil sample 0-1 ft bgs.							RTH
1199	SD	SD-28-01	02/05/17	12:00	0.0	0.5	Soil	X	X					X	X			X	X											Vac Truck								6253
1200	SD	SD-28-02	02/05/17	12:30	2.0	3.0	Soil	X	X					X	X			X	X											Vac Truck								6253

TABLE B3

Field Activities Summary Table and Deviations from Work Plan

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

No.	AOC	Sample Location	Sample Date	Sample Time	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Analytical Suite[a]																						Collection Method	Deviation from Work Plan	Notes	Field Duplicate	Below Asphalt (A) or Concrete [C]	Trench Sample	Opportunistic Sample	Debris Sample	DTSC Split Sample	Waste Bin Number
								Metals	Hexavalent Chromium	CLP-Cn, CLP-Metals	Cyanide (SW9014)	Mercury (7470A)	Dioxins	PAHs	PCBs	Pesticides	TPHs 8015M	TPH-Purgable (8015B-P) TPH-g	TPH-Extractable (8015B-E) TPH-d, TPH-mo	SVOCs	VOCs	pH (9045)	Water Content General D2216	Water E821R91100	Water Anion 300	Water General 2320B	Water General 3501	Water General LYDKHN	Water General SM4500N H3DM	Water General SM4500 S2-D	Water General SM5310C										
1201	SD	SD-28-03	02/05/17	13:00	5.0	6.0	Soil	X	X					X	X			X	X											Vac Truck									6253
1202	SD	SD-28-04	02/05/17	14:00	9.0	10.0	Soil	X	X					X	X			X	X											Vac Truck		Collected below PVC pipe							6253
1203	SD	SD-29-01	02/04/17	13:30	0.0	0.5	Soil	X	X					X	X			X	X											Vac Truck				A					6253
1204	SD	SD-29-02	02/04/17	14:00	2.0	3.0	Soil	X	X	X				X	X	X		X	X		X									Vac Truck									6253
1205	SD	SD-29-03	02/05/17	08:00	4.5	5.0	Soil	X	X					X	X			X	X											Vac Truck		Collected below clay pipe							6253
1206	SD	SD-29-04	02/05/17	08:30	7.5	8.0	Soil	X	X					X	X			X	X											Vac Truck	Refusal at 8 ft; not able to collect proposed soil sample at 9-10 ft bgs.								6253
1207	SD	SD-OS30-1001	07/18/17	11:00	0.0	0.5	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1208	SD	SD-OS30-1002	07/18/17	11:30	2.0	3.0	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1209	SD	SD-OS30-1003	07/18/17	12:15	4.0	5.0	Soil	X	X					X	X			X	X											Vac Truck		Collected next to pipe				X			RTH
1210	SD	SD-OS30-1004	07/18/17	12:45	5.0	6.0	Soil	X	X					X	X			X	X											Vac Truck		Collected below pipe				X			RTH
1211	SD	SD-OS30-1005	07/18/17	13:00	7.0	8.0	Soil	X	X					X	X			X	X											Vac Truck	Refusal at 8 ft; not able to collect proposed soil sample at 9-10 ft bgs.					X			RTH
1212	SD	SD-31-01	02/15/17	10:00	0.0	0.5	Soil	X	X					X	X			X	X											Hand Tools									RTH
1213	SD	SD-31-02	02/15/17	10:05	0.0	0.5	Soil	X	X					X	X			X	X											Hand Tools			X						RTH
1214	SD	SD-31-PIPE	02/15/17	10:45	1.0	2.0	Soil	X	X					X	X			X	X											Hand Tools		Soil collected from inside the pipe							RTH
1215	SD	SD-31-03	02/15/17	10:30	2.0	3.0	Soil	X	X					X	X			X	X											Hand Tools		Collected below metal pipe							RTH
1216	SD	SD-33-OS1-1001	12/20/16	16:30	1.5	2.0	Soil	X	X					X	X			X	X											Hand Tools		Collected below gray "45" elbow				X			RTH
1217	SD	SD-34-OS1-1001	12/02/16	09:00	0.0	0.5	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1218	SD	SD-34-OS1-1002	12/02/16	09:30	1.0	1.5	Soil	X	X					X	X			X	X											Vac Truck		Collected below clay pipe 90 degree elbow				X			RTH
1219	SD	SD-34-OS1-1003	12/03/16	09:30	2.0	3.0	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1220	SD	SD-34-OS1-1004	12/03/16	10:00	5.0	6.0	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1221	SD	SD-34-OS1-1005	12/02/16	13:30	0.5	1.0	Soil	X	X					X	X			X	X											Vac Truck		Collected from inside of pipe				X			RTH
1222	SD	SD-34-OS1-1006	12/03/16	10:05	5.0	6.0	Soil	X	X					X	X			X	X											Vac Truck			X			X			RTH
1223	SD	SD-34A-OS1-1001	12/02/16	14:15	0.0	0.5	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1224	SD	SD-34A-OS1-1002	12/02/16	10:00	1.0	1.5	Soil	X	X					X	X			X	X											Vac Truck		Collected below clay pipe (1 ft north of HC ramp)				X			RTH
1225	SD	SD-34A-OS1-1003	12/02/16	14:00	2.0	3.0	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1226	SD	SD-34A-OS1-1004	12/02/16	14:45	5.0	6.0	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1227	SD	SD-35-OS1-1001	12/04/16	14:30	0.0	0.5	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1228	SD	SD-35-OS1-1002	12/04/16	15:00	2.0	3.0	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1229	SD	SD-35-OS1-1003	12/05/16	14:00	4.5	5.5	Soil	X	X					X	X			X	X											Vac Truck		Collected below clay pipe at the joint				X			RTH
1230	SD	SD-35A-OS1-1001	12/05/16	09:00	0.0	0.5	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1231	SD	SD-35A-OS1-1002	12/05/16	09:30	2.0	3.0	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1232	SD	SD-35A-OS1-1003	12/05/16	10:00	4.5	5.5	Soil	X	X					X	X			X	X											Vac Truck		Collected below clay pipe at the joint				X			RTH
1233	SD	SD-36-OS1-1001	12/01/16	10:45	0.0	0.5	Soil	X	X					X	X			X	X											Vac Truck				A		X			RTH
1234	SD	SD-36-OS1-1002	12/01/16	12:05	2.5	3.0	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1235	SD	SD-36-OS1-1003	12/01/16	13:30	5.0	6.0	Soil	X	X					X	X			X	X											Vac Truck		Collected below clay pipe joint, at offset				X			RTH
1236	SD	SD-37-OS1-1001	11/30/16	10:15	0.0	0.5	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1237	SD	SD-37-OS1-1002	11/30/16	13:30	3.0	3.5	Soil	X	X					X	X			X	X											Vac Truck		Collected below clay/PVC pipe transition				X			RTH
1238	SD	SD-37-OS1-1003	11/30/16	14:00	5.0	5.5	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1239	SD	SD-38-OS1-1001	12/13/16	10:00	0.0	0.5	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1240	SD	SD-38-OS1-1002	12/13/16	11:00	3.0	4.0	Soil	X	X					X	X			X	X											Vac Truck		Collected below pipe (concrete block around clay/PVC)				X			RTH
1241	SD	SD-39-OS1-1001	11/29/16	11:45	0.0	0.5	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1242	SD	SD-39-OS1-1002	11/29/16	14:45	2.5	3.0	Soil	X	X					X	X			X	X											Vac Truck		Collected below PVC/steel pipe transition				X			RTH
1243	SD	SD-39-OS1-1003	11/29/16	14:50	2.5	3.0	Soil	X	X					X	X			X	X											Vac Truck		Collected below PVC/steel pipe transition	X			X			RTH
1244	SD	SD-39-OS1-1004	11/29/16	11:50	0.0	0.5	Soil	X	X					X	X			X	X											Vac Truck			X			X			RTH
1245	SD	SD-40-OS1-1001	12/06/16	09:45	0.0	0.5	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1246	SD	SD-40-OS1-1002	12/06/16	10:30	2.0	3.0	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1247	SD	SD-40-OS1-1003	12/06/16	11:15	5.0	5.5	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1248	SD	SD-40-OS1-1004	12/09/16	13:30	6.0	7.0	Soil	X	X					X	X			X	X											Vac Truck		Collected from material inside of pipe at the "T"				X			RTH
1249	SD	SD-40-OS1-1005	12/09/16	13:00	7.0	8.0	Soil	X	X					X	X			X	X											Vac Truck		Collected below 8-in x 4-in PVC "T" (SDL-11)				X			RTH
1250	SD	SD-40-OS1-1006	12/09/16	14:00	9.0	10.0	Soil	X	X					X	X			X	X											Vac Truck		Collected 2 ft below 8-in x 4-in PVC "T" (SDL-11)				X			RTH
1251	SD	SD-40-OS1-1007	12/11/16	09:00	7.0	8.0	Soil	X	X					X	X			X	X											Vac Truck		Collected below "Y" clay pipe fitting				X			RTH

TABLE B3

Field Activities Summary Table and Deviations from Work Plan

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

No.	AOC	Sample Location	Sample Date	Sample Time	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Analytical Suite[a]																						Collection Method	Deviation from Work Plan	Notes	Field Duplicate	Below Asphalt (A) or Concrete [C]	Trench Sample	Opportunistic Sample	Debris Sample	DTSC Split Sample	Waste Bin Number
								Metals	Hexavalent Chromium	CLP-Cn, CLP-Metals	Cyanide (SW9014)	Mercury (7470A)	Dioxins	PAHs	PCBs	Pesticides	TPHs 8015M	TPH-Purgable (8015B-P) TPH-g	TPH-Extractable (8015B-E) TPH-d, TPH-mo	SVOCs	VOCs	pH (9045)	Water Content General D2216	Water E821R91100	Water Anion 300	Water General 2320B	Water General 3501	Water General LYDKHN	Water General SM4500N H3DM	Water General SM4500 S2-D	Water General SM5310C										
1252	SD	SD-40-OS1-1008	12/09/16	12:45	5.0	6.0	Soil	X	X					X	X			X	X											Vac Truck		Collected below 90 degree 4-in PVC pipe				X			RTH
1253	SD	SD-41-OS1-1001	12/13/16	14:30	0.0	0.5	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1254	SD	SD-41-OS1-1002	12/13/16	15:15	2.0	3.0	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1255	SD	SD-41-OS1-1003	12/14/16	08:45	5.0	6.0	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1256	SD	SD-41-OS1-1004	12/14/16	11:00	8.0	8.5	Soil	X	X					X	X			X	X											Vac Truck		Collected next to red clay pipe				X			RTH
1257	SD	SD-42-OS1-1001	07/17/17	08:30	0.0	0.5	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1258	SD	SD-42-OS1-1002	07/17/17	08:35	0.0	0.5	Soil	X	X					X	X			X	X											Vac Truck			X			X			RTH
1259	SD	SD-42-OS1-1003	07/17/17	09:15	2.0	3.0	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1260	SD	SD-42-OS1-1004	07/17/17	15:15	5.0	6.0	Soil	X	X				H	X	X			X	X	X	X									Vac Truck		Collected below pipe				X			RTH
1261	SD	SD-42-OS1-1006	07/17/17	14:00	3.0	4.0	Debris	X	X				H	X	X			X	X	X	X									Vac Truck		From inside of pipe				X	X		Drums
1262	SD	SD-43-OS1-1001	07/18/17	07:15	0.0	0.5	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1263	SD	SD-43-OS1-1002	07/18/17	07:45	2.0	3.0	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1264	SD	SD-43-OS1-1003	07/18/17	08:30	5.0	6.0	Soil	X	X					X	X			X	X											Vac Truck		Collected below pipe				X			RTH
1265	SD	SD-44-OS1-1001	07/19/17	10:00	0.0	0.5	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1266	SD	SD-44-OS1-1002	07/19/17	10:30	2.0	3.0	Soil	X	X					X	X			X	X											Vac Truck						X			RTH
1267	SD	SD-44-OS1-1003	07/19/17	11:15	5.0	6.0	Soil	X	X					X	X			X	X											Vac Truck		Collected below pipe				X			RTH
1268	SD	SDOF-02	11/12/15	13:30	NA	NA	Water	X	X			X		X	X		X													Hand Tools									NA
1269	SD	SDOF-03	11/11/15	13:00	NA	NA	Water	X	X			X		X	X		X													Hand Tools									NA
1270	SD	SDOF-05	11/11/15	14:20	NA	NA	Water	X	X			X		X	X		X													Hand Tools									NA
1271	SD	SDOF-06	11/11/15	15:40	NA	NA	Water	X	X			X		X	X		X													Hand Tools									NA
1272	SD	SDOF-07	11/11/15	15:00	NA	NA	Water	X	X			X		X	X		X													Hand Tools									NA
1273	SD	SDOF-08	11/11/15	15:10	NA	NA	Water	X	X			X		X	X		X													Hand Tools									NA
1274	SD	SDOF-09	11/11/15	15:25	NA	NA	Water	X	X			X		X	X		X													Hand Tools									NA
1275	SD	SDOF-11-01	11/12/15	09:40	NA	NA	Water	X	X			X		X	X		X													Hand Tools									NA
1276	SD	SDOF-11-02	11/12/15	10:30	NA	NA	Water	X	X			X		X	X		X													Hand Tools			X						NA
1277	SD	SDOF-12	11/12/15	09:30	NA	NA	Water	X	X			X		X	X		X													Hand Tools									NA
1278	SD	SDOF-13B	11/12/15	13:30	NA	NA	Water	X	X			X		X	X		X													Hand Tools									NA
1279	SD	SDOF-14	11/12/15	14:30	NA	NA	Water	X	X			X		X	X		X													Hand Tools									NA
1280	SD	SDOF-14_020216	02/02/16	16:00	NA	NA	Water	X	X			X		X	X		X													Hand Tools									NA
1281	SD	SDOF-SOURCE	11/11/15	13:00	NA	NA	Water	X	X			X		X	X		X													Hand Tools									NA
1282	SWMU1	SWMU1-18-1100	01/07/16	10:53	0	1	Soil	X	X				X		X															Rotosonic									6582
1283	SWMU1	SWMU1-18-1101	01/07/16	11:13	2	3	Soil	X	X				X		X															Rotosonic									6582
1284	SWMU1	SWMU1-18-1102	01/07/16	11:17	5	6	Soil	X	X				X																	Rotosonic									6582
1285	SWMU1	SWMU1-18-1103	01/07/16	11:24	9	10	Soil	X	X				X																	Rotosonic									6582
1286	SWMU1	SWMU1-18-1104	01/07/16	11:27	14	15	Soil	X	X																					Rotosonic									6582
1287	SWMU1	SWMU1-18-1105	01/07/16	11:30	14	15	Soil	X	X																					Rotosonic			X						6582
1288	SWMU1	SWMU1-18-1106	01/07/16	12:19	19	20	Soil	X	X																					Rotosonic									6582
1289	SWMU1	SWMU1-18-1107	01/07/16	13:43	29	30	Soil	X	X																					Rotosonic									6582
1290	SWMU1	SWMU1-18-1108	01/07/16	14:58	39	40	Soil	X	X																					Rotosonic									6582
1291	SWMU1	SWMU1-18-1109	01/08/16	09:30	49	50	Soil	X	X																					Rotosonic									6582
1292	SWMU1	SWMU1-18-1110	01/08/16	10:17	59	60	Soil	X	X																					Rotosonic									6582
1293	SWMU1	SWMU1-18-1111	01/08/16	11:22	69	70	Soil	X	X																					Rotosonic									6582
1294	SWMU1	SWMU1-18-1112	01/08/16	11:41	79	80	Soil	X	X																					Rotosonic									6582
1295	SWMU1	SWMU1-19-1113	01/09/16	08:51	0	1	Soil	X	X				X		X															Rotosonic									6582
1296	SWMU1	SWMU1-19-1114	01/09/16	08:52	2	3	Soil	X	X				X		X															Rotosonic									6582
1297	SWMU1	SWMU1-19-1115	01/09/16	08:57	5	6	Soil	X	X				X																	Rotosonic									6582
1298	SWMU1	SWMU1-19-1116	01/09/16	08:58	9	10	Soil	X	X				X																	Rotosonic									6582
1299	SWMU1	SWMU1-19-1117	01/09/16	09:40	14	15	Soil	X	X				X										X							Rotosonic									6582
1300	SWMU1	SWMU1-19-1118	01/09/16	09:59	19	20	Soil	X	X				X										X							Rotosonic									6582
1301	SWMU1	SWMU1-19-1119	01/09/16	09:58	19	20	Soil	X	X																					Rotosonic			X						6582
1302	SWMU1	SWMU1-19-1120	01/09/16	12:58	29	30	Soil	X	X																					Rotosonic									6582
1303	SWMU1	SWMU1-19-1121	01/09/16	13:32	39	40	Soil	X	X																					Rotosonic									6582
1304	SWMU1	SWMU1-19-1122	01/09/16	14:26	49	50	Soil	X	X																					Rotosonic									6582
1305	SWMU1	SWMU1-19-1123	01/09/16	15:17	59	60	Soil	X	X																					Rotosonic									6582

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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

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								Metals	Hexavalent Chromium	CLP-Cn, CLP-Metals	Cyanide (SW9014)	Mercury (7470A)	Dioxins	PAHs	PCBs	Pesticides	TPHs 8015M	TPH-Purgable (8015B-P) TPH-g	TPH-Extractable (8015B-E) TPH-d, TPH-mo	SVOCs	VOCs	pH (9045)	Water Content General D2216	Water E821R91100	Water Anion 300	Water General 2320B	Water General 3501	Water General LYDKHN	Water General SM4500N H3DM	Water General SM4500 S2-D	Water General SM5310C										
1306	SWMU1	SWMU1-19-1124	01/10/16	08:45	69	70	Soil	X	X																							Rotosonic									6582
1307	SWMU1	SWMU1-19-1125	01/10/16	09:05	79	80	Soil	X	X																							Rotosonic									6582
1308	SWMU1	SWMU1-20-1152-1	01/13/16	14:15	1	1.5	Soil						X																			Rotosonic									6666
1309	SWMU1	SWMU1-20-1152-2	01/13/16	14:20	2	3	Soil						X																			Rotosonic									6666
1310	SWMU1	SWMU1-20-1152-6	01/13/16	14:25	5	6	Soil						X																			Rotosonic									6666
1311	SWMU1	WMU1-20-1152-1	01/13/16	14:27	9	10	Soil						X																			Rotosonic									6666
1312	SWMU1	SWMU1-20-1126	01/13/16	14:30	14	15	Soil	X	X				X											X								Rotosonic									6666
1313	SWMU1	SWMU1-20-1127	01/13/16	14:30	14	15	Soil	X	X																							Rotosonic			X						6666
1314	SWMU1	SWMU1-20-1128	01/13/16	14:45	19	20	Soil	X	X				X											X								Rotosonic									6666
1315	SWMU1	SWMU1-20-1129	01/13/16	15:40	29	30	Soil	X	X																							Rotosonic									6666
1316	SWMU1	SWMU1-20-1130	01/14/16	09:30	39	40	Soil	X	X																							Rotosonic									6666
1317	SWMU1	SWMU1-20-1131	01/14/16	09:40	49	50	Soil	X	X																							Rotosonic									6666
1318	SWMU1	SWMU1-20-1132	01/14/16	10:55	59	60	Soil	X	X																							Rotosonic									6666
1319	SWMU1	SWMU1-20-1133	01/14/16	11:30	69	70	Soil	X	X																							Rotosonic									6666
1320	SWMU1	SWMU1-20-1134	01/14/16	12:00	79	80	Soil	X	X																							Rotosonic									6666
1321	SWMU1	SWMU1-21-1153	01/26/16	15:45	0	1	Soil						X																			Rotosonic									6590
1322	SWMU1	SWMU1-21-1154	01/26/16	15:46	2	3	Soil						X																			Rotosonic									6590
1323	SWMU1	SWMU1-21-1155	01/26/16	15:47	5	6	Soil						X																			Rotosonic								DTSC	6590
1324	SWMU1	SWMU1-21-1156	01/26/16	15:48	9	10	Soil						X																			Rotosonic								DTSC	6590
1325	SWMU1	SWMU1-21-1135	01/26/16	16:15	14	15	Soil	X	X				X											X								Rotosonic									6590
1326	SWMU1	SWMU1-21-1136	01/26/16	16:20	19	20	Soil	X	X				X											X								Rotosonic									6590
1327	SWMU1	SWMU1-21-1137	01/27/16	08:55	29	30	Soil	X	X																							Rotosonic									6590
1328	SWMU1	SWMU1-21-1138	01/27/16	09:40	39	40	Soil	X	X																							Rotosonic									6590
1329	SWMU1	SWMU1-21-1139	01/27/16	10:20	49	50	Soil	X	X																							Rotosonic									6590
1330	SWMU1	SWMU1-21-1140	01/27/16	11:50	59	60	Soil	X	X																							Rotosonic								DTSC	6590
1331	SWMU1	SWMU1-21-1141	01/27/16	13:00	69	70	Soil	X	X																							Rotosonic								DTSC	6590
1332	SWMU1	SWMU1-21-1142	01/27/16	15:00	79	80	Soil	X	X																							Rotosonic									6590
1333	SWMU1	SWMU1-21-1143	01/27/16	15:01	79	80	Soil	X	X																							Rotosonic			X						6590
1334	SWMU1	SWMU1-22-1144	12/17/15	14:55	0	1	Soil	X	X				X	X									X									Hand Tools									RTH
1335	SWMU1	SWMU1-23-1146	12/17/15	14:35	0	1	Soil	X	X				X	X									X									Hand Tools									RTH
1336	SWMU1	SWMU1-24-1147	12/17/15	14:12	0	1	Soil	X	X				X	X									X									Hand Tools									RTH
1337	SWMU1	SWMU1-25-1148	01/26/16	12:46	0	1	Soil	X	X				X	X																		Rotosonic								DTSC	6657
1338	SWMU1	SWMU1-25-1149	01/26/16	14:45	2	3	Soil	X	X				X	X																		Rotosonic								DTSC	6657
1339	SWMU1	SWMU1-25-1150	01/26/16	14:46	5	6	Soil	X	X				X	X																		Rotosonic								DTSC	6657
1340	SWMU1	SWMU1-25-1151	01/26/16	14:47	9	10	Soil	X	X				X	X																		Rotosonic								DTSC	6657
1341	SWMU1	SWMU1-26-1157	01/08/17	08:15	0.0	0.5	Soil						X																			Rotosonic									6253
1342	SWMU1	SWMU1-26-1158	01/08/17	08:20	0.0	0.5	Soil						X																			Rotosonic			X						6253
1343	SWMU1	SWMU1-26-1159	01/08/17	08:30	2.0	3.0	Soil						X																			Rotosonic									6253
1344	SWMU1	SWMU1-26-1160	01/08/17	08:40	5.0	6.0	Soil						X																			Rotosonic									6253
1345	SWMU1	SWMU1-26-1161	01/08/17	08:50	9.0	10.0	Soil						X																			Rotosonic									6253
1346	SWMU1	SWMU1-26-1162	01/08/17	09:00	14.0	15.0	Soil						X																			Rotosonic									6253
1347	SWMU1	SWMU1-26-1163	01/08/17	09:40	19.0	20.0	Soil						X																			Rotosonic									6253
1348	SWMU1	SWMU1-26-1164	01/08/17	10:20	29.0	30.0	Soil						H																			Rotosonic									6253
1349	SWMU1	SWMU1-27-1165	01/07/17	08:15	0.0	0.5	Soil						X																			Rotosonic									6253
1350	SWMU1	SWMU1-27-1166	01/07/17	08:20	2.0	3.0	Soil						X																			Rotosonic									6253
1351	SWMU1	SWMU1-27-1167	01/07/17	08:45	5.0	6.0	Soil						X																			Rotosonic									6253
1352	SWMU1	SWMU1-27-1168	01/07/17	09:00	9.0	10.0	Soil						X																			Rotosonic									6253

TABLE B3

Field Activities Summary Table and Deviations from Work Plan

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

No.	AOC	Sample Location	Sample Date	Sample Time	Top Depth Of Sample (Feet)	Bottom Depth Of Sample (Feet)	Matrix	Analytical Suite[a]																						Collection Method	Deviation from Work Plan	Notes	Field Duplicate	Below Asphalt (A) or Concrete [C]	Trench Sample	Opportunistic Sample	Debris Sample	DTSC Split Sample	Waste Bin Number
								Metals	Hexavalent Chromium	CLP-Cn, CLP-Metals	Cyanide (SW9014)	Mercury (7470A)	Dioxins	PAHs	PCBs	Pesticides	TPHs 8015M	TPH-Purgable (8015B-P) TPH-g	TPH-Extractable (8015B-E) TPH-d, TPH-mo	SVOCs	VOCs	pH (9045)	Water Content General D2216	Water E821R91100	Water Anion 300	Water General 2320B	Water General 3501	Water General LYDKHN	Water General SM4500N H3DM	Water General SM4500 S2-D	Water General SM5310C										
1353	SWMU1	SWMU1-27-1169	01/07/17	10:15	14.0	15.0	Soil						X																		Rotosonic								6253
1354	SWMU1	SWMU1-27-1170	01/07/17	10:30	19.0	20.0	Soil						X																		Rotosonic								6253
1355	SWMU1	SWMU1-27-1171	01/07/17	12:30	29.0	30.0	Soil						H																		Rotosonic								6253
1356	SWMU1	SWMU1-28-1172	02/14/17	13:30	0.0	0.5	Soil	X	X	X			X	X	X	X					X										Hand Tools								RTH
1357	SWMU1	SWMU1-28-1173	02/14/17	13:35	0.0	0.5	Soil	X	X				X																		Hand Tools			X					RTH
1358	SWMU1	SWMU1-28-1174	02/14/17	14:30	2.0	3.0	Soil	X	X				X																		Hand Tools								RTH
1359	SWMU1	SWMU1-29-1175	02/16/17	09:45	0.0	0.5	Soil	X	X	X			X			X					X										Backhoe					X			RTH
1360	SWMU1	SWMU1-29-1176	02/16/17	10:30	2.0	3.0	Soil	X	X				X																		Backhoe		Soil is green or has green staining			X			RTH
1361	SWMU1	SWMU1-29-1177	02/16/17	11:00	5.0	6.0	Soil	X	X				X																		Backhoe					X			RTH
1362	SWMU1	SWMU1-29-1178	02/16/17	12:30	9.0	10.0	Soil	X	X				X																		Backhoe					X			RTH
1363	SWMU11	SWMU11-1-32000	01/19/16	14:15	0	0.5	Soil	X	X		X		X		X							X	X								Vac Truck								6666
1364	SWMU11	SWMU11-1-32001	01/19/16	14:25	2	3	Soil	X	X		X		X		X							X	X								Vac Truck								6666
1365	SWMU11	SWMU11-2-32002	01/26/16	14:55	0	0.5	Soil	X	X													X									Vac Truck				C				6590
1366	SWMU11	SWMU11-2-32003	01/26/16	15:05	2	3	Soil	X	X													X									Vac Truck								6590
1367	SWMU11	SWMU11-3-32004	01/19/16	12:50	0	0.5	Soil	X	X				X	X	X							X	X								Vac Truck								6666
1368	SWMU11	SWMU11-3-32005	01/19/16	13:10	2	3	Soil	X	X				X	X	X							X	X								Vac Truck								6666
1369	SWMU11	SWMU11-3-32010	01/18/17	12:45	5.0	6.0	Soil		X	X						X					X										Vac Truck								6253
1370	SWMU11	SWMU11-3-32011	01/18/17	13:15	6.5	7.0	Soil		X																						Vac Truck	Refusal at 7.0 ft (Concrete?); not able to collect proposed soil sample at 9-10 ft bgs.								6253
1371	SWMU11	SWMU11-4-32006	01/25/16	10:50	0	0.5	Soil	X	X													X									Vac Truck				C				6590
1372	SWMU11	SWMU11-4-32007	01/25/16	11:10	2	3	Soil	X	X													X									Vac Truck								6590
1373	SWMU11	SWMU11-5-32008	01/20/16	12:40	0	0.5	Soil	X	X													X									Vac Truck								6666
1374	SWMU11	SWMU11-5-32009	01/20/16	10:55	2	3	Soil	X	X													X									Vac Truck								6666
1375	SWMU5	SWMU5-1-29000	12/08/15	09:15	0	1	Soil	X	X		X			X		X	X				X	X									Vac Truck								5985
1376	SWMU5	SWMU5-1-29001	12/08/15	09:35	2	3	Soil	X	X		X			X		X	X				X	X									Vac Truck								5985
1377	SWMU5	SWMU5-2-29002	12/07/15	13:00	0	0.5	Soil	X	X				X	X	X	X	X				X	X		X							Vac Truck								5985
1378	SWMU5	SWMU5-2-29003	12/07/15	13:20	2	3	Soil	X	X				X	X	X	X	X				X	X		X							Vac Truck								5985
1379	SWMU5	SWMU5-2-29004	12/07/15	14:00	2	3	Soil	X	X					X		X	X				X	X									Vac Truck			X					5985
1380	SWMU5	SWMU5-2-29005	01/12/17	09:40	5.0	6.0	Soil							X	X																Vac Truck								6253
1381	SWMU5	SWMU5-2-29006	01/12/17	09:55	5.0	6.0	Soil							X	X																Vac Truck			X					6253
1382	SWMU5	SWMU5-2-29007	01/12/17	10:25	9.0	10.0	Soil							X	X																Vac Truck								6253
1383	SWMU6	SWMU6-1-30000	12/07/15	10:45	0	1	Soil	X	X		X			X		X	X				X	X									Vac Truck								5985
1384	SWMU6	SWMU6-1-30001	12/07/15	11:00	2	3	Soil	X	X		X			X		X	X				X	X									Vac Truck								5985
1385	SWMU6	SWMU6-1-30002	12/07/15	12:10	5	6	Soil	X	X		X			X		X	X				X	X									Vac Truck								5985
1386	SWMU6	SWMU6-1-30003	01/12/17	13:00	9.0	10.0	Soil			X				X	X	X						X									Vac Truck								6253
1387	SWMU6	SWMU6-1-30004	01/12/17	13:05	9.0	10.0	Soil							X	X																Vac Truck			X					6253
1388	SWMU8	SWMU8-1-31000	12/09/15	11:00	0	1	Soil	X	X		X		X	X		X	X				X	X		X							Vac Truck				A			DTSC	5985
1389	SWMU8	SWMU8-1-31001	12/09/15	11:30	2	3	Soil	X	X		X		X	X		X	X				X	X		X							Vac Truck								5985
1390	TCS4	TCS4-E-05	03/01/16	09:00	4	5	Soil	X	X				X	X	X																Backhoe	14 ft east of TCS4						DTSC	RTH
1391	TCS4	TCS4-E-05D	03/01/16	09:05	4	5	Soil	X	X				X	X	X																Backhoe	14 ft east of TCS4		X				DTSC	RTH
1392	TCS4	TCS4-E-06	03/01/16	08:45	5	6	Soil	X	X				X	X	X																Backhoe	14 ft east of TCS4						DTSC	RTH
1393	TCS4	TCS4-N-05	03/01/16	09:10	4	5	Soil	X	X				X	X	X																Backhoe	5 ft north of TCS4						DTSC	RTH
1394	TCS4	TCS4-N-06	03/01/16	09:20	5	6	Soil	X	X				X	X	X																Backhoe	5 ft north of TCS4						DTSC	RTH
1395	TCS4	TCS4-S-05	03/01/16	09:30	4	5	Soil	X	X				X	X	X																Backhoe	5 ft south of TCS4						DTSC	RTH
1396	TCS4	TCS4-S-06	03/01/16	09:40	5	6	Soil	X	X				X	X	X																Backhoe	5 ft south of TCS4						DTSC	RTH
1397	TCS4	Soil-IDW-01-6238	03/21/16	06:45	NA	NA	Soil	X	X				X	X	X	X	X	X	X	X	X	X	X	X							Hand Tools	Soil from TCS4 gabions							6238
1398	Unit4.3	Units 4.3-1-33000	12/07/15	13:30	0	1	Soil	X	X		X			X	X	X	X				X	X	X								Vac Truck				A				5985
1399	Unit4.3	Units 4.3-1-33001	12/07/15	13:40	2	3	Soil	X	X		X			X	X	X	X				X	X	X								Vac Truck								5985
1400	Unit4.3	Units 4.3-2-33002	12/07/15	14:30	0	1	Soil	X	X		X			X	X	X	X				X	X	X								Vac Truck				A				5985
1401	Unit4.3	Units 4.3-2-33003	12/07/15	14:45	2	3	Soil	X	X		X			X	X	X	X				X	X	X								Vac Truck								5985

Figure

LEGEND

- pre-2015 data
- 2015-2016 data
- 2017 and later data
- Soil Trench
- Stormwater Collection Trench
- Area of Concern
- Solid Waste Management Unit
- Potential Burning Related Location
- Topock Compressor Station Fence Line

Note:

Topographic contours shown are in 2 foot intervals

N

0 62.5 125 250 Feet

Figure B-1
Sample Locations

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Attachment B1
Soil Boring Logs

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC10-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100649.0 N, 7615911.5 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : excavation, long reach excavator

WATER LEVELS : N/A START : 2:20:00 PM 10/2/2008 END : 3:15:00 PM 10/2/2008 LOGGER : T. Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0		SANDY SILT (ML) with gravel and cobbles: light brown, loose consistency, dry, no odor, no hard layer.	Pothole terminated at 10 ft bgs. Backfilled.
5			
10		Total Depth at 10 ft below ground surface	
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC10-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100625.9 N, 7616007.0 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : excavation, long reach excavator

WATER LEVELS : N/A START : 11:10:00 AM 10/2/2008 END : 12:05:00 PM 10/2/2008 LOGGER : T. Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5		GRAVELLY SILT (ML) with sand and cobbles: poorly sorted, coarse fraction grey, fine fraction light to medium brown. Coarse fraction angular to rounded.	Pothole terminated at 8 ft bgs- hardpan. Backfilled.
10		8.0 feet bgs: hard pan backfill encountered. Total Depth at 8 ft below ground surface	
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC10-3 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100714.1 N, 7616222.5 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 9/19/2008 END : 9/19/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5		SANDY SILT (ML) with gravel: light brown (7.5YR 6/3), poorly sorted, dry, no odor, (20% gravel/25% sand/55% fines), gravel max diameter=5cm. Angular to subangular metamorphic.	Drilled two borings to collect the required amount of soil from each sample depth interval.
10		Total Depth at 10 ft below ground surface	
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC10-4	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100679.5 N, 7616288.3 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 8:30:00 AM 9/19/2008 END : 10:50:00 AM 9/19/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0		SANDY SILT (ML): light brown (7.5YR 6/3)(10% gravel/30% sand/60% fines), poorly sorted, dry, no odor, gravel max diameter =5cm. Angular to subangular, metamorphic.	Completed two borings to collect enough soil sample. Second boring approximately 2 feet away from stake.
		SANDY SILT (ML) with gravel: light brown (7.5YR 6/3), poorly sorted, dry, no odor, (20% gravel/25% sand/55% fines), gravel max diameter=5cm. Angular to subangular metamorphic.	
5			
10		Total Depth at 10 ft below ground surface	
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC10-5	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100967.0 N, 7616410.5 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 1:45:00 PM 9/19/2008 END : 3:00:00 PM 9/19/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5		SANDY SILT (ML): light brown (7.5YR 6/3), (5% gravel/20% sand/75% fines), max diameter gravel =4cm, angular to subangular, metamorphic, miocene conglomerate fragments.	
10		8.2 feet bgs: bedrock encountered. Total Depth at 8.2 ft below ground surface	
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC10-6	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101013.3 N, 7616416.5 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 7:00:00 AM 9/20/2008 END : 8:10:00 AM 9/20/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		SANDY SILT (ML): light brown (7.5YR 6/3), poorly to moderately sorted, dry, no odor (5% gravel/20% sand/75% fines), gravel max diameter is 4 cm, angular to subangular, metamorphic.	Drilled two borings to collect the required soil sample volume.
		3.0 feet bgs: encountered bedrock.	
5		Total Depth at 3 ft below ground surface	
10			
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC10-7	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100989.7 N, 7616503.9 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 8:15:00 AM 9/20/2008 END : 9:20:00 AM 9/20/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0		SANDY SILT (ML): light brown (7.5YR 6/3), poorly to moderately sorted, dry, no odor (5% gravel/20% sand/75% fines), gravel max diameter is 4 cm, angular to subangular, metamorphic.	Drilled two borings to collect required soil volume for samples.
5			
		8.0 feet bgs: bedrock encountered.	
10		Total Depth at 8 ft below ground surface	
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC10-8	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101122.1 N, 7616635.2 E)

ELEVATION : ft. () DRILLING CONTRACTOR : N/A

DRILLING METHOD AND EQUIPMENT : Hand auger, Hand tools

WATER LEVELS : N/A START : 10:30:00 AM 8/22/2008 END : 11:02:00 AM 8/22/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/6), (50% gravel/25% sand/25% fines), well-graded, angular to subrounded, no dominant mineralogy, loosely consolidated, matrix-supported, dry, max clast size = 30 mm.	
		0.5 feet bgs: bedrock encountered.	
		Total Depth at 0.5 ft below ground surface	
5			
10			
15			

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC10-9	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Northstar Environmental Remediation
WATER LEVELS : Not Encountered
START : 12/7/2015
END : 12/7/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–3			Silty Sand with Gravel (SM): 70% poorly graded, loose, silty sand, 30% 1-6 inch angular gravel and cobbles	
3				Total Depth at 3 ft below ground surface Boring terminated at 3 feet below ground surface due to boulders
4–30				

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC10-10 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/22/2016 END : 1/22/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–3		Gravelly Silt With Sand (ML): 70% silt to fine sand, 30 gravel to 1", reddish-brown	
4–10		Silty Gravel (GM): 70% gravel to cobbles, 30% fine sands to silts, light brown to green-brown	4" core barrel to 10 fbs Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30			

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC10-11	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/22/2016 END : 1/22/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–10		Silty Gravel with Sand (GM): 50% silt to fine sand, 50% gravel to 2", medium brown Silty Gravel (GM): 70% gravel to cobbles, 30% fine sand to silt, light grey to green-grey	4" core barrel to 10 fbs Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30			

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC10-12 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/22/2016 END : 1/22/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–3		Silty Gravel with Sand (GM): 50% silt to fine sand, 50% gravel to 2", medium brown	
4–10		Silty Gravel (GM): 70% gravel to cobbles, 30% fine sand to silt, light grey to green-grey	4" core barrel to 10 fbs
10			Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30			

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC10-13 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Hand Tools EQUIPMENT OPERATOR : Northstar Environmental Remediation

WATER LEVELS : Not Encountered START : 12/3/2015 END : 12/3/2015 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Sandy Silt with Trace Gravel (SM): light brown, loose, dry	Total Depth at 0.5 ft below ground surface Terminated digging at 0.5 feet below ground surface
2			
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4			
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC10-14 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Northstar Environmental Remediation
WATER LEVELS : Not Encountered
START : 12/3/2015
END : 12/3/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Sandy Silt with Trace Gravel (SM): light brown, loose, dry	Total Depth at 0.5 ft below ground surface terminated digging at 0.5 feet below ground surface
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3				
4				
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ch2m.

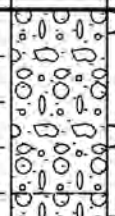
PROJECT NUMBER: 666665	LOCATION: AOC10-15 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Backhoe EQUIPMENT OPERATOR :

WATER LEVELS : START : 12/15/2015 END : 12/15/2015 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–4		Well Graded Gravel with Sand (GW): 50% gravel from 1"-3", 30% fine sand, dry, loose	
5–6		Well Graded Gravel with Sand (GW): 50% gravel from 1"-3", 30% fine sand, dense, dry, cemented	
7–10		Well Graded Gravel with Sand (GW): 50% gravel from 1"-3", 30% fine sand, dense, wet, cemented	Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30			

ch2m.

PROJECT NUMBER:	LOCATION:	
666665	AOC10-16	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)

EQUIPMENT : Backhoe
EQUIPMENT OPERATOR :

WATER LEVELS :
START : 12/15/2015 END : 12/15/2015 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–10			Well Graded Gravel with Sand (GW): 60% gravel from 1"-6", 40% medium sand, 6"-8" angular cobbles	Matrix colour has CaCO3 Total Depth at 10 ft below ground surface Boring temirnated at 10 feet below surface
11–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC10-17	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Northstar Environmental Remediation
WATER LEVELS : Not Encountered
START : 12/3/2015
END : 12/3/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Sandy Silt with Trace Gravel (SM): light brown, loose, dry	Total Depth at 0.5 ft below ground surface Terminated digging at 0.5 feet below ground surface
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC10-18	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Northstar Environmental Remediation
WATER LEVELS : Not Encountered
START : 12/6/2015
END : 12/6/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty Sand with Gravel (SM): 70% silty sand, 30% 1-3 inch gravel	
2				Total Depth at 2 ft below ground surface Terminated digging at 2 feet below ground surface
3				
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC10-24 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Hand Tools EQUIPMENT OPERATOR : Groundwater Partners

WATER LEVELS : START : 3/7/2016 END : 3/7/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Lean Silt (ML): 10% 1" gravel, 90% silt, dry	
2				Total Depth at 2 ft below ground surface Boring terminated at 10 feet below surface
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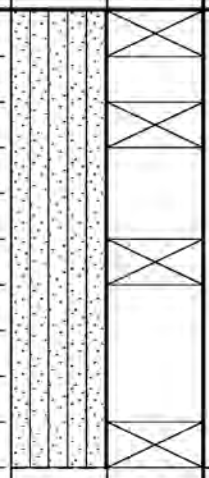
ch2m

PROJECT NUMBER: 666665	LOCATION: AOC10A-2 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/13/2016 END : 1/13/2016 APPROVED BY : M. Cavaliere

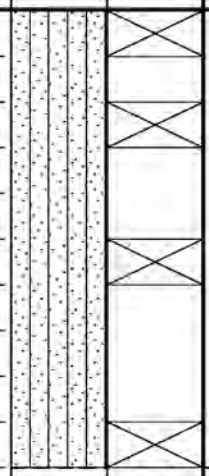
DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–10		Silty Sand with Gravel (SM): (30/50/20) dark yellow brown (10YR 4/4), dry, lightly dense, poorly graded, subangular gravel	4" core barrel to 10 fbs Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30			

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC10A-3 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/13/2016 END : 1/13/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–10		Silty Sand with Gravel (SM): (30/50/20) dark yellow brown (10YR 4/4), dry, lightly dense, poorly graded, subangular gravel	4" core barrel to 10 fbs
10			Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC10b-1 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100512.7 N, 7615850.3 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 10:30:00 AM 9/30/2008 END : 11:50:00 AM 9/30/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0		SILTY SAND (SM) with gravel: light brown, (7.5YR 6/3), loose, dry, no odor, (30% gravel/50% sand/20% fines), max diameter gravel=10cm, angular to subangular, metamorphic.	Hand auger to 1 ft before refusal. Drilled three borings approximately 1 foot apart. Required to collect sufficient soil volume for samples. Backfilled with bentonite pellets and hydrated.
5		At 4 ft bgs: becomes more fine grained (10% gravel/60% sand/30% fines).	
10		SILTY SAND (SM) : light brown (7.5YR 6/3), loose, dry, no odor, (5% gravel/70% sand/25% fines), max gravel diameter =2cm, angular to subangular, metamorphic.	
15		Total Depth at 10 ft below ground surface	

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC10b-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100520.3 N, 7615904.9 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 11:55:00 AM 9/30/2008 END : 12:55:00 PM 9/30/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5		SILTY SAND (SM) with gravel: light brown, (7.5YR 6/3), loose, dry, no odor, (25% gravel/60% sand/15% fines), max diameter gravel=8cm, angular to subangular, metamorphic.	Drilled two borings approximately one foot apart. Required to collect sufficient soil volume for samples. Backfilled with bentonite pellets and hydrated.
10		SILTY SAND (SM): light brown (7.5YR 6/3), loose, dry, no odor, (5% gravel/70% sand/25% fines), max gravel diameter =2.5cm, angular to subangular, metamorphic.	
15		Total Depth at 10 ft below ground surface	

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC10b-3 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100478.7 N, 7615986.1 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 2:00:00 PM 9/30/2008 END : 8:40:00 AM 10/1/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5		SILTY SAND (SM) with gravel: light brown (7.5YR 6/3), dry, loose, no odor, moderately well sorted (30% gravel/50% sand/20% fines), max diameter=5cm, angular to subangular, metamorphic.	Stopped drilling at 14:00 9/30/08 and resumed work at 0710 on 10/1/08. Hand auger to 1 ft before refusal. Drilled three borings approximately 1 to 1.5 ft apart. Required to collect sufficient soil volume for sample jars. Backfilled with bentonite pellets and hydrated.
10		At 5.5 ft bgs: increased gravel and silt content (30% gravel/45% sand/25% fines).	
15		Total Depth at 10 ft below ground surface	

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC10b-4 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100545.1 N, 7615940.9 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 1:30:00 PM 9/30/2008 END : 3:20:00 PM 9/30/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5		SILTY SAND (SM) with gravel: light brown (7.5YR 6/3), dry, loose, no odor, (15% gravel/70%sand/15% fines), max gravel diameter=7cm, angular to subangular, metamorphic.	Drilled two borings approximately one foot apart. Required to collect sufficient soil volume for samples. Backfilled with bentonite pellets and hydrated.
10		Total Depth at 10 ft below ground surface	
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC10c-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100554.0 N, 7616077.8 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 8:50:00 AM 10/1/2008 END : 9:55:00 AM 10/1/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0		SANDY SILT (ML) with gravel: light brown (7.5YR 6/3), dry, no odor, (15% gravel/30% sand/55% fines), max gravel diameter =8cm, angular to subangular, metamorphic.	Drilled two borings approximately 1.5 feet. Required to collect sufficient soil volume for samples. Backfilled with bentonite pellets and hydrated.
5			
10		Total Depth at 10 ft below ground surface	
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC10c-2 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100586.7 N, 7616088.4 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 7:20:00 AM 10/1/2008 END : 11:15:00 AM 10/1/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0		SANDY SILT (ML) with gravel: light brown (7.5YR 6/3), dry, no odor, (15% gravel/30% sand/55% fines), max gravel diameter =9cm, angular to subangular, metamorphic.	Hand auger to 1 ft before refusal. Drilled three borings approximately 2 ft apart. Required so as to collect sufficient soil volume for samples. Backfilled with bentonite chips and hydrated.
5			
10		Total Depth at 10 ft below ground surface	
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC10c-3 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100636.7 N, 7616126.1 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 8:30:00 AM 10/2/2008 END : 10:30:00 AM 10/2/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0		SANDY SILT (ML): light brown (7.5YR 6/3), dry, no odor, (10% gravel/40% sand/50% fines), max gravel diameter =5cm, angular to subangular, metamorphic.	Drilled three borings approximately 1.5 ft apart in order to collect sufficient soil volume. Backfilled with bentonite chips and hydrated.
5			
10		Total Depth at 10 ft below ground surface	
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC10c-4 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100603.8 N, 7616145.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 1:15:00 PM 10/1/2008 END : 3:00:00 PM 10/1/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5		SANDY SILT (ML) with gravel: light brown (7.5YR 6/3), dry, no odor, (15% gravel/30% sand/55% fines), max gravel diameter =10cm, angular to subangular, metamorphic.	Hand auger to 1 ft before refusal. Drilled two borings approximately 1 ft apart to collect sufficient soil volume. Backfilled with bentonite pellets and hydrated.
10		Total Depth at 10 ft below ground surface	
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC10c-5 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100633.8 N, 7616083.7 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 1:05:00 PM 10/1/2008 END : 2:00:00 PM 10/1/2008 LOGGER : R. Tweidt

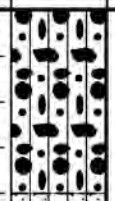
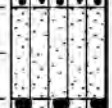
DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0		SANDY SILT (ML): light brown (7.5YR 6/3), dry, no odor, (10% gravel/30% sand/60% fines), max gravel diameter =7cm, angular to subangular, metamorphic.	Drilled two borings approximately 1 ft apart to collect sufficient soil volume. Backfilled with bentonite pellets and hydrated.
5			
10		Total Depth at 10 ft below ground surface	
15			

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC10C-6 SHEET 1 OF 2

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/21/2016 END : 1/21/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–4		Silty Gravel with Sand (GM): 70% cobbles to gravel, 30% fine sands to silt, grey brown	
5–6		Silty Sand with Gravel (SM): 60% fine sand to silt, 40% gravel up to 1"	
7–30		Silty Gravel with Sand (GM): 60% gravel to cobbles, 40% silt to fine sand, medium brown	4" core barrel to 58 fbs

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC10C-6 SHEET 2 OF 2

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/21/2016 END : 1/21/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
31–35			
36–54		Silty Gravel with Sand (GM): light gey to grey-green, 60% gravel to cobbles, 30% fine sand to silt, 10% stiff lean red-brown to grey-green clay	
54–58		Blue-green meta diorite	Total Depth at 58 ft below ground surface Boring terminated at 58 feet below surface
59–60			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC10d-1 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100715.3 N, 7616294.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 3:40:00 PM 9/18/2008 END : 9/18/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0		SANDY SILT (ML): light brown (7.5YR 6/3), poorly sorted, dry, no odor, (10% gravel/30% sand/60% fines), max diameter =6cm, angular to subangular, metamorphic.	Hand augered to 2 ft after collecting surface sample. Drilled 2 borings to collect sufficient soil volume.
5			
10		Total Depth at 10 ft below ground surface	
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC10d-2 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100854.4 N, 7616314.0 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 11:10:00 AM 9/17/2008 END : 1:40:00 PM 9/17/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		SANDY SILT (ML) with gravel: light brown (7.5YR 6/3), poorly sorted, dry, no odor, (20% gravel/20% sand/60% fines), max gravel diameter =5cm, angular to subangular, metamorphic.	Drilled two holes to 10 feet within 1 foot of each other. Needed to collect enough soil for sampling.
5			
10		At 9.25 ft bgs: thin white lens, approximately 1/4 cm thick.	
		Total Depth at 10 ft below ground surface	
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC10d-3 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100868.0 N, 7616332.3 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 4:00:00 PM 9/18/2008 END : 9/18/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		SANDY SILT (ML) with gravel: light brown (7.5YR 6/3), poorly sorted, dry, no odor, (15% gravel/20% sand/65% fines), max gravel diameter =4cm, angular to subangular, metamorphic.	Stopped drilling at 16:00 9/17/08 and resumed work at 10:00 on 9/18/08. Hand auger to 2 ft bgs. Drilled three locations to collect sufficient soil volume for sample jars, all within 2 feet of stake. Backfilled with bentonite pellets and hydrated.
5		At 5 ft bgs: gravel content varies between 10-20%. Gravel pulverized in spots due to drilling process. Causes whitish powder to be present.	
10		Total Depth at 10 ft below ground surface	
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC10d-4 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100873.6 N, 7616374.7 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 1:00:00 PM 9/18/2008 END : 2:45:00 PM 9/18/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		SILT (ML): light brown (7.5YR 6/3), dry, no odor, minor fine sand (<5%).	Hand auger to 2 ft bgs after collecting surface sample. Drilled two borings to collect sufficient soil for samples. Second boring located approximately one foot south of stake and original boring.
		At 2 ft bgs: thin lens of white material (GLEY 8/10Y).	
		At 3 ft bgs: appearance of fine gravel (<10%) max diameter =2 cm. Angular to subangular, metamorphic.	
5		SILT (ML) with gravel: light brown (7.5YR 6/3), poorly to moderately sorted, dry, no odor, (5% gravel/20% sand/75% fines), max gravel diameter =4cm, angular to subangular, metamorphic.	
		At 5.5 ft bgs: thin lens of white material (GLEY 8/10Y).	
		At 7.5 ft bgs: increase in gravel content to approx 10-15%.	
10		Total Depth at 10 ft below ground surface	
15			

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC10D-9 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Backhoe
EQUIPMENT OPERATOR :
WATER LEVELS :
START : 12/15/2015 END : 12/15/2015 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–9			Well Graded Gravel with Sand (GW): 60% angular gravel from 1-1 1/2", well graded, 40% fine sand, consolidated	
10				Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30				

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC11-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/5/2016
END : 1/5/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–8		Lean Silt (ML): Dark yellowish brown (10YR 4/4), dry, loose, (0/0/100)	4" core barrel to 10 fbs
9–10		Poorly Graded Sand with Gravel (SP): dark yellowish brown (10YR 4/4), (10/90/0), poorly graded, subangular gravel, dry, loose	Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30			

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC11-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/5/2016 END : 1/5/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–3			Lean Silt (ML): dark yellowish brown (10YR 4/4), dry, loose, (0/0/0)	
4–10			Poorly Graded Sand with Gravel (SP): dark yellowish brown (10YR 4/4), dry, loose, poorly graded, subangular gravel, (10/90/0)	4" core barrel to 10 fbs
10				Total Depth at 10 ft below ground surface Borung terminated at 10 feet below surface
11–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC11-3	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/5/2016
END : 1/5/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Lean Silt (ML): dark yellowish brown (10YR 4/4), dry, loose, (0/0/0)	
2			Poorly Graded Sand with Gravel (SP): dark yellowish brown (10YR 4/4), dry, loose, poorly graded, subangular gravel, (10/90/0)	
3				
4				
5				4" core barrel to 10 fbs
6				
7				
8				
9				
10				Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11				
12				
13				
14				
15				
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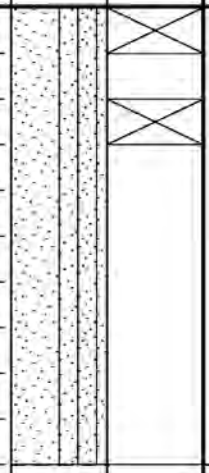
ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC11-4	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/5/2016
END : 1/5/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–10		Poorly Graded Sand with Silt and Gravel (SP-SM): dark yellowish brown (10YR 4/4), dry, loose, poorly graded, subangular gravel, conglomerate boulder from 4'-5'	4" core barrel to 10 fbs Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30			

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC11-5	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 2/3/2016 END : 2/3/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2			Lean Silt (ML): brown (7.5Y 4/4), dry, loose, (0/5/95)	
3–10			Silty Sand (SM): brown (7.5Y 4/4), dry, loose, poorly graded, trace clay, (0/75/25)	4" core barrel to 10 fbs
10				Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC11-7 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Rotosonic EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : START : 1/6/2016 END : 1/6/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty Sand (SM): (10/80/10), dark yellow brown (10YR 4/4), moist, loose, subangular gravel	
2				
3				
4				Colour change to miocene conglomerate red
5				
6				
7				Total Depth at 7 ft below ground surface Boring refusal at 7 feet below surface due to miocene bedrock
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC11-8	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Northstar Environmental Remediation
WATER LEVELS : Not Encountered
START : 12/6/2015
END : 12/6/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty Sand (SM)	
2				Total Depth at 2.5 ft below ground surface Terminated boring at 2.5 feet below ground surface due to boulders
3				
4				
5				
6				
7				
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC11-9	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Northstar Environmental Remediation
WATER LEVELS : Not Encountered
START : 12/6/2015
END : 12/6/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty Sand (SM)	
2				Total Depth at 2.5 ft below ground surface Terminated boring at 2.5 feet below ground surface due to boulders
3				
4				
5				
6				
7				
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CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC11a-1 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101415.5 N, 7615940.5 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 7:05:00 AM 9/21/2008 END : 1:25:00 PM 9/21/2008 LOGGER : R.Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
				SILT (ML): light brown (7.5YR 6/4), dry, no odor, minor sand and gravel.	Hand auger to 1 foot until refusal. Drilled two borings to collect sufficient soil volume for samples. Backfilled with bentonite chips and hydrated.
		1.3		SANDY SILT (ML) with gravel: light brown (7.5YR 6/4), dry, no odor, (20% gravel/20% sand/ 60% fines), max diameter gravel = 4 cm, angular to subangular, metamorphic.	
		1.8			
5		2.5			
		2.3		8 feet bgs: pieces of old asphalt present from approximately 8-8.25 ft.	
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC11a-2 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101399.0 N, 7616032.2 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 7:40:00 AM 9/21/2008 END : 9/21/2008 LOGGER : R.Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0				SILT (ML): light brown (7.5YR 6/4), dry, no odor, minor sand and gravel.	Hand auger to 1.5 ft before refusal. Drilled two borings. Boring terminated at 10 ft bgs.
		1.8		SANDY SILT (ML) with gravel: light brown (7.5YR 6/4), dry, no odor, (15% gravel/25% sand/ 60% fines), max diameter gravel = 4 cm, angular to subangular, metamorphic.	
		2.5			
5		2.3			
		2.5			
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC11a-3	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101425.1 N, 7615995.3 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 2:30:00 PM 9/20/2008 END : 4:15:00 PM 9/20/2008 LOGGER : R.Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		1.5		SILT (ML): light brown (7.5YR 6/4), dry, no odor, minor sand and gravel.	Hand auger to 1.5 ft. Boring terminated at 10 feet.
				SANDY SILT (ML): light brown (7.5YR 6/4), dry, no odor, (10% gravel/30% sand/60% fines), gravel max diameter 5 cm, angular to subangular, metamorphic.	
		2.5			
5		2.3			
		2.5			
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC11a-4 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101426.1 N, 7616048.8 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 1:00:00 PM 9/20/2008 END : 2:20:00 PM 9/20/2008 LOGGER : R.Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		1.3		SILT (ML): light brown (7.5YR 6/4), dry, no odor, minor sand and gravel.	Drilled two borings to collect sufficient soil sample volume. Boring terminated at 10 feet.
				SANDY SILT (ML) with gravel: light brown (7.5YR 6/4), dry, no odor, (15% gravel/ 25% sand/ 60% fines), gravel max diameter=4 cm, angular to subangular, metamorphic.	
		2.3			
5		2.5			
		2.3			
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC11a-5 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101378.2 N, 7616022.2 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 9/21/2008 END : 9:50:00 AM 9/21/2008 LOGGER : R.Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		1.5		SILT (ML): light brown (7.5YR 6/4), dry, no odor, minor sand and gravel.	Drilled two borings one foot apart to collect sufficient volume of soil. Boring terminated at 10 feet.
				SANDY SILT (ML) with gravel: light brown (7.5YR 6/4), dry, no odor, (15% gravel/ 25% sand/ 60% fines), gravel max diameter=5 cm, angular to subangular, metamorphic.	
		2.3			
5					
		2.5			
		2.5			
10					
				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC11a-ss1 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101483.0 N, 7615916.3 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 1:40:00 PM 9/21/2008 END : 3:10:00 PM 9/21/2008 LOGGER : R.Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	1.0	SILT (ML): light brown (7.5YR 6/4), dry, no odor, minor sand and gravel.	Drilled two borings to collect sufficient soil volume for samples. Two borings are approximately one foot apart. Boring terminated at 10 ft bgs. Backfilled with bentonite chips and hydrated.
	1.8	GRAVELLY SILT with sand (ML): light brown (7.5YR 6/4), dry, no odor, (25% gravel/20% sand/55% fines), gravel max diameter=4 cm, angular to subangular, metamorphic.	
5	2.0		
	2.0		
10		Total Depth at 10 ft below ground surface	
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC11a-ss2 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101576.0 N, 7615873.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 3:20:00 PM 9/21/2008 END : 3:40:00 PM 9/21/2008 LOGGER : R.Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		3.5		GRAVELLY SILT with sand (ML): light brown (7.5YR 6/4), dry, no odor, gravel max diameter=9 cm, angular to subangular, predominantly metamorphic with some sedimentary.	Location located within a narrow wash. Bottom of wash is three feet deep. The surface sample was collected in sidewall of wash. Collected 3 ft sample from several inches below bottom of ravine floor. Refusal at 3.5 ft.
				3.5 feet bgs: refusal.	
5				Total Depth at 3.5 ft below ground surface	
10					
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC11a-ss3 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101382.1 N, 7616115.5 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 11:00:00 AM 9/20/2008 END : 12:20:00 PM 9/20/2008 LOGGER : R.Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		1.8		SILT (ML): light brown (7.5YR 6/4), dry, no odor, minor sand and gravel.	Hand auger to 1 ft before refusal. Drilled two borings to collect sufficient soil sample volume. Boring terminated at 10 ft bgs.
				SANDY SILT (ML): light brown (7.5YR 6/4), dry, no odor, (10% gravel/ 20% sand/ 70% fines), gravel max diameter=3 cm, angular to very angular, metamorphic.	
		2.3			
5		2.5			
		2.5			
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC11b-1 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101349.9 N, 7616265.4 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Excavator

WATER LEVELS : N/A START : 1:00:00 PM 9/17/2008 END : 2:45:00 PM 9/17/2008 LOGGER : T.Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0	GRAVELLY SILT (ML) with sand: light brown, well-graded, dry, no odor, approximately 50% fines, non-fines are rounded and angular gravel to cobble.	Debris removed from 3-6 ft containing metal signs, ceramic plates and glass resistors. Lightning terminated location before photograph could be taken. Excavation terminated at 10 ft bgs. Pothole filled.
10		Total Depth at 10 ft below ground surface	
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC11b-2 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101318.4 N, 7616304.7 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Excavator

WATER LEVELS : N/A START : 8:30:00 AM 9/17/2008 END : 11:45:00 AM 9/17/2008 LOGGER : T.Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0			GRAVELLY SILT (ML) with sand: light brown, well-graded, dry, no odor, approximately 50% fines, non-fines are rounded, angular, gravel to cobble.	Split sampling of cemented material with black and red specks requested. Excavation terminated at 10 ft bgs, pothole backfilled
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC11c-1 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101278.0 N, 7615864.5 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 3:50:00 PM 9/21/2008 END : 2:05:00 PM 9/22/2008 LOGGER : R.Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		1.0		SILT (ML): light brown (7.5YR 6/4), dry, no odor, minor sand and gravel.	Stopped work for the day on 9/21/08 at 3:50 pm and resumed on 9/22/08. Drilled three borings to collect sufficient soil volume. Borings are approximately within a 2- foot radius. Boring terminated at 10 ft bgs. Backfilled with bentonite chips and hydrated.
		2.0		GRAVELLY SILT (ML) with sand: light brown, (7.5YR 6/4), dry, no odor, (20% gravel/15% sand/65% fines), max diameter size = 4 cm, angular to subangular, metamorphic.	
5		1.5			
		2.5			
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC11c-2 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101258.0 N, 7615857.4 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 3:40:00 PM 9/21/2008 END : 10:05:00 AM 9/22/2008 LOGGER : R.Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		2.0		SILT (ML): light brown (7.5YR 6/4), dry, no odor, minor sand and gravel.	Stopped work on 9/21 and resumed on 9/22/08 after surface sampling. Drilled two borings to collect sufficient soil volume for samples. Borings are approximately 1 foot apart. Boring terminated at 10 ft bgs and backfilled with bentonite chips.
		1.5			
5		1.5			
		1.8		GRAVELLY SILT (ML) with sand: light brown, (7.5YR 6/4), dry, no odor, (25% gravel/20% sand/55% fines), max diameter size = 3.5 cm, angular to subangular, metamorphic.	
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC11c-ss1 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101242.5 N, 7615783.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 4:20:00 PM 9/21/2008 END : 3:30:00 PM 9/22/2008 LOGGER : R.Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0				SILT (ML): light brown (7.5YR 6/4), dry, no odor, minor sand and gravel.	Collected surface sample on 9/21/08 and resumed drilling on 9/22/08. Drilled two borings to collect sufficient soil volume. Borings are approximately 2 ft apart. Boring terminated at 10 ft bgs, backfilled with bentonite chips and hydrated.
		1.3		SANDY SILT (ML): light brown, (7.5YR 6/4), dry, no odor, (10% gravel/20% sand/70% fines), max gravel diameter size = 4 cm, angular to subangular, metamorphic.	
		1.8			
5		2.3			
		2.5			
10				Total Depth at 10 ft below ground surface	
15					

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC11C-3 SHEET 1 OF 2

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Rotosonic EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : START : 2/3/2016 END : 2/3/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–5			Well Graded Sand (SW): light yellow brown (10YR 4/4), dry, loose, well graded, (0/95/5)	
6–10			Poorly Graded Sand (SP): light yellow brown (10YR 4/4), dry, loose, poorly graded, fine grained sand, (5/90/5)	
11–30		15–16, 20–21	Silty Sand (SM): light yellow brown (10YR 4/4), dry, loose, poorly graded, (5/70/25)	4" core barrel with 6" drill casing

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC11C-3 SHEET 2 OF 2

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Rotosonic EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : START : 2/3/2016 END : 2/3/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
31				
32				
33				
34				
35				
36			Silty Sand (SM): dark brown (7.5Y 3/3), moist, loose, poorly graded, (5/70/25)	
37				
38				
39			Silty Sand (SM): dark brown (7.5Y 3/3), wet, loose, poorly graded, (5/70/25)	Water table encou ntered at 38 fbs
40				
41				
42				
43				
44				
45				Total Depth at 45 ft below ground surface Boring terminated at 45 feet below surface
46				
47				
48				
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				
60				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC11C-4 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/28/2016 END : 1/28/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–4		Silty Gravel with Sand (GM): medium brown, 50% gravel to cobbles, 50% silt to fine sand	
5–20		Silty Gravel with Sand (GM): 60% gravel to cobbles, 40 fine sand to silt	4" core carrel to 20 fbs
20			Total Depth at 20 ft below ground surface Boring terminated at 20 feet below surface
21–30			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC11c-ss2 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101242.5 N, 7615790.4 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 9:50:00 AM 9/22/2008 END : 11:40:00 AM 9/22/2008 LOGGER : R.Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		1.5		SILT (ML): light brown (7.5YR 6/4), dry, no odor, minor sand and gravel.	Hand augered to three feet. Drilled two borings to collect sufficient soil volume. Borings are approximately 1.5 ft apart. Boring terminated at 10 ft bgs. Backfilled with bentonite chips and hydrated.
		2.0		GRAVELLY SILT (ML) with sand: light brown, (7.5YR 6/4), dry, no odor, (30% gravel/20% sand/50% fines), max gravel diameter size = 4 cm, angular to subangular, metamorphic.	
5		1.8		CLAY (CL) with silt: brown, (7.5YR 5/4), soft, moist to very moist, no odor.	
				SANDY SILT (ML) with gravel: light brown, (7.5YR 5/4),moist, no odor, (25% gravel/25% sand/50% fines), max gravel diameter size = 4 cm, angular to subangular, metamorphic.	
		2.0			
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC11d-1 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101119.4 N, 7615798.7 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Excavator

WATER LEVELS : N/A START : 11:00:00 AM 9/23/2008 END : 11:55:00 AM 9/23/2008 LOGGER : T.Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
				SILT (ML): light brown, dry, crusty, no odor	Pothole terminated at 10 ft and backfilled.
				SANDY SILT (ML) with gravel: light brown, angular and rounded gravel to cobbles.	
5		10.0			
				8 feet bgs: gravel.	
10				Hard pan.	
				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC11e-1 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101127.3 N, 7615559.3 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Excavator

WATER LEVELS : N/A START : 2:22:00 PM 9/23/2008 END : 5:30:00 PM 9/23/2008 LOGGER : T.Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0				SILTY SAND (SM): light brown with crust, very few gravel.	Pothole terminated at 10 ft and backfilled.
				SANDY SILT (ML) with gravel: angular and rounded gravel to cobbles. Reddish layer on sidewall at 2.5 ft.	
5		10.0			
				Hard layer with large angular slab-like cobbles to boulders.	
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC11e-2 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101125.0 N, 7615580.8 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Excavator

WATER LEVELS : N/A START : 8:30:00 AM 9/24/2008 END : 9:30:00 AM 9/24/2008 LOGGER : T.Frank

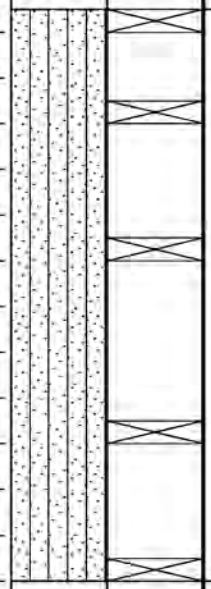
DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
				SILTY SAND (SM) and vegetation from 0-10". Thin white layer at 12". Homogenous silty sand from 12" to 2.5 ft.	Pothole terminated at 10 ft and backfilled.
				2.5 to 4.0 feet bgs: light brown layers	
				4.0 to 4.5 feet bgs: layer of large cobbles	
5		10.0		5 to 10 feet bgs: large rocks and cobbles, moisture increasing with depth.	
10				10 feet bgs: very coarse sand, moist, cobbles and gravel.	
				Total Depth at 10 ft below ground surface	
15					

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC11E-3 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/8/2016 END : 1/10/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–13			Silty Sand with Gravel (SM): medium brown, loose, dry, fine to coarse sand, well graded, gravel is 1/2"-2"	Trace cobbles to 4" Total Depth at 13 ft below ground surface Boring terminated at 13 feet below surface
14–30				

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC11E-5	SHEET 1 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/19/2016
END : 1/21/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–5		Well Graded Gravel with Silt and Sand (GW-GM): medium brown, 80% gravel up to 2", 20% silt to fine sand	
3–5		Silty Gravel with Sand (GM): red brown, 60% fine sand to silt, 40 gravel up to 2"	
5–15		Silty Gravel with Sand (GM): light green grey to grey, 70% gravel to cobbles, 30% fine sand to silt	
15–18		Silty Gravel with Sand (GM): red brown, 60% fine sand to silt, 40 gravel up to 3"	
18–30		Silty Gravel with Sand and Clay (GM): 60% coarse gravel to cobbles, 30% light grey fine sand to silt, 10% stiff lean grey-brown clay	

ch2m.

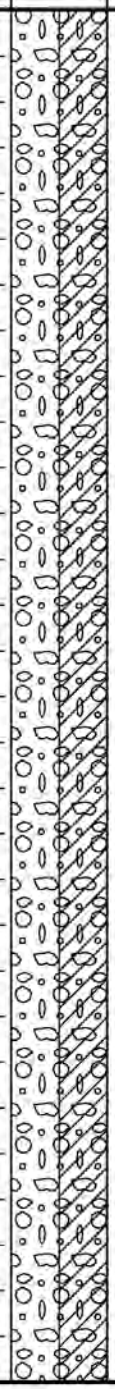
PROJECT NUMBER: 666665	LOCATION: AOC11E-5 SHEET 2 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Rotosonic EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : START : 1/19/2016 END : 1/21/2016 APPROVED BY : M. Cavaliere

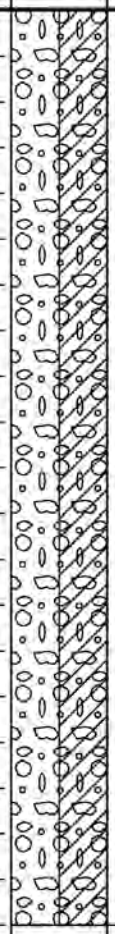
DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
31–60		Well Graded Gravel with Silt and CLay (GW-GC): 80% coarse gravel to cobbles, 10% fine silt to clay, 10% stiff lean clay, light grey to pale green-grey	4" core barrel and 6" drill casing to 80 fbs

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC11E-5 SHEET 3 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/19/2016 END : 1/21/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
61–79			
72			Water table at 72 fbs
80			Total Depth at 80 ft below ground surface Boring terminated at 80 feet below surface
81–90			

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC11e-6 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Hand Tools EQUIPMENT OPERATOR : Northstar Environmental Remediation

WATER LEVELS : Not Encountered START : 12/3/2015 END : 12/3/2015 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			SIlty, Sandy, Gravel, medium brown, loose, dry	Total Depth at 0.5 ft below ground surface Terminated digging at 0.5 feet below ground surface
2				
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CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC11e-ss1 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101153.8 N, 7615538.4 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Excavator

WATER LEVELS : N/A START : 2:25:00 PM 9/23/2008 END : 5:00:00 PM 9/23/2008 LOGGER : T.Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
				SILTY SAND (SM): light brown with crust, very little gravel.	Pothole terminated at 10 ft and backfilled.
				SANDY SILT (ML): native soil, angular and rounded gravel to cobbles.	
5		10.0			
				Hard layer: large piece of concrete at 6'. Sample collected just below concrete.	
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC11e-ss2 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101123.6 N, 7615532.9 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Excavator

WATER LEVELS : N/A START : 2:20:00 PM 9/23/2008 END : 5:30:00 PM 9/23/2008 LOGGER : T.Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
				SILTY SAND (SM): very little gravel, loose consistency, dry.	Pothole terminated at 10 ft and backfilled.
				SANDY SILT (ML): native soil, angular and rounded gravel to cobbles.	
5		10.0			
				Hard pan from 7-10 ft.	
10				Total Depth at 10 ft below ground surface	
15					

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-1	SHEET 1 OF 2

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/23/2016
END : 1/23/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–3		Silty Gravel with Sand (GM): medium brown, 60% cobbles to gravel, 40% fine sand to silt	
4–5		Silty Gravel with Sand (GM): red-brown, 50% cobbles to gravel, 50% fine sand to silt	
6–7		Silty Gravel with Sand (GM): 60% cobbles to gravel, 40% fine sand to silt	
8–9		Silty Gravel with Sand (GM): red- brown, 60% cobbles to gravel, 40% fine sands to silts	
10–20		Silty Gravel with Sand (GM): grey- green, 60% cobbles to gravel, 40% fine sands to silts	4" core barrel, 6" casing to 30 fbs
21–30		Silty Gravel (SM): light green-grey, 70% cobbles to gravel, 25% fine sands to silts, 5% stiff lean clay	Total Depth at 30 ft below ground surface

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-1	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/23/2016 END : 1/23/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
31			Boring terminated at 30 feet below surface
32			
33			
34			
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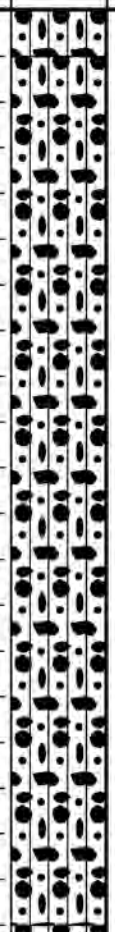
ch2m

PROJECT NUMBER: 666665	LOCATION: AOC1-2	SHEET 1 OF 2

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/23/2016
END : 1/23/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–20		Silty Gravel with Sand (GM): red brown, 50% silts to fine sand, 50% gravel up to 2" Silty Gravel (GM): light grey-brown to green-grey, 70% cobbles to gravel, 30 % fine sand to silt	4" core barrel, 6" casing to 30 fbs
20–23		Silty Gravel with Sand (GM): light grey-green, 60% cobbles to gravel, 40% fine sands to silts	
23–30		Silty Gravel (GM): light grey-green, 70% gravel to cobbles, 30% fine sand to silts	Total Depth at 30 ft below ground surface

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-2	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/23/2016 END : 1/23/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
31			Boring terminated at 30 feet below surface
32			
33			
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-3	SHEET 1 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/25/2016
END : 1/26/2016
APPROVED BY : M. Cavalier

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–4		Silty Gravel with Sand (GM): medium brown, 60% cobbles to gravel, 40% fine sand to silts	
5–20		Silty Gravel (GM) light grey-green, 70% cobbles to gravel, 30% fine sand to silt	
21–30		Silty Gravel with Sand (GM): light grey-green, 60% cobbles to gravel, 40%fine sand to silt	

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-3	SHEET 2 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/25/2016
END : 1/26/2016
APPROVED BY : M. Cavalier

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
31–35			
36		Silty Gravel (GM): green-grey, soil compacted, 70% cobbles to gravel, 25% fine sand to silt, 5% stiff lean clay	
40			4" core barrel, 6" casing to 80 fbs
41–60			

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-3	SHEET 3 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/25/2016 END : 1/26/2016 APPROVED BY : M. Cavalier

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
61–80		Silty Gravel (GM) brown-grey to green-grey, soil strongly compacted, 70% cobbles to gravel, 20% fine sand to silt, 10% stiff lean clay	Total Depth at 80 ft below ground surface Boring terminated at 80 feet below surface
81–90			

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC1-4	SHEET 1 OF 2

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/23/2016
END : 1/23/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–3		Silty Gravel with Sand (GM): reddish brown, 60% cobbles to gravel, 40% fine sand to silt	
4–7		Silty Gravel (GM): brown-grey, 70% cobbles to gravel, 30% fine sand to silt	
8		Silty Sand with Gravel (SM): red-brown, 70% fine sand to silt, 30% gravel to cobbles	
9–11		Silty Gravel (GM): grey-green, 70% gravel to cobbles, 30% silt to fine sand	
12–14		Silty Gravel with Sand (GM): brown- green to grey-green, 60% cobbles to gravel, 40% fine sand to silt	
15–25		Silty Gravel (GM): grey-green, 70% cobbles to gravel, 30% fine sand to silt	4" core barrel, 6" casing to 30 fbs
26–30		Silty Gravel (GM): grey-green, soil compacted, 70% cobbles to gravel, 20% fine sand to silt, 10% stiff lean clay	Total Depth at 30 ft below ground surface

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-4	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/23/2016 END : 1/23/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
31			Boring terminated at 30 feet below surface
32			
33			
34			
35			
36			
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-24 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : EQUIPMENT OPERATOR :

WATER LEVELS : START : END : APPROVED BY :

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–10			Total Depth at 10 ft below ground surface
11–30			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-BCW-01 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2103160.4 N, 7614783.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4 core barrel

WATER LEVELS : N/A START : 3:40:00 PM 9/20/2008 END : 5:00:00 PM 9/20/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	5.5	5.5		GRAVELLY SILT (ML) with sand: yellowish brown (10YR 5/4), (25% gravel/20% sand/55% fines), poorly graded, subrounded, no dominant mineralogy, loosely consolidated, matrix-supported, dry, max clast size = 20mm.	Drill rate quick in ML zone; met refusal at 5.5 bgs at original location. Relocated approx 2 feet due west and met refusal at 5.5 bgs. Recovered core from 5.5' bgs yielded solid granite core.
5				SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4). (65% gravel/10% sand/25% fines), poorly graded, subrounded to rounded, no dominant mineralogy, loosely consolidated, clast-supported, dry, max clast size = boulder.	
				Boring terminated at 5.5 feet bgs due to presence of granite boulder at 5.0 feet bgs.	
10				Total Depth at 5.5 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-BCW-02 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2103958.3 N, 7614565.4 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4 core barrel

WATER LEVELS : N/A START : 10:17:00 AM 10/4/2008 END : 10:37:00 AM 10/4/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0	POORLY GRADED SAND (SP) with gravel: yellowish brown (10YR 5/4), (25% gravel/70% sand/5% fines), subangular to subrounded, no dominant mineralogy, loose density, matrix-supported, fining-upwards, dry 0-9 ft bgs, moist 9-10 ft bgs, max clast size=30 mm.	Drill rate quick, constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10		Total Depth at 10 ft below ground surface	
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-BCW-03 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2104023.1 N, 7614559.3 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4 core barrel

WATER LEVELS : N/A START : 11:09:00 AM 10/4/2008 END : 11:23:00 AM 10/4/2009 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0	POORLY GRADED SAND (SP) with gravel: yellowish brown (10YR 5/4), (25% gravel/70% sand/5% fines), subangular to subrounded, no dominant mineralogy, loose density, matrix-supported, fining-upwards, dry 0-9 ft bgs, moist 9-10 ft bgs, max clast size=30 mm.	Drill rate quick, constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10		Total Depth at 10 ft below ground surface	
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-BCW-04 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2103860.8 N, 7614623.4 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4 core barrel

WATER LEVELS : N/A START : 8:40:00 AM 10/4/2008 END : 9:00:00 AM 10/4/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0			POORLY GRADED SAND (SP) with gravel: yellowish brown (10YR 5/4), (25% gravel/70% sand/5% fines), subangular to subrounded, no dominant mineralogy, loose density, matrix-supported, fining-upwards, dry 0-9 ft bgs, moist 9-10 ft bgs, max clast size=30 mm.	Drill rate quick, constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-BCW-05 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2103912.3 N, 7614606.9 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4 core barrel

WATER LEVELS : N/A START : 9:20:00 AM 10/4/2008 END : 9:40:00 AM 10/4/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0			POORLY GRADED SAND (SP) with gravel: yellowish brown (10YR 5/4), (25% gravel/70% sand/5% fines), subangular to subrounded, no dominant mineralogy, loose density, matrix-supported, fining-upwards, dry 0-9 ft bgs, moist 9-10 ft bgs, max clast size=30 mm.	Drill rate quick, constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-BCW-06 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2104445.4 N, 7615013.0 E)

ELEVATION : ft. () DRILLING CONTRACTOR :

DRILLING METHOD AND EQUIPMENT : hand auger, hand tools

WATER LEVELS : 1.8 ft bgs START : 2:00:00 PM 8/22/2008 END : 2:46:00 PM 8/22/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
				SILTY SAND (SM): brown, (10YR 4/3), (0% gravel/80% sand/20% fines), poorly graded, medium density, finely laminated, moist, presence of plant roots.	
		4.2		SILTY SAND (SM): very dark gray, (10YR 3/1), (0% gravel/80% sand/20% fines), poorly graded, very loosely consolidated, no structure, saturated (underwater), presence of plant roots, soil is stained black with organics.	
				POORLY GRADED SAND (SP-SM) with silt and gravel: brown (10YR 4/3), (30% gravel, 60% sand, 10% fines), poorly graded, rounded to subrounded, no dominant mineralogy, loosely consolidated, no structure, saturated, max clast size =50 mm.	
5				4.2 feet below ground surface: COBBLES, max clast size =190 mm, rounded to well-rounded.	
				Total Depth at 4.2 ft below ground surface	
10					
15					

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW7	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 2/5/2016
END : 2/5/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2			Silty Sand (SM): dark yellow brown (10YR 4/4), dry, loose, (5/70/25), poorly graded, medium to coarse grained sand,	
3–9			Poorly Graded Sand with Gravel (SP): dark yellow brown (10YR 4/4), dry, loose, (20/75/5), poorly graded, subangular gravel	
9–10				Meta-diorite boulder from 9-11 fbs
11				4" core bareel and 6" drill casing to 21 fbs
12–21			Silty Sand with Gravel (SM): dark yellow brown (10YR 4/4), loose to medium density, dry, (25/55/20), poorly graded, subangular to subround gravel	
21				Total Depth at 21 ft below ground surface Boring terminated at 21 feet below surface
22–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW8 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Rotosonic EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : START : 2/4/2016 END : 2/4/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–6			Lean Silt (ML): dark yellowish brown (10YR 5/6), (0/0/100), dry, loose,	4" core barrel to 10 fbs
6–7			Well Graded Sand with Silt (SW-SM): olive brown (2.5Y 4/3), (10/80/10), well graded sand, dry, loose	Drill rate slows
7–10			Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), well graded sand, dry, loose, subangular to subrounded clasts	Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW9 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Rotosonic EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : START : 2/4/2016 END : 2/4/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–6			Lean Silt (ML): yellowish brown (10YR 5/6),dry, loose, (0/0/100)	1" diameter treee root 1" organic layer 4" core barrel to 10 fbs
6–7			Well Graded Sand with Silt (SW-SM): olive brown (2.5Y 4/3), (10/80/10) well graded sand,dry, loose	Drill rate slows
7–10			Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), (25/70/5), well graded sand, dry, loose,subangular to subrounded gravel	Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW10 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Rotosonic EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : START : 2/4/2016 END : 2/4/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–6			Lean Silt (ML): yellowish brown (10YR 5/6), (0/0/100), dry, loose	4" core barrel to 10 fbs
7–10			Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), (25/70/5), well graded sand, dry, loose, subrounded gravel	Drill rate slows Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW11 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 2/4/2016 END : 2/4/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–7			Lean Silt (ML): yellowish brown (10YR 5/6), (0/0/100), dry, loose	4" core barrel to 10 fbs
8–9			Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), (25/70/5), well graded sand, dry, loose, subround gravel	Drill rate slows, water encountered at 8 fbs
10				Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW12 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 2/4/2016 END : 2/4/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–6			Lean Silt (ML): yellowish brown (10YR 5/6), (0/0/100), dry, loose	4" core barrel to 10 fbs
7–10			Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), (25/70/5), well graded sand, dry, loose, subrounded gravel	Drill rate slows Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW13 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 2/4/2016 END : 2/4/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2			Lean Silt (ML): yellowish brown (10YR 5/6), (0/0/100), dry, loose, moist at 1 fbs	
3–4			Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), (25/70/5), well graded sand, moist, subround gravel	Drill rate slows
5–6				4" core barrel to 10 fbs
7–9				
10				Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW14 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 2/4/2016 END : 2/4/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–4			Lean Silt (ML): yellowish brown (10YR 5/6), (0/0/100), dry, loose	
5–10			Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), (25/70/5), well graded sand, moist, subrounded gravel	Drill rate slows 4" core barrel to 10 fbs Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30				

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW15 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Rotosonic EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : START : 2/4/2016 END : 2/4/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2			Lean Silt (ML): yellowish brown (10YR 5/6), (0/0/100), dry, loose	
3–10			Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), (25/70/5), well graded sand, moist, subrounded gravel	Drill Rate slows at 3 fbs 4" core barrel to 10 fbs Water table at 9 fbs Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW16 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 2/4/2016 END : 2/4/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2			Lean Silt (ML): yellowish brown (10YR 5/6), (0/0/100), dry, loose	
2–3				Moisture encountered at 2 fbs
3–10			Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), (25/70/5), well graded sand, moist, subrounded gravel	Drill rate slows at 3 fbs 4" core barrel to 10 fbs
10				Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW17 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 2/4/2016 END : 2/4/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–3			Lean Silt (ML): yellowish brown (10YR 5/6), (0/0/100), dry (moist at 2 fbs), loose,	Small root mass from 0'-0.5' Moisture encountered at 2 fbs
4–10			Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), (25/70/5), well graded sand, moist, subrounded gravel	drill rate slows 4" core barrel to 10 fbs Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW18 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Rotosonic EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : START : 2/5/2016 END : 2/5/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–5			Lean Silt (ML): yellowish brown (10YR 5/6), (0/0/100), dry (moist at 4 fbs), loose,	Drill Rate slows at 3 fbs Moisture encountered at 4 fbs
6–10			Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), (25/70/5), well graded sand, moist (wet at 9 fbs), subrounded gravel,	4" core barrel to 10 fbs Water Table encountered at 9 fbs Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW19 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Rotosonic EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : START : 2/5/2016 END : 2/5/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2			Lean Silt (ML): yellowish brown (10YR 5/6), (0/0/100), dry, loose,	
3–4			Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), (25/70/5), well graded sand, dry (moist at 5 fbs, wet at 9 fbs), subrounded gravel	Drill Rate slows at 2 fbs
5–6				4" core barrel to 10 fbs, moisture envcountered at 5 fbs
7–8				
9–10				Water Table encountered at 9 fbs Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30				

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW20 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Rotosonic EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : START : 2/5/2016 END : 2/5/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Lean Silt (ML): yellowish brown (10YR 5/6), (0/0/100), dry, loose,	
2			
3		Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), (25/70/5), well graded sand, dry (moist at 5 fbs, wet at 9 fbs), subrounded gravel	Drill Rate slows at 2 fbs
4			
5			
6			4" core barrel to 10 fbs, moisture envcountered at 5 fbs
7			
8			
9			
10			Water Table encountered at 9 fbs Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW21 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 2/5/2016 END : 2/5/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2			Lean Silt (ML): yellowish brown (10YR 5/6), (0/0/100), dry, loose,	
3–4			Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), (25/70/5), well graded sand, dry (moist at 5 fbs, wet at 9 fbs), subrounded gravel	Drill Rate slows at 2 fbs
5–6				4" core barrel to 10 fbs, moisture envcountered at 5 fbs
7–8				
9–10				Water Table encountered at 9 fbs Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW22 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Rotosonic EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : START : 2/5/2016 END : 2/5/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–5			Lean Silt (ML): yellowish brown (10YR 5/6), (0/0/100), dry (moist at 4 fbs), loose,	drill rate slows at 2 fbs Moisture encountered at 4 fbs
5–10			Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), (25/70/5), well graded sand, moist (wet at 9 fbs), subrounded gravel	4" core barrel to 10 fbs Water table encountered at 9 fbs Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30				

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW23 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Rotosonic EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : START : 2/5/2016 END : 2/5/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–4			Lean Silt (ML): yellowish brown (10YR 5/6), (0/0/100), dry, loose,	drill rate slows at 2 fbs
4–10			Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), (25/70/5), well graded sand, moist (wet at 9 fbs), subrounded gravel	Moisture encountered at 4 fbs 4" core barrel to 10 fbs Water table encountered at 9 fbs Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW24 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 2/5/2016 END : 2/5/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2			Lean Silt (ML): yellowish brown (10YR 5/6), (0/0/100), dry, loose,	
3–10			Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), (25/70/5), well graded sand, moist (wet at 5 fbs), subrounded gravel	Drill rate slows at 2fbs, moisture encountered 4" core barrel to 10 fbs water table encountered at 5 fbs Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW25 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 2/5/2016 END : 2/5/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–5			Lean Silt (ML): yellowish brown (10YR 5/6), (0/0/100), moist (saturated at 2 fbs), loose,	Drill rate slows at 2fbs, water table encountered
5–10			Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), (25/70/5), well graded sand, wet, subrounded gravel, trace cobbles	4" core barrel to 10 fbs
10				Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW26 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Rotosonic EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : START : 2/4/2016 END : 2/4/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–5			Lean Silt (ML): yellowish brown (10YR 5/6), (0/0/100), moist, loose,	
6–10			Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), (25/70/5), well graded sand, wet, loose, subrounded gravel and cobbles	4" corebarrel to 10 fbs, water table encountered at 5 fbs Drill rate slows at 9 fbs Total Depth at 10 ft below ground surface Boring temrinated at 10 feet below surface
11–30				

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW27 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 2/5/2016
END : 2/5/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2		Lean Silt (ML): yellowish brown (10YR 5/6), (0/0/100), moist, loose,	
3–10		Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), (25/70/5), well graded sand, moist (wet at 3 fbs), loose, subrounded gravel	Water table encountered at 3 fbs 4" core barrel to 10 fbs Drill rate slows at 6 fbs Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30			

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW28 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 2/5/2016 END : 2/5/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–4			Lean Silt (ML): yellowish brown (10YR 5/6), (0/0/100), moist (wet at 3 fbs), loose,	Drill rate slows at 2 fbs Water table encountered at 3 fbs
5–10			Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), (25/70/5), well graded sand, wet, loose, subrounded gravel	4" core barrel to 10 fbs Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30				

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW29 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 2/4/2016 END : 2/4/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–5			Lean Silt (ML): yellowish brown (10YR 5/6), (0/0/100), moist (wet at 3 fbs), loose,	Water table encountered at 3 fbs
5–10			Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), (25/70/5), well graded sand, wet, loose, subrounded gravel	4" core barrel to 10 fbs, drill rate slows at 5 fbs
10				Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-BCW30 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Rotosonic EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : START : 2/4/2016 END : 2/4/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–5			Lean Silt (ML): yellowish brown (10YR 5/6), (0/0/100), moist (wet at 4 fbs), loose,	Water table encountered at 4 fbs
5–10			Well Graded Sand with Gravel (SW): olive brown (2.5Y 4/3), (25/70/5), well graded sand, wet, loose, subrounded gravel	4" core barrel to 10 fbs Drill rate slows at 8 fbs Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30				

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T1a	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100989.8 N, 7614836.3 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4 core barrel

WATER LEVELS : N/A START : 10:13:00 AM 10/16/2008 END : 10:47:00 AM 10/16/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0			SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4) (40% gravel /40% sand/20% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size =40mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T1b	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100966.9 N, 7614885.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4 core barrel

WATER LEVELS : N/A START : 10/16/2008 END : 10/16/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0			SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4) (40% gravel/40% sand/20% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size =40mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10				Total Depth at 10 ft below ground surface	Boulder encountered at 8.5 ft. bgs.
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T1c	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100944.8 N, 7614934.0 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4 core barrel

WATER LEVELS : N/A START : 9:48:00 AM 10/16/2008 END : 9:58:00 AM 10/16/2008 LOGGER : A. Brewster

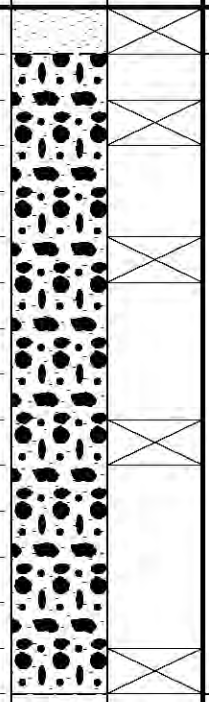
DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0			SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4)(40% gravel/40% sand/20% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size =40mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10				Total Depth at 10 ft below ground surface	
15					

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC1-T1E	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/11/2016 END : 1/11/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–15		Poorly Graded Sand (SP): dark yellow brown (10YR 4/4), moist, loose, poorly graded, (5/95/0) Poorly Graded Gravel with Sand (GP): dark yellowish brown (10YR 4/4), moist, loose, poorly graded, gravel is 1-3" subangular clasts, (60/30/10)	Total Depth at 15 ft below ground surface Boring terminated at 15 feet below surface
16–30			

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-T1F	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/12/2016
END : 1/12/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–15		SIlty Sand with Gravel (SM): dark yellow brown (10YR 4/4), slightly moist, loose, poorly graded, subangular gravel	4" core barrel to 15 fbs
15			Total Depth at 15 ft below ground surface Boring terminated at 15 feet below surface

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T2a	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101093.5 N, 7614885.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4 core barrel

WATER LEVELS : N/A START : 11:08:00 AM 10/16/2008 END : 11:22:00 AM 10/16/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0	10.0		SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4)(40% gravel/40% sand/20% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size =40mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T2b	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101106.8 N, 7614919.9 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4 core barrel

WATER LEVELS : N/A START : 1:07:00 PM 10/16/2008 END : 1:20:00 PM 10/16/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0			SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4)(40% gravel/40% sand/20% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size =40mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T2c	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101119.9 N, 7614969.4 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4 core barrel

WATER LEVELS : N/A START : 11:16:00 AM 10/8/2008 END : 11:32:00 AM 10/8/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0			SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4)(40% gravel/30% sand/30% fines), poorly graded, subangular to subrounded, no dominant mineralogy, loose density, matrix-supported, dry, max clast size =40mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T2d	SHEET 1 OF 6

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101069.3 N, 7614920.3 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4 core barrel

WATER LEVELS : 72 ft bgs START : 1:05:00 PM 10/7/2008 END : 9:50:00 AM 10/8/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0		POORLY GRADED SAND (SP-SM) with silt: yellowish brown (10YR 5/4), (10% gravel/80% sand/10% fines), poorly graded, subangular to subrounded, no dominant mineralogy, predominantly fine-to-medium grained sand, loose density, matrix-supported, dry, max clast size=40 mm.	Drill rate steady. Borehole integrity sound. Backfilled with slurry grout. Objective is to reach groundwater.
5			
10			
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T2d	SHEET 2 OF 6

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101069.3 N, 7614920.3 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4 core barrel

WATER LEVELS : 72 ft bgs START : 1:05:00 PM 10/7/2008 END : 9:50:00 AM 10/8/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
20		16.0-25.0 feet bgs: color change to brown (7.5YR 5/3).	
25		25.0-60.0 feet bgs: color change to yellowish brown (10YR 5/4).	
30			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T2d	SHEET 3 OF 6

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101069.3 N, 7614920.3 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4 core barrel

WATER LEVELS : 72 ft bgs START : 1:05:00 PM 10/7/2008 END : 9:50:00 AM 10/8/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
35			
	75.0		
40			
45			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T2d	SHEET 4 OF 6

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101069.3 N, 7614920.3 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4 core barrel

WATER LEVELS : 72 ft bgs START : 1:05:00 PM 10/7/2008 END : 9:50:00 AM 10/8/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
50			Drilling stopped 10/7/08 at 16:10. Drilling resumed 10/8/08 at 07:40.
55			
60			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T2d	SHEET 5 OF 6

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101069.3 N, 7614920.3 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4 core barrel

WATER LEVELS : 72 ft bgs START : 1:05:00 PM 10/7/2008 END : 9:50:00 AM 10/8/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
65		60.0-70.0 feet bgs: color change to brown (7.5YR 5/2).	
70		SANDY SILT (ML): brown (7.5YR 5/2), (10% gravel/25% sand/65% fines), poorly graded, subangular to subrounded, no dominant mineralogy, loose to medium density, matrix-supported, saturated/moist, max clast size=10 mm. 72.0 feet bgs: groundwater encountered.	
75			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T2d	SHEET 6 OF 6

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101069.3 N, 7614920.3 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4 core barrel

WATER LEVELS : 72 ft bgs START : 1:05:00 PM 10/7/2008 END : 9:50:00 AM 10/8/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
80				Total Depth at 75 ft below ground surface	
85					
90					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T2e	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101201.7 N, 7614932.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4 core barrel

WATER LEVELS : N/A START : 1:45:00 PM 10/16/2008 END : 2:00:00 PM 10/16/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0			SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4)(40% gravel/40% sand/20% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size=40mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10				Total Depth at 10 ft below ground surface	
15					

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-T2G	SHEET 1 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 3/3/2016
END : 3/3/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–7			
8–10		Well Graded Gravel (GW): well graded gravel with cobbles, red colour	
11–30		Well Graded Gravel with Sand (GW): well graded gravel with sand, reddish colour	

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-T2G	SHEET 2 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California | LOCATION : (N, E)

EQUIPMENT : Rotosonic | EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : | START : 3/3/2016 | END : 3/3/2016 | APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
31–47		Well Graded Gravel with Sand (GW): well graded gravel with sand, greenish-grey, locally grayish red, 70% well graded gravel to cobbles, 30% fine to coarse sand	Compaction increasing
47–58		Well Graded Gravel with Sand (GW): grayish brown, 60% coarse gravel to pebbles, 40% fine to coarse sand	
58–60		Well Graded Gravel with Sand (GW): grayish-brown to greenish-grey, locally grayish-red, 70% gravel to cobbles, 30% sand	

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-T2G	SHEET 3 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 3/3/2016
END : 3/3/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
61			
62			
63			
64			
65			
66			
67			
68			
69			
70			
71			
72			
73			
74			
75			
76			
77			
78			
79			
80			Total Depth at 80 ft below ground surface Boring assumed terminated at 80 feet below surface. Not noted in field log.
81			
82			
83			
84			
85			
86			
87			
88			
89			
90			

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-T2H	SHEET 1 OF 2

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 3/4/2016
END : 3/4/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–30		Well Graded Gravel with Sand (GW): 30% sand, 70% well graded gravel, light grey	

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-T2H	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 3/4/2016 END : 3/4/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
31–35			
36–40		Well Graded Gravel with Sand (GW): 40% coarse sand, 60% gravel to cobbles	Total Depth at 40 ft below ground surface Boring terimnated at 40 feet below surface
41–60			

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-T2I	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 3/5/2016
END : 3/5/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–20		Well Graded Gravel with Sand (GW): 60% gravel, 30% coarse sand, 10% cobbles, grey colour, 1' red coloration at 10fbs, 2" clay ;layer at 17 fbs	Total Depth at 20 ft below ground surface Boring terminated at 20 feet below surface
21–30			

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC1-T2J	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 3/5/2016
END : 3/5/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–20		Well Graded Gravel with Silt and Sand (GW-GM): 60% coarse to 1" gravel, 35% silt to coarse sand, 5% cobbles, grey colour, red coloration at 13'-15' and 19'-19.5'	Total Depth at 20 ft below ground surface Boring terminated at 20 feet below surface
21–30			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T3a	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101328.9 N, 7614894.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4 core barrel

WATER LEVELS : N/A START : 8:49:00 AM 10/17/2008 END : 9:00:00 AM 10/17/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0	SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4)(40% gravel/40% sand/20% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size=40mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10		Total Depth at 10 ft below ground surface	
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T3b-1 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101331.3 N, 7614924.5 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 11:00:00 AM 10/5/2008 END : 12:30:00 PM 10/5/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		1.5		GRAVELLY SILT with sand (ML) pale brown (7.5YR 6/3), dry, no odor, poorly sorted (30% gravel/20% sand/50% fines) max diameter=6 cm, angular to subangular, metamorphic.	Refusal at 10 ft. bgs. Will direct sonic rig to drill this location to collect entire sample set. Backfilled with hydrated bentonite chips.
		2.0			
5		1.8			
		1.8			
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T3b-2 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101331.3 N, 7614924.5 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4 core barrel

WATER LEVELS : N/A START : 7:56:00 AM 10/17/2008 END : 8:26:00 AM 10/17/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0			SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4)(40% gravel/40% sand/20% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size=40mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T3c	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101338.1 N, 7614947.5 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 9:00:00 AM 10/5/2008 END : 10:55:00 AM 10/5/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		2.3		SANDY SILT with gravel (ML): pale brown (7.5YR 6/3), dry, no odor, poorly sorted (15% gravel/30% sand/55% fines) max diameter =5cm, angular to subangular, metamorphic.	
		2.0		2.0-10.0 feet bgs: very gravelly and abundant cobbles.	Very difficult drilling from 2 to 10 ft bgs. Drilled 10 borings in attempt to collect sufficient soil volume for sample jars. Only advanced one boring to 10 ft bgs. Not enough soil volume for complete sample set. Backfilled with hydrated bentonite chips.
5		2.0			
		1.3			
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T4a	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101472.0 N, 7614838.4 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 2:50:00 PM 10/3/2008 END : 4:10:00 PM 10/3/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	2.5	2.5		SANDY SILT(ML): light brown (7.5YR 6/4), dry, no odor,(5% gravel/40% sand/55% fines) max diameter =6 cm, angular to subangular, metamorphic.	Hand auger to 1 ft before refusal. Drilled two borings to collect sufficient soil volume to fill sample jars. Borings drilled approximately 1.5 ft apart. Had two other attempts that had refusal at 2 ft and 3 ft bgs. Backfilled with hydrated bentonite chips.
	2.0	2.0		4.0-7.0 feet bgs: becomes more coarse (15% gravel/30% sand/55% fines)	
5	2.5	2.5		7.0-8.0 feet bgs: more fine interval (5% gravel/30%sand/65% fines)	
	2.0	2.0		8.5-10.0 feet bgs: more coarse interval (10% gravel/30%sand/60% fines)	
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T4b	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101478.3 N, 7614863.0 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 1:35:00 PM 10/2/2008 END : 3:00:00 PM 10/2/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	2.5	2.5		SANDY SILT (ML): light brown (7.5YR 6/4), dry, no odor,(10% gravel/30% sand/60% fines) max diameter =6 cm, angular to subangular, metamorphic.	Surface scattered with large boulders and cobble. Drilled 3 borings approx 1 ft apart each in order to collect sufficient soil volume for sample jars. Backfilled with hydrated bentonite chips.
	2.3	2.3		4.0 feet bgs: large rock encountered.	
5	2.5	2.5		5.5 feet bgs: soil becomes moist.	
	2.3	2.3		7.0 feet bgs: large rock encountered	
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T4c	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101483.2 N, 7614878.7 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 8:45:00 AM 10/4/2008 END : 10:00:00 AM 10/4/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		2.5		SANDY SILT with gravel (ML): light brown (7.5YR 6/4), dry, no odor, poorly sorted, (15% gravel/30% sand/55% fines), angular to subangular, metamorphic.	Drilled two borings approximately 2 ft apart to collect sufficient soil volume for sample jars. Location was moved approximately 30 ft north to move out of area of abandoned underground natural gas pipeline. Boring backfilled with bentonite chips and hydrated.
		2.5			
5		1.5			
		2.5			
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T5a	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101569.0 N, 7614855.4 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 12:45:00 PM 10/4/2008 END : 2:20:00 PM 2:20:00 PM LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	2.5	2.5		GRAVELLY SILT with sand (ML) light brown (7.5YR 6/4), dry, no odor, poorly sorted (20% gravel/15% sand/65% fines) max diameter=12 cm, angular to subangular, metamorphic.	Drilled three borings approximately 1.5 ft. apart in order to collect sufficient soil volume for sample jars. Backfilled with bentonite chips and hydrated.
	2.5	2.5		SANDY SILT (ML): light brown (7.5YR 6/4), dry, no odor, poorly sorted, (10% gravel/30% sand/60% fines), max diameter = 5cm, angular to subangular, metamorphic.	
5	2.3	2.3			
	2.5	2.5			
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T5b	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101614.0 N, 7614843.1 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 10:20:00 AM 10/4/2008 END : 11:30:00 AM 10/4/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		2.3		SANDY SILT (ML): light brown (7.5 YR 6/4), dry, no odor, poorly sorted (5% gravel/40% sand/55% fines), angular to subangular, metamorphic.	Drilled two borings approximately 2 ft apart to collect sufficient soil volume for sample jars. Boring backfilled with bentonite chips and hydrated.
		2.0		SANDY SILT with gravel (ML): light brown (7.5YR 6/4), dry, no odor, poorly sorted (15% gravel/30% sand/55% fines), max diameter = 7 cm, angular to subangular, metamorphic.	
5		2.0		6.0 feet bgs: encountered large rock.	
		2.5			
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T5c	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101602.9 N, 7614887.3 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing, Inc.

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 2:25:00 PM 10/4/2008 END : 3:30:00 PM 10/4/2008 LOGGER : R. Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	2.5	2.5		SANDY SILT (ML): light brown (7.5YR 6/4), dry, loose, no odor, poorly sorted (10% gravel/40% sand/50% fines), max diameter =7cm, angular to subangular, metamorphic.	Drilled two borings approximately 1.5 ft apart to collect sufficient soil sample. Boring backfilled with bentonite chips and hydrated.
5	2.5	2.5			
10	2.3	2.3		Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T6a	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2102015.8 N, 7614878.8 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Excavator

WATER LEVELS : N/A START : 10:30:00 AM 9/30/2008 END : 11:05:00 AM 9/30/2008 LOGGER : T. Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0				SILT (ML)- light brown surface layer	
				GRAVELLY SILT (ML) with sand: light brown, coarse fraction contains angular and rounded gravel to cobbles, poorly sorted, sidewalls remain in place, moisture increases with depth, many noticeable layers of poorly sorted gravel and cobbles, no distinct color changes, no odor.	Galvanized guy wire at 0.5 ft bgs. Tree roots at 0.0 - 1.5 ft bgs. Boring backfilled.
5		10.0			
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T6b	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2102012.6 N, 7614899.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Excavator

WATER LEVELS : N/A START : 10:45:00 AM 9/30/2008 END : 9/30/2008 LOGGER : T. Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0				GRAVELLY SAND (ML) and silt: gravel light to dark grey, angular, fine fraction light brown, coarse fraction poorly graded, many layers with lenses of cobbles, competent sidewall, roots in top 1.5 ft.	Boring backfilled.
5		10.0		GRAVELLY SANDY SILT (ML): coarse fraction poorly graded with cobbles and boulders.	
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC1-T6c	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2102008.9 N, 7614914.3 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Excavator

WATER LEVELS : N/A START : 10:30:00 AM 9/30/2008 END : 3:35:00 PM 9/30/2008 LOGGER : T. Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0				SILT: crusty, with wind ripples visible on surface.	
				GRAVELLY SILT (ML) with sand: light brown, coarse fraction poorly sorted, cobbles, angular and rounded, very loose soil.	Boring backfilled.
		6.0			
5					
				6.0 feet bgs: large rock or hard pan, excavator refusal.	
				Total Depth at 6 ft below ground surface	
10					
15					

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC1-T6D	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 2/9/2016 END : 2/9/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–3		Well Graded Sand (SW): well graded sand with cobbles, rusty metallic debris	
4–20		Well Graded Sand with Gravel (SW): grey colour, well graded sand with gravel	Total Depth at 20 ft below ground surface Boring terminated at 20 feet below surface
21–30			

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC1-TSD	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/12/2016 END : 1/1/121 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–5		Lean Silt (ML): brown (2.5Y 3/3), dry, loose, (0/0/100)	
6–9		Poorly Graded Sand (SP): brown (2.5Y 3/3), dry, loose, sand is fine grained, poorly graded	
10–19		Poorly Graded Sand with Gravel (SP): dark yellow brown (10YR 4/4), dry, loose, sand is fine to medium, poorly graded, subangular gravel increasing with depth, (10/90/0) @ 9fbs, (25/75/) @ 19 fbs	4" core barrel to 21 fbs
20–21		Poorly Graded Sandy Gravel (GP): dark yellow brown (10YR 4/4), dry, loose, poorly graded, angular gravel and cobbles, (70/30/0)	Total Depth at 21 ft below ground surface Boring terminated at 21 feet below surface
22–30			

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC13-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/5/2015
END : 12/5/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Sand with Gravel (SP): 60% medium grained, poorly graded, sand, 40% 1 to 3 inch angular gravel	Asphalt at surface. Depths are referenced from the bottom of asphalt.
2			Interval 1 to 2 ft bgs not logged.	
3			Sand with Gravel (SP): 60% medium grained, poorly graded, sand, 40% 1 to 3 inch angular gravel	Total Depth at 3 ft below ground surface
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC13-10	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/14/2015
END : 12/14/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP), light brown, moist, sand is poorly graded, gravel 0.25 to 1.5-inch diameter.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Silty sand with gravel (SP), light brown, moist, sand is poorly graded, gravel 0.25 to 1.5-inch diameter, trace cobbles.	Total Depth at 3 ft below ground surface
4			
5			
6			
7			
8			
9			
10			
11			
12			
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ch2m

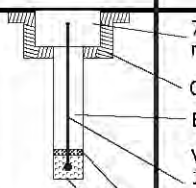
PROJECT NUMBER:	LOCATION:	
666665	AOC13-11	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California | LOCATION : (N, E)

EQUIPMENT : Vacuum Excavation | EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : Not Encountered | START : 1/5/2016 | END : 1/5/2016 | APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	Soil Vapor Probe As-Built Diagram	COMMENTS
1			Clean sand with trace gravel (SP), light brown, loose moist, sand is medium grained, poorly graded, gravel is 0.5 to 1-inch diameter		7-inch by 10-inch flush mounted well box Concrete Bentonite Vapor Probe: 1/4" Teflon tubing with 6-inch long stainless steel screened interval 1-inch thick transition sand #3 1-foot thick sand filter pack #2/12 Monterey Total Depth at 4 ft below ground surface. A soil gas probe was installed at 4 ft bgs, with backfill material including sand from 4 to 3 ft bgs, dry bentonite from 3 to 2 ft bgs, and hydrated bentonite from 2 ft bgs to grade.
2			Interval 0.5 to 2 ft bgs not logged.		
3			Clean sand with trace gravel (SP), light brown, loose moist, sand is medium grained, poorly graded, gravel is 0.5 to 1-inch diameter		
4			Interval 3 to 4 ft bgs not logged.		
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC13-12	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/5/2015
END : 12/5/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Poorly Graded Sand (SP): 100% medium grained, poorly graded sand.	Asphalt at surface. Depths are referenced from the bottom of asphalt.
2			Interval 0.5 to 2.0 ft bgs not logged.	
3			Poorly Graded Sand (SP): 100% medium grained, poorly graded sand.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC13-13	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/9/2016
END : 1/9/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 1 inch.	
2		Interval 0.5 to 2.5 ft bgs not logged.	
3		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 2 inch.	Total Depth at 3 ft below ground surface
4			
5			
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC13-14	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/14/2015
END : 12/14/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP), light brown, loose moist, sand is poorly graded, gravel 0.25 to 3-inches diameter.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Silty sand with gravel (SP), light brown, loose moist, sand is poorly graded, gravel 0.25 to 3-inches diameter.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC13-15	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/14/2005
END : 12/14/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Clean sand with gravel (SP), light brown, loose, moist, sand is poorly graded, gravel 0.25 to 1-inch diameter.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Clean sand with gravel (SP), light brown, loose, moist, sand is poorly graded, gravel 0.25 to 2-inches diameter.	
4		Interval 3 to 5 ft bgs not logged.	
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6		Clean sand with gravel (SP), light brown, loose, moist, sand is poorly graded, gravel 0.25 to 2-inches diameter.	Total Depth at 6 ft below ground surface Boring refusal at 6 ft bgs.
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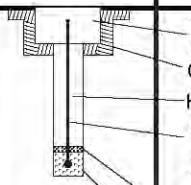
ch2m

PROJECT NUMBER:	LOCATION:	
666665	AOC13-16	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/5/2016
END : 1/5/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	Soil Vapor Probe As-Built Diagram	COMMENTS
1			Clean sand with gravel (SP), light brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 0.5-inch diameter.		7-inch by 10-inch flush mounted well box Concrete Hydrated granular bentonite Vapor Probe: 1/4" Teflon tubing with 6-inch long stainless steel screened interval 1-inch thick transition sand #3 1-foot thick sand filter pack #2/12 Monterey
2			Interval 1 to 2 ft bgs not logged.		
3			Clean sand with gravel (SP), light brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 0.5-inch diameter.		
4			Interval 3 to 4 ft bgs not logged.		Total Depth at 4 ft below ground surface. A soil gas probe was installed at 4 ft bgs, with backfill material including sand from 4 to 3 ft bgs, dry bentonite from 3 to 2 ft bgs, and hydrated bentonite from 2 ft bgs to grade. Asphalt at surface. Depths are referenced from bottom of asphalt.
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PROJECT NUMBER: 666665	LOCATION: AOC13-17	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/8/2015
END : 12/8/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty Sand with Gravel (SM): 60% silty sand, poorly graded, dry, very dense. 40% 1 to 4 inch gravel and cobbles.	Asphalt at surface. Depths are referenced from the bottom of asphalt.
2			Interval 1.0 to 2.0 not logged.	
3			Silty Sand with Gravel (SM): 60% silty sand, poorly graded, dry, very dense. 40% 1 to 4 inch gravel and cobbles.	Total Depth at 3 ft below ground surface
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PROJECT NUMBER: 666665	LOCATION: AOC13-18	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/6/2016
END : 1/6/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty sand with gravel (SW): medium brown, loose, moist, sand is fine to coarse, well graded, gravel 1/4 to 2 inches.	
2			Interval 0.5 to 2.0 ft bgs not logged.	
3			Silty sand with gravel (SW): medium brown, loose, moist, sand is fine to coarse, well graded, gravel 1/4 to 2 inches.	Total Depth at 3 ft below ground surface
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PROJECT NUMBER: 666665	LOCATION: AOC13-19	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/8/2016
END : 1/8/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP): medium brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 2 inches, trace glass pieces.	
2			
3		Interval 0.5 to 2.0 ft bgs not logged.	Total Depth at 3 ft below ground surface
4		Silty sand with gravel (SP): medium brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 2 inches, trace glass pieces.	
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC13-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/5/2015
END : 12/5/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Sand with Gravel (SP): 60% medium grained, poorly graded, sand, 40% 1 to 3 inch angular gravel	Asphalt at surface. Depths are referenced from the bottom of asphalt.
2			Interval 1.0 to 2.0 ft bgs not logged.	
3			Sand with Gravel (SP): 60% medium grained, poorly graded, sand, 40% 1 to 3 inch angular gravel	Total Depth at 3 ft below ground surface
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PROJECT NUMBER: 666665	LOCATION: AOC13-20	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/8/2016
END : 1/8/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP): light brown loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 2 inches.	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Silty sand with gravel (SP): light brown loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 2 inches.	Total Depth at 3 ft below ground surface
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PROJECT NUMBER: 666665	LOCATION: AOC13-21	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/8/2016
END : 1/8/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 1 inch.	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 1 inch.	Total Depth at 3 ft below ground surface
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PROJECT NUMBER: 666665	LOCATION: AOC13-22	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/8/2016
END : 1/8/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty sand with gravel (SW): medium brown, loose, moist, sand is fine to medium grained, well graded, gravel 1/4 to 2 inches.	
2			Interval 0.5 to 2.0 ft bgs not logged.	
3			Silty sand with gravel (SW): medium brown, loose, moist, sand is fine to medium grained, well graded, gravel 1/4 to 2 inches.	Total Depth at 3 ft below ground surface
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PROJECT NUMBER: 666665	LOCATION: AOC13-23	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/8/2016
END : 1/8/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 1 inch.	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 1 inch.	Total Depth at 3 ft below ground surface
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PROJECT NUMBER: 666665	LOCATION: AOC13-24	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/8/2016
END : 1/8/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–3		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 1 inch, metal screw found.	
		Interval 0.5 to 2.0 ft bgs not logged.	Total Depth at 3 ft below ground surface
3–4		Clean sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 1 inch.	

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC13-25	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/9/2016
END : 1/9/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, 1/2 inch gravel.	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 1/2 inch.	Total Depth at 3 ft below ground surface
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PROJECT NUMBER: 666665	LOCATION: AOC13-26	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/9/2016
END : 1/9/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, grave; 1/2 to 1 inch.	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, grave; 1/2 to 1 inch.	Total Depth at 3 ft below ground surface
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PROJECT NUMBER: 666665	LOCATION: AOC13-27	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/9/2016
END : 1/9/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 1 inch.	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 1/2 inch.	Total Depth at 3 ft below ground surface
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PROJECT NUMBER: 666665	LOCATION: AOC13-28	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/9/2016
END : 1/9/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 2 inch.	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 1/2 inch.	Total Depth at 3 ft below ground surface
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PROJECT NUMBER: 666665	LOCATION: AOC13-29	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/9/2016
END : 1/9/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 1 inch.	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 1 inch.	Total Depth at 3 ft below ground surface
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PROJECT NUMBER:	LOCATION:	
666665	AOC13-3	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/14/2015
END : 12/14/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty Sand with Gravel (SP): light brown, loose, moist, poorly graded silty sand, gravel from 1/4 to 2 inches	
2			Interval 0.5 top 2.0 ft bgs not logged.	
3			Silty Sand with Gravel (SP): light brown, loose, moist, poorly graded silty sand, gravel from 1/2 to 3 inches, trace cobbles.	Total Depth at 3 ft below ground surface
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PROJECT NUMBER: 666665	LOCATION: AOC13-30	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/7/2016
END : 1/7/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 1 inch.	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 1 inch, trace cobbles.	Total Depth at 3 ft below ground surface
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PROJECT NUMBER: 666665	LOCATION: AOC13-31	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/7/2016
END : 1/7/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 1 inch.	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 1/2 inch.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC13-32	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/4/2015
END : 12/4/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Sand with gravel (SP): 60% poorly graded sand, 40% 1 to 3 inch gravel with cobbles.	
2			Interval 0.5 to 2.0 ft bgs not logged.	
3			Sand with gravel (SP): 60% poorly graded sand, 40% 1 to 3 inch gravel with cobbles.	Total Depth at 3 ft below ground surface Boring terminated at 3 feet below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC13-4	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/14/2015
END : 12/14/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP), medium brown, loose, moist, sand is poorly graded, gravel 0.25 to 2-inches diameter.	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Silty sand with gravel (SP), medium brown, loose, moist, sand is poorly graded, gravel 0.25 to 2-inches diameter.	Total Depth at 3 ft below ground surface
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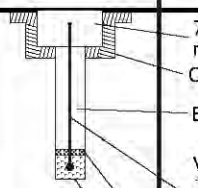
ch2m

PROJECT NUMBER:	LOCATION:	
666665	AOC13-5	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/5/2016
END : 1/5/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	Soil Vapor Probe As-Built Diagram	COMMENTS
1			Clean sand with trace gravel (SP), light brown, loose, moist, sand is medium grained, poorly sorted, gravel 0.25 to 1-inch diameter.		7-inch by 10-inch flush mounted well box Concrete Bentonite Vapor Probe: 1/4" Teflon tubing with 6-inch long stainless steel screened interval 1-inch thick transition sand #3 1-foot thick sand filter pack #2/12 Monterey Total Depth at 4 ft below ground surface. A soil gas probe was installed at 4 ft bgs, with backfill material including sand from 4 to 3 ft bgs, dry bentonite from 3 to 2 ft bgs, and hydrated bentonite from 2 ft bgs to grade.
2			Interval 0.5 to 2.0 ft bgs not logged.		
3			Clean sand with trace gravel (SP), light brown, loose, moist, sand is medium grained, poorly sorted, gravel 0.25 to 1-inch diameter.		
4			Interval 3 to 4 ft bgs not logged.		
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ch2m

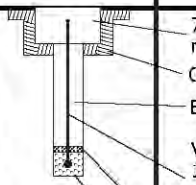
PROJECT NUMBER: 666665	LOCATION: AOC13-6	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California | LOCATION : (N, E)

EQUIPMENT : Vacuum Excavation | EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : Not Encountered | START : 1/5/2016 | END : 1/5/2016 | APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	Soil Vapor Probe As-Built Diagram	COMMENTS
1			Clean sand with gravel (SP), light brown, moist, sand is medium grained, poorly graded, gravel 0.25 to 1-inch diameter.		7-inch by 10-inch flush mounted well box Concrete Bentonite Vapor Probe: 1/4" Teflon tubing with 6-inch long stainless steel screened interval 1-inch thick transition sand #3 1-foot thick sand filter pack #2/12 Monterey
2			Interval 0.5 to 2.0 ft bgs not logged.		
3			Clean sand (SP), light brown, loose, moist, trace gravel, sand is medium grained, poorly graded, gravel 0.25-inch diameter.		
4			Interval 3 to 4 ft bgs not logged.		Total Depth at 4 ft below ground surface. A soil gas probe was installed at 4 ft bgs, with backfill material including sand from 4 to 3 ft bgs, dry bentonite from 3 to 2 ft bgs, and hydrated bentonite from 2 ft bgs to grade.
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC13-7	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/14/2015
END : 12/14/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP), medium brown, loose, moist, sand is poorly graded, gravel 0.25 to 1.5-inch diameter.	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Clean sand (SP), light brown, loose, moist, poorly graded.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC13-8	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/5/2015
END : 12/5/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Sand with Gravel (SP): 70% poorly graded, medium grained sand, 30%1-3 inch angular gravel	
2			Interval 1.0 to 2.0 ft bgs not logged.	
3			Sand (SP): 100% poorly graded, medium grained sand	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER:	LOCATION:	
666665	AOC13-9	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/9/2016
END : 1/9/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty sand with gravel (SW): medium brown, loose, moist, sand is medium to coarse grained, well graded, gravel 1/2 to 2 inches	
2			Interval 0.5 to 2.0 ft bgs not logged.	
3			Silty sand with gravel (SW): medium brown, loose, moist, sand is medium to coarse grained, well graded, gravel 1/2 to 2 inches	Total Depth at 3 ft below ground surface
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CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC14-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101843.8 N, 7615079.0 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/ 4core barrel

WATER LEVELS : N/A START : 11:56:00 AM 9/30/2008 END : 12:35:00 PM 9/30/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5				GRAVELLY SILT (ML): yellowish brown (10YR 5/4), (30% gravel/10% sand/60% fines), poorly graded, subangular to subrounded, no dominant mineralogy, loose density, matrix-supported, dry, max clast size =40mm.	Drill rate quick and constant, borehole structure was sound. Backfilled with hydrated medium bentonite chips.
10	15.0			SILTY GRAVEL (GM): yellowish brown (10YR 5/4), (50% gravel/10% sand/40% fines), poorly graded, subangular to subrounded, no dominant mineralogy, loose density, clast-or matrix-supported, dry, max clast size=20mm.	
15				Total Depth at 15 ft below ground surface	

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC14-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101850.0 N, 7615062.5 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/ 4core barrel

WATER LEVELS : N/A START : 1:36:00 PM 9/30/2008 END : 2:02:00 PM 9/30/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0				GRAVELLY SILT (ML): yellowish brown (10YR 5/4), (20% gravel/10% sand/70% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size =100mm.	Drill rate quick and constant, borehole integrity sound. Backfilled with hydrated medium bentonite chips.
				2-3 ft bgs: white powder mixed with existing silt matrix	
				3-3.25 ft bgs: solid layer of white powder	
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		15.0			
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				SILTY GRAVEL (GM): yellowish brown (10YR 5/4), (50% gravel/10% sand/40% fines), poorly graded, subangular to subrounded, no dominant mineralogy, loose density, clast-or matrix-supported, dry, max clast size=20mm.	
15				Total Depth at 15 ft below ground surface	

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC14-3	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101967.5 N, 7615011.0 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/ 4core barrel

WATER LEVELS : N/A START : 7:05:00 AM 10/1/2008 END : 7:28:00 AM 10/1/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5				SILTY GRAVEL (GM): yellowish brown (10YR 5/4), (65% gravel/10% sand/25% fines), poorly graded, subangular, no dominant mineralogy, loose density, clast-supported, dry, max clast size=40mm.	Drill rate quick and constant, borehole structure was sound. Backfilled with hydrated medium bentonite chips.
10		15.0			
15				Total Depth at 15 ft below ground surface	

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC14-4	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2102008.8 N, 7615113.4 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/ 4core barrel

WATER LEVELS : N/A START : 8:33:00 AM 10/1/2008 END : 9:11:00 AM 10/1/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
				SILT (ML): yellowish brown (10YR 5/4), (5% gravel/5% sand/90% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size =10mm.	Drill rate quick and constant, borehole integrity sound. Backfilled with hydrated medium bentonite chips.
				SILTY GRAVEL (GM): yellowish brown (10YR 5/4), (40% gravel, 10% sand, 50% fines), poorly graded, subangular, no dominant mineralogy, loose density, no structure, dry, max clast size=20mm.	
				SILT (ML): yellowish brown (10YR 5/4), (5% gravel/5% sand/90% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size =10mm.	
5				SILTY GRAVEL (GM): yellowish brown (10YR 5/4), (40% gravel, 10% sand, 50% fines), poorly graded, subangular, no dominant mineralogy, loose density, no structure, dry, max clast size=20mm.	
		15.0		SILT (ML): yellowish brown, (10YR 5/4), (5% gravel/5% sand/90% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size=10mm.	
10				SILTY GRAVEL (GM): yellowish brown (10YR 5/4), (40% gravel, 10% sand, 50% fines), poorly graded, subangular, no dominant mineralogy, loose density, no structure, dry, max clast size=20mm.	
				Total Depth at 15 ft below ground surface	
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CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC14-5	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2102083.1 N, 7615100.7 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/ 4core barrel

WATER LEVELS : N/A START : 8:40:00 AM 10/2/2008 END : 9:15:00 AM 10/2/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5		SILTY SAND (SM) with gravel: reddish brown (5YR 5/4), (25% gravel/55% sand/20% fines), poorly graded, angular to subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size=20mm.	Drill rate quick and constant, borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10	15.0	POORLY GRADED GRAVEL (GP-GM) with silt and sand: yellowish brown, (10YR5/4), (60% gravel/20% sand/10% fines), poorly graded, subangular to subrounded, no dominant mineralogy, loose density, clast-supported, dry, max clast size= 30 mm.	
15		Total Depth at 15 ft below ground surface	

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC14-6	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2102038.7 N, 7615140.9 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/ 4core barrel

WATER LEVELS : N/A START : 12:20:00 PM 10/2/2008 END : 1:06:00 PM 10/2/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5				SILTY GRAVEL (GM) with sand: reddish brown, (5YR5/4), 0-1 ft bgs, yellowish brown (10YR 5/4), 1-15 ft bgs: (60% gravel/25% sand/15% fines), poorly graded, subangular to subrounded, no dominant mineralogy, loose density, clast-supported, dry, max clast size= 50 mm.	Drill rate quick and constant, borehole integrity sound. Backfilled with hydrated medium bentonite chips.
		15.0			
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				Total Depth at 15 ft below ground surface	
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CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC14-7	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2102083.2 N, 7615244.2 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/ 4core barrel

WATER LEVELS : N/A START : 7:25:00 AM 10/2/2008 END : 7:56:00 AM 10/2/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5				SILTY SAND (SM) with gravel: reddish brown (5YR 5/4), (25% gravel/55% sand/20% fines), poorly graded, angular to subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size=20mm.	Drill rate quick and constant, borehole integrity sound. Difficulty recovering last five feet of sediment. Backfilled with hydrated medium bentonite chips.
10	15.0			POORLY GRADED GRAVEL (GP-GM) with silt and sand: yellowish brown, (10YR5/4), (60% gravel/20% sand/10% fines), poorly graded, subangular to subrounded, no dominant mineralogy, very loose density, clast-supported, dry, max clast size= 30 mm.	
15				Total Depth at 15 ft below ground surface	

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC14-8	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2102036.7 N, 7615236.2 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/ 4core barrel

WATER LEVELS : N/A START : 2:32:00 PM 10/2/2008 END : 3:05:00 PM 10/2/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0				SANDY SILT (ML) with gravel and sand: reddish brown (5YR5/4), (20% gravel/20% sand/60% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size= 20mm.	Drill rate quick and constant. Borehole integrity sound. Recovery difficult in 13-15' bgs zone. Backfilled with hydrated medium bentonite chips.
5				SILTY GRAVEL (GM): yellowish brown (10YR 5/4), (70% gravel/10% sand/20% fines), poorly graded, subangular to subrounded, no dominant mineralogy, loose density, clast-supported, dry, max clast size =40mm.	
10		15.0		SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4), (40% gravel, 30% sand, 30% fines), poorly graded, subangular to subrounded, no dominant mineralogy, very loose density, matrix-supported, dry, max clast size=30mm.	
15				Total Depth at 15 ft below ground surface	

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC14-9	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101941.5 N, 7615263.4 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/ 4core barrel

WATER LEVELS : N/A START : 10:35:00 AM 10/1/2008 END : 11:12:00 AM 10/1/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
				GRAVELLY SILT (ML): yellowish brown (10YR 5/4), (40% gravel, 10% sand, 50% fines), poorly graded, subangular, no dominant mineralogy, loose density, no structure, dry, max clast size=30mm.	Drill rate quick and constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
5				SILTY GRAVEL (GM): yellowish brown (10YR 5/4), (60% gravel/10% sand/30% fines), poorly graded, subangular, no dominant mineralogy, loose density, clast-supported, dry, max clast size =40mm.	
		15.0		GRAVELLY SILT (ML): yellowish brown (10YR5/4), (20% gravel/10% sand/70% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size= 20mm.	
10					
				Total Depth at 15 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC14-10	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101839.8 N, 7615271.0 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/ 4core barrel

WATER LEVELS : N/A START : 12:50:00 PM 10/1/2008 END : 1:19:00 PM 10/1/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5				GRAVELLY SILT (ML): yellowish brown (10YR 5/4). (40% gravel/10% sand/50% fines), poorly graded, subangular, no dominant mineralogy, loose density, no structure, dry, max clast size=30mm.	Drill rate quick and constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
	15.0				
10					
				Total Depth at 15 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC14-11	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101910.4 N, 7615174.8 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/ 4core barrel

WATER LEVELS : N/A START : 12:04:00 AM 10/1/2008 END : 10:08:00 AM 10/1/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5		SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4), (40% gravel, 30% sand, 30% fines), poorly graded, subangular, no dominant mineralogy but primarily quartz, fine-grained sand, loose density, matrix-supported, dry, max clast size=30mm.	Drill rate quick and constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10	15.0	GRAVELLY SILT (ML): yellowish brown (10YR5/4), (20% gravel/10% sand/70% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size= 30mm.	
15		Total Depth at 15 ft below ground surface	

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC14-12	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101870.6 N, 7615042.9 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/ 4core barrel

WATER LEVELS : N/A START : 2:21:00 PM 9/30/2008 END : 2:57:00 PM 9/30/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5		GRAVELLY SILT (ML): reddish brown (5YR 5/4), (35% gravel/10% sand/55% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size=40mm.	Drill rate quick and constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
	15.0	At 7.5 feet bgs: color change to yellowish brown (10YR 5/4).	
10			
		Total Depth at 15 ft below ground surface	
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC14-13	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101909.3 N, 7615068.4 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/ 4core barrel

WATER LEVELS : N/A START : 3:25:00 PM 9/30/2008 END : 3:47:00 PM 9/30/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5				GRAVELLY SILT (ML): yellowish brown (10YR 5/4), (30% gravel/5% sand/65% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size=20 mm. 0.5 -1.5 ft bgs: presence of asbestos fibers.	Drill rate quick and constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10		15.0			
15				Total Depth at 15 ft below ground surface	

ch2m.

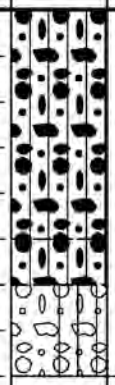
PROJECT NUMBER: 666665	LOCATION: AOC14-15 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Backhoe EQUIPMENT OPERATOR : Groundwater Partners

WATER LEVELS : START : 2/18/2016 END : 2/18/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–5			Silty Gravel with Sand (GM): 60% gravel to cobbles, 40% silt to fine sand	
5–6			White debris layer with chunks of asbestos	
6–8			Well Graded Gravel with Silt (GW-GM): 80% gravel to cobbles, 20% silt to fine sand	Total Depth at 8 ft below ground surface Boring terminated at 8 feet below surface
9–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC14-18 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS :
START : 2/17/2016 END : 2/17/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–5			Silty Gravel with Sand (GM): 60% gravel to cobbles, 40% silt to fine sand, tan-grey	Total Depth at 5 ft below ground surface Boring terminated at 5 feet below surface
6–30				

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC14-ss1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101920.5 N, 7614987.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/ 4core barrel

WATER LEVELS : N/A START : 7:43:00 AM 10/1/2008 END : 8:13:00 AM 10/1/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5				SILTY GRAVEL (GM): yellowish brown (10YR 5/4), (80% gravel/0% sand/20% fines), poorly graded, subangular, no dominant mineralogy, loose density, clast-supported, dry, max clast size=40 mm.	Drill rate quick and constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
		15.0		GRAVELLY SILT (ML): yellowish brown (10 YR 5/4), (40% gravel/0% sand/60% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size= 20mm.	
10					
15				Total Depth at 15 ft below ground surface	

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC14-ss2 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2101995.9 N, 7615272.0 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/ 4core barrel

WATER LEVELS : N/A START : 1:42:00 PM 10/1/2008 END : 2:10:00 PM 10/1/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	15.0	SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4), (40% gravel/30% sand/30% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size=40mm.	Drill rate quick and constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10			
15		Total Depth at 15 ft below ground surface	

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC14-ss3 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2102033.1 N, 7615063.5 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/ 4core barrel

WATER LEVELS : N/A START : 10:53:00 AM 10/2/2008 END : 11:51:00 AM 10/2/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5				SILTY GRAVEL (GM) with sand: yellowish brown, (10YR 5/4), (60% gravel/25% sand/15% fines), poorly graded, subangular to subrounded, no dominant mineralogy, loose density, clast-supported, dry, max clast size=50mm	Drill rate quick and constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
		15.0			
10					
				Total Depth at 15 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC14-ss4	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2102037.4 N, 7614997.3 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/ 4core barrel

WATER LEVELS : N/A START : 9:45:00 AM 10/2/2008 END : 10:18:00 AM 10/2/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		SILTY SAND (SM) with gravel: yellowish brown (10YR 5/4), (25% gravel/55% sand/20% fines), poorly graded, angular to subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size=20mm.	Drill rate quick and constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
5		GRAVELLY SILT (ML) with sand: yellowish brown (10YR 5/4), (25% gravel/15% sand/60% fines), poorly graded, angular to subrounded, no dominant mineralogy, loose density, matrix-supported, dry, max clast size=30 mm.	
	15.0	SILTY GRAVEL (GM) with sand: yellowish brown, (10YR 5/4), (60% gravel/20% sand/20% fines), poorly graded, subangular, no dominant mineralogy, loose density, clast-supported, dry, max clast size=40mm	
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		Total Depth at 15 ft below ground surface	
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ch2m

PROJECT NUMBER:	LOCATION:	
666665	AOC15-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/22/2016
END : 1/22/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Clean sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 1.5-inch diameter.	
2			Interval 0.5 to 2 ft bgs not logged.	
3			Clean sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.5 to 2 ft bgs.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC15-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/22/2016
END : 1/22/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 2-inches diameter.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Silty sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 2-inches diameter, trace cobbles to 4-inches diameter.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC15-3	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/22/2016
END : 1/22/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Clean sand with gravel (SP), light brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 1.5-inch diameter.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Clean sand with gravel (SP), light brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 1.5-inch diameter, trace cobbles to 4-inches diameter.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC15-4	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/22/2016
END : 1/22/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Clean sand with trace gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.5-inch diameter.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Clean sand with trace gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.5-inch diameter.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC15-5	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/22/2016
END : 1/22/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Clean sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.5 to 1.5-inch diameter.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Clean sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.5 to 3-inches diameter.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC15-6	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/22/2016
END : 1/22/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Clean sand with trace gravel (SP), light brown, loose, moist, sand is medium grained, poorly graded, gravel 0.5 to 1-inch diameter.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Clean sand with trace gravel (SP), light brown, loose, moist, sand is medium grained, poorly graded, gravel 0.5 to 2 inch diameter.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC15-7	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/22/2016
END : 1/22/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Clean sand with trace gravel (SP), sand is medium grained, poorly graded, gravel 0.5-inch diameter, light brown, loose, moist.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Clean sand with trace gravel (SP), sand is medium grained, poorly graded, gravel 0.5 to 1-inch diameter, light brown, loose, moist.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC16-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/11/2016
END : 1/11/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SW): light brown, loose, moist, sand is fine to coarse grained, poorly graded, gravel 1/4 to 2 inch.	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Silty sand with gravel (SW): light brown, loose, moist, sand is fine to coarse grained, poorly graded, gravel 1/4 to 2 inch.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC16-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/11/2016
END : 1/11/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SW): light brown, loose, moist, sand is fine to coarse grained, poorly graded, gravel 1/4 to 1.5 inch.	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Silty sand with gravel (SW): light brown, loose, moist, sand is fine to coarse grained, poorly graded, gravel 1/4 to 1.5 inch.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER:	LOCATION:	
666665	AOC16-3	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/11/2016
END : 1/11/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty sand with gravel (SW): light brown, loose, moist, sand is fine to coarse grained, poorly graded, gravel 1/4 to 1 inch.	
2			Interval 0.5 to 2.0 ft bgs not logged.	
3			Silty sand with gravel (SW): light brown, loose, moist, sand is fine to coarse grained, poorly graded, gravel 1/4 to 1 inch.	Total Depth at 3 ft below ground surface
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC16-4	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/11/2016
END : 1/11/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty sand with gravel (SW): light brown, loose, moist, sand is fine to coarse grained, poorly graded, gravel 1/4 to 1 inch.	Total Depth at 0.5 ft below ground surface
2				
3				
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ch2m

PROJECT NUMBER:	LOCATION:	
666665	AOC17-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/6/2015
END : 12/6/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Sand (SP), 100% medium grained, poorly graded sand, minor 1 to 3-inches diameter angular gravel.	
2			Interval 0.5 to 2 ft bgs not logged.	
3			Sand (SP), 100% medium grained, poorly graded sand, minor 1 to 3-inches diameter angular gravel.	
4			Interval 3 to 5 ft bgs not logged.	
5				
6			Sand (SP), 100% medium grained, poorly graded sand, minor 1 to 3-inches diameter angular gravel.	
7			Interval 6 to 9 ft bgs not logged.	
8				
9				
10			Sand (SP), 100% medium grained, poorly graded sand, minor 1 to 3-inches diameter angular gravel.	Total Depth at 10 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC17-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/6/2015
END : 12/6/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Sand (SP), 100% medium grained, poorly graded sand, with minor 1 to 3-inches diameter angular gravel.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Sand (SP), 100% medium grained, poorly graded sand, with minor 1 to 3-inches diameter angular gravel.	
4		Interval 3 to 5 ft bgs not logged.	
5			
6		Sand (SP), 100% medium grained, poorly graded sand, with minor 1 to 3-inches diameter angular gravel.	
7		Interval 6 to 9 ft bgs not logged.	
8			
9			
10		Sand (SP), 100% medium grained, poorly graded sand, with minor 1 to 3-inches diameter angular gravel.	Total Depth at 10 ft below ground surface
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12			
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC17-3	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/6/2015
END : 12/6/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Sand (SP), 100% medium grained, poorly graded sand with minor 1 to 3-inches diameter angular gravel.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Sand (SP), 100% medium grained, poorly graded sand with minor 1 to 3-inches diameter angular gravel.	
4		Interval 3 to 5 ft bgs not logged.	
5			
6		Sand (SP), 100% medium grained, poorly graded sand with minor 1 to 3-inches diameter angular gravel.	
7		Interval 6 to 9 ft bgs not logged.	
8			
9			
10		Sand (SP), 100% medium grained, poorly graded sand with minor 1 to 3-inches diameter angular gravel.	Total Depth at 10 ft below ground surface
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14			
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC17-4	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/6/2015
END : 12/6/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Sand (SP), 100% medium grained poorly graded sand	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Sand (SP), 100% medium grained poorly graded sand	
4		Interval 3 to 5 ft bgs not logged.	
5			
6		Sand (SP), 100% medium grained poorly graded sand	
7		Interval 6 to 8 ft bgs not logged.	
8			Total Depth at 8 ft below ground surface Boring terminated at 8 ft bgs on boulders
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC17-5	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 12/6/2015
END : 12/6/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Sand (SP), 100% medium grained, poorly graded sand, minor 1 to 3-inches diameter angular gravel.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Sand (SP), 100% medium grained, poorly graded sand, minor 1 to 3-inches diameter angular gravel.	
4		Interval 3 to 5 ft bgs not logged.	
5			
6		Sand (SP), 100% medium grained, poorly graded sand, minor 1 to 3-inches diameter angular gravel.	
7		Interval 6 to9 ft bgs not logged.	
8			
9			
10		Sand (SP), 100% medium grained, poorly graded sand, minor 1 to 3-inches diameter angular gravel.	Total Depth at 10 ft below ground surface
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC18-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/12/2016
END : 1/12/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SW): light brown, loose, moist, sand is fine to coarse grained, gravel 1/4 to 2 inches.	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Silty sand with gravel (SW): light brown, loose, moist, sand is fine to coarse grained, gravel 1/4 to 3 inches.	
4		Interval 3.0 to 5.0 ft bgs not logged.	
5			
6		Silty sand with gravel (SW): light brown, loose, moist, sand is fine to coarse grained, gravel 1/4 to 3 inches.	Total Depth at 6 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC18-10	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/16/2015
END : 12/16/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP): medium brown, loose, moist, poorly graded sand, gravel from 1/4 to 1 inch	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Silty sand with gravel (SP): medium brown, loose, moist, poorly graded sand, gravel from 1/4 to 1 inch	
4		Interval 3.0 to 5.0 ft bgs not logged.	
5			
6		Silty sand with gravel (SP): medium brown, loose, moist, poorly graded sand, gravel from 1/4 to 1 inch	Total Depth at 6 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC18-11	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/11/2016
END : 1/11/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty sand with gravel (SW): medium brown, loose, moist, poorly graded sand is fine to coarse grained, gravel from 1/4 to 1 inch	
2			Interval 0.5 to 2.0 ft bgs not logged.	
3			Silty sand with gravel (SW): medium brown, loose, moist, poorly graded sand is fine to coarse grained, gravel from 1/4 to 2 inches	
4			Interval 3.0 to 5.0 ft bgs not logged.	
5				
6			Silty sand with gravel (SW): medium brown, loose, moist, poorly graded sand is fine to coarse grained, gravel from 1/4 to 2 inches	Total Depth at 6 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC18-12	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/4/2015
END : 12/4/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Sand with gravel (SP): 70% medium grained sand, poorly graded, 30% 1 to 3 inch angular gravel, minor cobbles	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Sand with gravel (SP): 70% medium grained sand, poorly graded, 30% 1 to 3 inch angular gravel, minor cobbles	
4		Interval 3.0 to 5.0 ft bgs not logged.	
5			
6		Sand with gravel (SP): 70% medium grained sand, poorly graded, 30% 1 to 3 inch angular gravel, minor cobbles	Total Depth at 6 ft below ground surface
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC18-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/12/2016
END : 1/12/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SW): light brown, loose, moist, sand is fine to coarse grained, gravel 1/4 to 2 inches.	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Silty sand with gravel (SW): light brown, loose, moist, sand is fine to coarse grained, gravel 1/4 to 2 inches.	
4		Interval 3.0 to 5.0 ft bgs not logged.	
5			
6		Silty sand with gravel (SW): light brown, loose, moist, sand is fine to coarse grained, gravel 1/4 to 2 inches.	Total Depth at 6 ft below ground surface
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC18-3	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/12/2016
END : 1/12/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SW): light brown, loose, moist, sand is fine to coarse grained, gravel 1/4 to 1 inches.	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Silty sand with gravel (SW): light brown, loose, moist, sand is fine to coarse grained, gravel 1/4 to 2 inches.	
4		Interval 3.0 to 5.0 ft bgs not logged.	
5			
6		Silty sand with gravel (SW): light brown, loose, moist, sand is fine to coarse grained, gravel 1/4 to 2 inches.	Total Depth at 6 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC18-4	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/4/2015
END : 12/4/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Sand with Gravel (SP): poorly graded, angular, very dense, 60% medium grained sand, 40% 1 to 6 inch gravel	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Sand with Gravel (SP): poorly graded, angular, very dense, 60% medium grained sand, 40% 1 to 6 inch gravel	
4			
5		Interval 3.0 to 5.0 ft bgs not logged.	
6		Sand with Gravel (SP): poorly graded, angular, very dense, 60% medium grained sand, 40% 1 to 6 inch gravel	Total Depth at 6 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC18-5	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/4/2015
END : 12/4/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Sand with gravel (SP): 70% medium grained sand, poorly graded, 30% 1 to 3 inch angular gravel, minor cobbles.	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Sand with gravel (SP): 70% medium grained sand, poorly graded, 30% 1 to 3 inch angular gravel, minor cobbles.	
4		Interval 3.0 to 5.0 ft bgs not logged.	
5			
6		Sand with gravel (SP): 70% medium grained sand, poorly graded, 30% 1 to 3 inch angular gravel, minor cobbles.	Total Depth at 6 ft below ground surface
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC18-6	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/4/2015
END : 12/4/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Sand with gravel (SP): 70% medium grained sand, poorly graded, 30% 1 to 3 inch angular gravel, minor cobbles	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Sand with gravel (SP): 70% medium grained sand, poorly graded, 30% 1 to 3 inch angular gravel, minor cobbles	
4		Interval 3.0 to 5.0 ft bgs not logged.	
5			
6		Sand with gravel (SP): 70% medium grained sand, poorly graded, 30% 1 to 3 inch angular gravel, minor cobbles	Total Depth at 6 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC18-7	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/8/2015
END : 12/8/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SM): 60%poorly graded silty sand, dry, very dense, 40% 1 to 6 inch angular gravel	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Silty sand with gravel (SM): 60%poorly graded silty sand, dry, very dense, 40% 1 to 6 inch angular gravel	Total Depth at 3 ft below ground surface Boring refusal at 3 feet below ground surface, caliche encountered
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC18-8	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/8/2015
END : 12/8/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SM): 60% poorly graded silty sand, dry, very dense, 40% 1 to 3 inch angular gravel	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Silty sand with gravel (SM): 60% poorly graded silty sand, dry, very dense, 40% 1 to 3 inch angular gravel	Total Depth at 3.5 ft below ground surface
4		Interval 3 to 3.5 ft bgs not logged.	Boring refusal at 3.5 feet below ground surface, caliche encountered
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC18-9	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/7/2015
END : 12/7/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with cobbles (SM): 60% poorly graded silty sand, very dense, 40% 6 to 12 inch angular cobbles	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		100% angular cobbles and boulders.	
4		Interval 3 to 4 ft bgs not logged.	Total Depth at 4 ft below ground surface Boring refusal at 4 feet below ground surface due to boulders
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC19-10	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 12/16/2015 END : 12/16/2015 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty Sand with Gravel (SM): light brown, loose, moist, poorly graded silty sand, gravel from 1/4-2 inches	
2				
3			Poorly Graded sand with Gravel (SP): light brown, loose, moist, poorly graded sand, gravel from 1/4-1 inch	Total Depth at 3 ft below ground surface Boring terminated at 3 feet below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC19-15	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 12/6/2015 END : 6/15/121 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Poorly Graded Sand with Gravel (SP): 70% medium to fine grained sand, poorly graded, 30% 1-3 inch angular gravel	
2				
3				
4				Total Depth at 4 ft below ground surface Boring terminated at 4 feet below ground surface due to boulders
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC19-5	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 12/6/2015
END : 12/6/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Poorly Graded Sand (SP) 100% medium grained sand, poorly graded	
2				12 inch boulder encountered at 1.5 feet below ground surface
3				top of 480 VAC slurry pack encountered at 20 feet below ground surface
4				Total Depth at 3.5 ft below ground surface Boring terminated at 3.5 feet below ground surface due to cobbles and 480 VAC lines
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC19-6	SHEET 1 OF 2

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/23/2016
END : 1/23/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Poorly Graded Sand with Gravel (SP): light brown, loose, moist, poorly graded, gravel from 1/4-1 inch	
2				
3			Poorly Graded Sand with Gravel (SP): light brown, loose, moist, poorly graded sand, gravel from 1/4-2 inches	Total Depth at 3 ft below ground surface
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC19-6	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/23/2016 END : 1/23/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
31			
32			Boring terminated at 3 feet below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC19-7	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/23/2016
END : 1/23/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty Sand with Gravel (SM): medium brown, loose, moist, fine to medium grained, well graded sand, gravel from 1/2-1 inch	
2				
3			Lean Clay (CL): light brown, soft, moist	Total Depth at 3 ft below ground surface Boring terminated at 3 feet below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC19-8	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 12/16/2015 END : 12/16/2015 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty Sand with Gravel (SM): light brown, loose, moist, poorly graded sand, gravel from 1/4-1 1/2 inches, trace metal debris	
2				
3			Poorly Graded Sand (SP): light brown, loose, moist, poorly graded sand, trace gravel from 1/4 -1 inch	
4				
5				
6			Poorly Graded Sand (SP): light brown, loose, moist, poorly graded sand, trace gravel from 1/4 -1 inch	
7			Silty Sand with Gravel (SM): medium brown, loose, moist, poorly graded sand, gravel from 1/4-3 inches, cobbles from 3-6 inches	Total Depth at 7 ft below ground surface Boring refusal at 7 feet below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC19-9	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 12/5/2015
END : 12/5/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Poorly Graded Sand (SP): 100% poorly graded sand, medium grained	
2				
3				
4				
5			Cobbles with Minor Poorly Graded Sand	
6				Total Depth at 6.5 ft below ground surface Boring terminated at 6.5 feet below ground surface due to boulders
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC20-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/26/2016
END : 1/26/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2		Poorly Graded Sand with Gravel (SP): light brown, loose, moist, medium grained sand, poorly graded, gravel 1/4"-1"	
3–4		Poorly Graded Sand with Gravel (SP): light brown, loose, moist, medium grained sand, poorly graded, gravel 1/4"-2"	
5			Total Depth at 4.8 ft below ground surface Boring refusal at 4.8 feet below surface
6–30			

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC20-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 12/18/2015
END : 12/18/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2		Silty Sand with Gravel (SP): light brown, loose, moist, medium grained sand, poorly graded, gravel 1/4"-2"	
3–4		Poorly Graded Sand with Gravel (SP): light brown, loose, moist,medium grained sand, poorly graded, gravel 1/4"-1"	
5–7		Poorly Graded Sand with Gravel (SP): light brown, loose, moist,medium grained sand, poorly graded, gravel 1/4"-1"	
8–10		Poorly Graded Sand with Gravel (SP): light brown, loose, moist,medium grained sand, poorly graded, gravel 1/4"-1"	Total Depth at 9 ft below ground surface Boring termianted at 9 feet below gorund surface
11–30			

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC20-3	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 12/18/2015
END : 12/18/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2		Poorly Graded Sand with Gravel (SP): light brown, loose, moist, medium grained sand, poorly graded,gravel from 1/4"-1"	
3–4		Poorly Graded Sand with Gravel (SP): light brown, loose, moISt, medium grained sand, poorly graded,gravel from 1/4"-1"	
8		Poorly Graded Sand (SP): light brown,loose, moist, poorly graded	Total Depth at 8 ft below ground surface Boring terminated at 8 feet below surface

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC20-4	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 12/15/2015 END : 12/15/2015 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty Sand with Gravel (SM): medium brown, loose, moist, poorly graded silty sand, gravel from 1/4-1 inch	
2			
3		Poorly Graded Sand with Gravel (SP): light brown, loose, moist, poorly graded sand, gravel form 1/4-1 inch	Total Depth at 2.5 ft below ground surface Boring terminated at 2.5 feet below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC20-5	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 12/15/2015 END : 12/15/2015 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty Sand with Gravel (SM): light brown, loose, moist, poorly graded sand, gravel from 1/4- 1 inches, trace metal debris	
2				
3			Poorly Graded Sand with Gravel (SP): light brown, loose, moist, poorly graded sand, gravel from 1/4-2 inches	Total Depth at 2.5 ft below ground surface Boring terminated at 2.5 feet below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC20-6	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 12/15/2015
END : 12/15/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Poorly Graded Sand with Gravel (SP): light brown, loose, moist, poorly graded sand, gravel from 1/4-1 inches	
2				
3			Poorly Graded Sand with Gravel (SP): light brown, loose, moist, poorly graded sand, gravel from 1/4-1 1/2 inches	Total Depth at 3 ft below ground surface Boring terminated at 3 feet below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC20-7	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 12/18/2015
END : 12/18/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2		Poorly Graded Sand with Gravel (SP): light brown, loose, moist, medium grained sand, poorly graded, gravel 1/4"-2"	
3–4		Poorly Graded Sand with Gravel (SP): light brown, loose, moist, medium grained sand, poorly graded, gravel 1/4"-2"	
5–6		Poorly Graded Sand with Gravel (SP): light brown, loose, moist, medium grained sand, poorly graded, gravel 1/4"-2"	Total Depth at 5.5 ft below ground surface Boring terminated at 5.5 feet below surface, pipe encountered
7–30			

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC21-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/12/2016
END : 1/12/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SW): light brown, loose, moist, sand is fine to coarse grained, gravel 1/4 to 1 inch.	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		White powdery material, all powder no soil	
4		Interval 3.0 to 5.0 ft bgs not logged.	
5			
6		Silty sand with gravel (SP): light brown, loose, moist, mixed with trace white powder.	Total Depth at 6 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC22-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/6/2016
END : 1/6/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 1-inch diameter.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Silty sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 1-inch diameter.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC22-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/6/2016
END : 1/6/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 2-inches diameter.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Silty sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 2-inches diameter.	Total Depth at 3 ft below ground surface
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ch2m.

PROJECT NUMBER:	LOCATION:	
666665	AOC23-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/8/2015
END : 12/8/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SM), 60% poorly graded silty sand, very moist, very dense, 40% 1 to 3-inches diameter angular granular.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Silty sand with gravel (SM), 60% poorly graded silty sand, very moist, very dense, 40% 1 to 3-inches diameter angular granular.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC23-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/7/2016
END : 1/7/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP), light brown, loose, moist, trace debris, sand is medium grained, poorly graded, gravel 0.25 to 1-inch diameter, metal debris (metal straps, concrete pieces).	Total Depth at 1.6 ft below ground surface
2			Refusal at 1.6 ft bgs.
3		Interval 0.5 to 1.6 ft bgs not logged.	
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC23-3	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/7/2016
END : 1/7/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 1-inch diameter.	Total Depth at 1.1 ft below ground surface
2		Interval 0.5 to 1.1 ft bgs not logged.	Refusal at 1.1 ft bgs.
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC24-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/10/2016
END : 1/10/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP): medium brown, loose, dry, sand is fine to medium grained, gravel 1/4 to 2 inches.	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Silty sand with gravel (SP): medium brown, loose, dry, sand is fine to medium grained, gravel 1/4 to 2 inches.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC24-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/11/2016
END : 1/11/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP): light brown, loose, moist, sand is fine to coarse grained, gravel 1/4 to 1 inch.	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Silty sand with gravel (SP): light brown, loose, moist, sand is fine to coarse grained, gravel 1/4 to 2 inches.	
4			
5		Interval 3.0 to 5.0 ft bgs not logged.	
6		Silty sand with gravel (SP): light brown, loose, moist, sand is fine to coarse grained, gravel 1/4 to 4 inches.	Total Depth at 6.2 ft below ground surface Refusal at 6.2 ft bgs.
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PROJECT NUMBER: 666665	LOCATION: AOC26-1	SHEET 1 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California | LOCATION : (N, E)

EQUIPMENT : Rotosonic | EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : Not Encountered | START : 12/15/2015 | END : 1/11/2016 | APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	Soil Vapor Probe As-Built Diagram	COMMENTS
1			Poorly Graded Sand with Gravel (SP): light brown, loose, moist, poorly graded sand, gravel from 1/4-1 inches		7-inch by 10-inch flush mounted well box
2			Interval 0.5 to 2.0 ft bgs not logged.		Concrete
3			Poorly Graded Sand (SP): light brown, loose, moist, poorly graded sand, trace gravel from 1/4-2 inches		Vapor Probes: 1/4" Teflon tubing with 6-inch long stainless steel screened interval
4			Interval 3.0 to 5.0 ft bgs not logged.		
5					1-inch thick transition sand #3
6			Poorly Graded Sand (SP): light brown, loose, moist, poorly graded sand		1-foot thick sand filter pack #2/12 Monterey
7			Interval 6 to 9 ft bgs not logged.		
8					
9					Bentonite
10			Sand with silt (SP): olive brown (2.5Y 4/4) 5% gravel, 75% sand, 20% fines, slightly moist, loose, poorly graded, subangular gravel.		
11					
12					
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14					
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19					
20					
21			at 20-ft bgs: no lithology change, strong organic odor, no response on four-gas meter.		
22					
23					
24					
25					1-inch thick transition sand #3
26					1-foot thick sand filter pack #2/12 Monterey
27					
28					
29					
30					

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC26-1	SHEET 2 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California | LOCATION : (N, E)

EQUIPMENT : Rotosonic | EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : Not Encountered | START : 12/15/2015 | END : 1/11/2016 | APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	Soil Vapor Probe As-Built Diagram	COMMENTS
31		at 30-ft bgs: no change, much lighter organic odor, no response on four-gas meter.		
32				
33				
34				
35				
36				
37				
38				
39				
40				
41		at 40-ft bgs: no change.		
42				
43				
44				
45				
46				
47				
48				
49				
50				1-inch thick transition sand #3
51		at 50-ft bgs: no change.		1-foot thick sand filter pack #2/12 Monterey
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60				

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC26-1	SHEET 3 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California | LOCATION : (N, E)

EQUIPMENT : Rotosonic | EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : Not Encountered | START : 12/15/2015 | END : 1/11/2016 | APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
61			at 60-ft bgs: no change.	
62				
63				
64				
65				
66				
67				
68				
69				
70				
71			at 70-ft bgs: no change.	
72				
73				
74				
75				
76				Vapor probes installed at 5, 25 and 50-ft bgs. Total Depth at 76.5 ft below ground surface
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90				

ch2m

PROJECT NUMBER:	LOCATION:	
666665	AOC26-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/14/2016
END : 1/14/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Poorly Graded Sand (SP): light brown, loose, moist, poorly graded sand, gravel from 1/4-1/2 inch	
2			Interval 0.5 to 2 ft bgs not logged.	
3			Poorly Graded Sand (SP): light brown, loose, moist, poorly graded sand, gravel from 1/4-1 inch	
4				
5			Interval 3 to 5 ft bgs not logged.	
6			Poorly Graded Sand (SP): light brown, loose, moist, poorly graded sand, gravel from 1/4-1 inch	
7				Total Depth at 7 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC26-3	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/13/2016
END : 1/13/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Poorly Graded Sand with Gravel (SP): light brown, loose, moist, poorly graded sand, gravel from 1/4-1 inch	
2			Interval 0.5 to 2 ft bgs not logged.	
3			Poorly Graded Sand with Gravel (SP): light brown, loose, moist, poorly graded sand, gravel from 1/4-1 inch	
4			Interval 3 to 5 ft bgs not logged.	
5				
6			Poorly Graded Sand with Gravel (SP): light brown, loose, moist, poorly graded sand, gravel from 1/4-1 inch	
7				Total Depth at 7 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC26-4	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered.
START : 1/13/2016
END : 1/13/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Poorly Graded Sand with Gravel (SP): light brown, loose, moist, poorly graded sand, gravel from 1/4-1 inch	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Poorly Graded Sand (SP): light brown, loose, moist, poorly graded sand, trace gravel from 1/4-1/2 inch	
4		Interval 3 to 5 ft bgs not logged.	
5			
6		Poorly Graded Sand (SP): light brown, loose, moist, poorly graded sand, trace gravel from 1/4-1/2 inch	
7		Interval 6 to 9 ft bgs not logged.	
8			
9			
10		Poorly Graded Sand (SP): light brown, loose, moist, poorly graded sand, trace gravel from 1/4-1/2 inch	Total Depth at 10 ft below ground surface
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ch2m

PROJECT NUMBER:	LOCATION:	
666665	AOC26-5	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered.
START : 1/13/2016
END : 1/13/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Poorly Graded Sand (SP): light brown, loose, moist, poorly graded sand, gravel from 1/4-1/2 inch	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Poorly Graded Sand (SP): light brown, loose, moist, poorly graded sand, gravel from 1/4-1 inch	
4		Interval 3 to 5 ft bgs not logged.	
5			
6		Poorly Graded Sand (SP): light brown, loose, moist, poorly graded sand, gravel from 1/4-1 inch	
7		Interval 6 to 8 ft bgs not logged.	
8			
9		Poorly Graded Sand (SP): light brown, loose, moist, poorly graded sand, gravel from 1/4-2 inch	Total Depth at 9 ft below ground surface Boring refusal at 9 feet below ground surface
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC27-9	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Backhoe
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS :
START : 3/8/2016
END : 3/8/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2		Well Graded Sand with Silt and Gravel (SW-SM): 60% fine to medium sand, 30% silt, 10% gravel to cobbles up to 6", likely backfill	
3–10		Well Graded Gravel with Sand (GW): 60 medium to coarse gravel, 30% cobbles, 10% fine to coarse sand, gravel and cobbles are subangular and up to 12"	Increased difficulty digging at 5 fbs Total Depth at 10 ft below ground surface Boring temrinated at 10 feet below surface
11–30			

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC28a-01 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 12/17/2015 END : 12/15/2017 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty Sand with Gravel (SM): medium brown, loose, moist, poorly graded silty sand, gravel from 1/4-1 inch	
2				
3			Silty Sand with Gravel (SM): medium brown, loose, moist, poorly graded silty sand, gravel from 1/4-1 inch	Total Depth at 3 ft below ground surface Boring terminated at 3 feet below ground surface
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC28b-01	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 12/17/2015
END : 12/17/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Well Graded Gravel with Silt and Sand (GW-GM): medium brown, dry, dense, gravel from 1/4-3 inches, trace cobbles from 3-6 inches	
2			Total Depth at 2.5 ft below ground surface
3		100% Cobbles: 3 inches and greater	Boring refused at 2.5 feet below ground surface due to cobbles
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC28C-01 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 12/17/2015 END : 12/17/2015 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty Sand with Gravel (SP) light brown, loose, dry, medium grained sand, poorly graded, gravel from 1/4"-3"	
2			
3		Silty Sand with Gravel (SP) light brown, loose, dry, medium grained sand, poorly graded, gravel from 1/4"-3", trace cobbles 3"-6"	Total Depth at 3 ft below ground surface Boring terminated at 3 feet below surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC28D-01 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 12/17/2015 END : 12/17/2015 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty Sand with Gravel (SP): light brown, loose, dry, medium grained sand, poorly graded, gravel 1/4"-2"	
2			
3		Silty Sand with Gravel (SP): light brown, loose, moist, medium grained sand, poorly graded, gravel 1/4"-2"	
4			
5			Total Depth at 5 ft below ground surface
6		Silty Sand with Gravel (SP): light brown, loose, moist, medium grained sand, poorly graded, gravel 1/4"-2", cobbles 3"-6"	Boring refusal at 5 feet below surface
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CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC4-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100224.5 N, 7614727.5 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/ 4" core barrel

WATER LEVELS : N/A START : 8:20:00 AM 10/14/2008 END : 8:40:00 AM 10/14/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		3.0		SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4), (40% gravel/30% sand/30% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size =80mm.	Drill rate constant. Borehole integrity sound. Backfilled with native.
5				Total Depth at 3 ft below ground surface	
10					
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC4-3	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100161.9 N, 7614860.4 E)

ELEVATION : ft. () DRILLING CONTRACTOR : N/A

DRILLING METHOD AND EQUIPMENT : Hand auger, Hand tools

WATER LEVELS : N/A START : 8:20:00 AM 8/24/2008 END : 8:39:00 AM 8/24/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		1.2		SILTY SAND (SM): yellowish brown (10YR 5/6), (0% gravel/80% sand/20% fines), poorly graded, subrounded to subangular, predominantly quartz, loosely consolidated, no structure, dry.	
				POORLY GRADED GRAVEL (GP-GM) with silt: yellowish brown (10YR 5/6), (80% gravel/10% sand/10% fines), angular to subangular, no dominant mineralogy, loosely consolidated, clast-supported, dry, max clast size=40mm. 1.2 ft bgs: gravel encountered, refusal.	
				Total Depth at 1.2 ft below ground surface	
5					
10					
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC4-4	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100146.6 N, 7614860.9 E)

ELEVATION : ft. () DRILLING CONTRACTOR : N/A

DRILLING METHOD AND EQUIPMENT : Hand auger, Hand tools

WATER LEVELS : N/A START : 8:30:00 AM 8/24/2008 END : 8:45:00 AM 8/24/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		0.5		POORLY GRADED GRAVEL (GP-GM) with silt: very dark greyish brown (10YR 3/2), (80% gravel/10% sand/10% fines), very well sorted/medium grained sand with no fines), but poorly graded(almost entirely gravel). Angular to subangular, no dominant mineralogy but notable lack of quartz sand, loosely consolidated, clast-supported, dry, max clast size=60mm.	
				0.5 ft. bgs: encountered bedrock, refusal.	
				Total Depth at 0.5 ft below ground surface	
5					
10					
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC4-5	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100134.8 N, 7614932.4 E)

ELEVATION : ft. () DRILLING CONTRACTOR : N/A

DRILLING METHOD AND EQUIPMENT : Hand auger, Hand tools

WATER LEVELS : N/A START : 8:50:00 AM 8/24/2008 END : 9:30:00 AM 8/24/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		1.5		POORLY GRADED GRAVEL (GP-GM) with silt: dark greyish brown (10YR 4/2), (80% gravel/10% sand/10% fines), angular, no dominant mineralogy, medium density, clast-supported, dry, max clast size=40mm.	
				1.5 ft. bgs: gravel, refusal.	
				Total Depth at 1.5 ft below ground surface	
5					
10					
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC4-6	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100152.5 N, 7614943.5 E)

ELEVATION : ft. () DRILLING CONTRACTOR : N/A

DRILLING METHOD AND EQUIPMENT : Hand auger, Hand tools

WATER LEVELS : N/A START : 9:35:00 AM 8/24/2008 END : 10:25:00 AM 8/24/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		1.2		SILTY SAND (SM): yellowish brown (10YR 5/3), (5% gravel/70% sand/25% fines), well-graded, subangular to subrounded, predominantly quartz, loosely consolidated, no structure, dry, max clast size= 40 mm	
				POORLY GRADED GRAVEL (GP-GM) with silt: yellowish brown (10YR 5/3), (80% gravel/10% sand/10% fines), subangular to angular, no dominant mineralogy, medium density, clast-supported, dry, max clast size=70mm	
				1.2 ft. bgs: gravel refusal.	
				Total Depth at 1.2 ft below ground surface	
5					
10					
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC4-8	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100103.5 N, 7614968.2 E)

ELEVATION : ft. () DRILLING CONTRACTOR : N/A

DRILLING METHOD AND EQUIPMENT : Hand auger, Hand tools

WATER LEVELS : N/A START : 10:10:00 AM 8/24/2008 END : 10:15:00 AM 8/24/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		0.5		POORLY GRADED GRAVEL (GP-GM) with silt: yellowish brown (10YR 5/3), (80% gravel/10% sand/10% fines), angular to subangular, no dominant mineralogy, loose to medium density, clast-supported, dry, max clast size=40mm.	
				0.5 ft. bgs: bedrock encountered.	
				Total Depth at 0.5 ft below ground surface	
5					
10					
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC4-9	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100099.5 N, 7615002.1 E)

ELEVATION : ft. () DRILLING CONTRACTOR : N/A

DRILLING METHOD AND EQUIPMENT : Hand auger, Hand tools

WATER LEVELS : N/A START : 11:10:00 AM 8/24/2008 END : 11:15:00 AM 8/24/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		0.5		POORLY GRADED GRAVEL (GP-GM) with silt: yellowish brown (10YR 5/3), (80% gravel/10% sand/10% fines), angular to subangular, no dominant mineralogy, loose to medium density, clast-supported, dry, max clast size=40mm.	
				0.5 ft. bgs: bedrock encountered.	
				Total Depth at 0.5 ft below ground surface	
5					
10					
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC4-10	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100072.7 N, 7614998.0 E)

ELEVATION : ft. () DRILLING CONTRACTOR : N/A

DRILLING METHOD AND EQUIPMENT : Hand auger, Hand tools

WATER LEVELS : N/A START : 11:10:00 AM 8/24/2008 END : 11:15:00 AM 8/24/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		0.5		POORLY GRADED GRAVEL (GP-GM) with silt: yellowish brown (10YR 5/3), (80% gravel/10% sand/10% fines), angular to subangular, no dominant mineralogy, loose to medium density, clast-supported, dry, max clast size=40mm	
				0.5 ft. bgs: bedrock encountered.	
				Total Depth at 0.5 ft below ground surface	
5					
10					
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC4-11	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100036.2 N, 7615016.3 E)

ELEVATION : ft. () DRILLING CONTRACTOR : N/A

DRILLING METHOD AND EQUIPMENT : Hand auger, Hand tools

WATER LEVELS : N/A START : 1:10:00 PM 8/24/2008 END : 1:15:00 PM 8/24/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.5	POORLY GRADED GRAVEL (GP-GM): yellowish brown (10YR 5/3), (80% gravel/10% sand/10% fines), angular to subangular, no dominant mineralogy, loose to medium density, clast-supported, dry, max clast size=40mm.	
		0.5 ft. bgs: bedrock encountered.	
		Total Depth at 0.5 ft below ground surface	
5			
10			
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC4-12	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100006.7 N, 7615021.5 E)

ELEVATION : ft. () DRILLING CONTRACTOR : N/A

DRILLING METHOD AND EQUIPMENT : Hand auger, Hand tools

WATER LEVELS : N/A START : 1:05:00 PM 8/24/2008 END : 12:55:00 AM 8/24/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		0.5		POORLY GRADED GRAVEL (GP-GM) with silt: yellowish brown (10YR 5/3), (80% gravel/10% sand/10% fines), angular to subangular, no dominant mineralogy, loose to medium density, clast-supported, dry, max clast size=40mm.	
				0.5 ft. bgs: bedrock encountered.	
				Total Depth at 0.5 ft below ground surface	
5					
10					
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC4-13	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2099979.6 N, 7615042.9 E)

ELEVATION : ft. () DRILLING CONTRACTOR : N/A

DRILLING METHOD AND EQUIPMENT : Hand auger, Hand tools

WATER LEVELS : N/A START : 1:00:00 PM 8/24/2008 END : 1:10:00 PM 8/24/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.5	POORLY GRADED GRAVEL (GP-GM) with silt: yellowish brown (10YR 5/3), (80% gravel/10% sand/10% fines), angular to subangular, no dominant mineralogy, loose to medium density, clast-supported, dry, max clast size=40mm.	
		0.5 ft. bgs: bedrock encountered.	
		Total Depth at 0.5 ft below ground surface	
5			
10			
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC4-14	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2099966.3 N, 7615137.3 E)

ELEVATION : ft. () DRILLING CONTRACTOR : N/A

DRILLING METHOD AND EQUIPMENT : Hand auger, Hand tools

WATER LEVELS : N/A START : 12:55:00 PM 8/24/2008 END : 1:10:00 PM 8/24/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		0.5		POORLY GRADED GRAVEL (GP-GM) with silt: yellowish brown (10YR 5/3), (80% gravel/10% sand/10% fines), angular to subangular, no dominant mineralogy, loose to medium density, clast-supported, dry, max clast size=40mm.	
				0.5 ft. bgs: bedrock encountered.	
				Total Depth at 0.5 ft below ground surface	
5					
10					
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC4-15	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100015.5 N, 7615135.7 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Excavator

WATER LEVELS : N/A START : 12:10:00 PM 9/19/2008 END : 1:00:00 PM 9/19/2008 LOGGER : T. Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		3.0		SILTY SAND (SM) with debris: light brown, includes glass, plastic, ammunition shells, fill material, low moisture, no odor	
				SILT (ML): light brown, compacted with lenses of lighter silty material	
5				Total Depth at 3 ft below ground surface	
10					
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC4-15-SS SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (N, E)

ELEVATION : ft. () DRILLING CONTRACTOR : N/A

DRILLING METHOD AND EQUIPMENT : Hand tools,

WATER LEVELS : N/A START : 1:10:00 PM 9/19/2008 END : 1:20:00 PM 9/19/2008 LOGGER : T. Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		0.5		SILT (ML): light brown, reddish brown, yellow brown surface stained, dry crusty debris (glass, plastic, hose, wood), no odor, low moisture.	
				Total Depth at 0.5 ft below ground surface	
5					
10					
15					

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC4-17	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/1/2015
END : 12/1/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Interval 0 to 2 ft bgs not logged.	
2			
3		Gravel with Silt, 70% 1 to 3-inch angular gravel, 30% silt, with minor sand fraction	
4		Interval 3 to 4.66 ft bgs not logged.	
5		Gravel with Silt, 95% gravel and cobbles from 1 to 8-inch, minor silt and sand	Total Depth at 4.66 ft below ground surface Refusal of drilling
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC4-18	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/1/2015 END : 12/1/2015 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Interval 0 to 2 ft bgs not logged.	
2				
3			Gravel with Sand (GP), 60% 1 to 3-inch angular gravel, 40% poorly graded sand, 8 to 20-inch cobbles and boulders encountered at 3.0 feet below ground surface	Total Depth at 3 ft below ground surface Refusal at 3.0 ft bgs
4				
5				
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC4-19	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS : Not Encountered
START : 11/20/2015
END : 11/20/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Poorly Graded Gravel with SIlt (GP-GM), 90% 3-inch and smaller gravel, 10% silt	
2		Interval 0.5 to 2 ft bgs not logged.	Total Depth at 2.5 ft below ground surface
3		Poorly Graded Gravel with SIlt (GP-GM), 90% 3-inch and smaller gravel, 10% silt	
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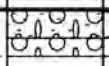
ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC4-20	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS : Not Encountered
START : 11/20/2015
END : 11/20/2105
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Well Graded Gravel, native soil on bedrock, 85% 1 to 3-inch rock, 15% silt to fine sand.	Total Depth at 1 ft below ground surface
2			Bedrock	
3				
4				
5				
6				
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC4-21	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS :
START : 11/20/2015
END : 11/20/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Weathered Bedrock, 90% bedrock, 10% silt, silt is wind blown dust	Total Depth at 0.5 ft below ground surface
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC4-22	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS :
START : 11/20/2015
END : 11/20/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Weathered Bedrock: 85% bedrock, 15% silt, silt is wind blown dust	Total Depth at 0.5 ft below ground surface
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC4-23	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Northstar Environmental Remediation
WATER LEVELS :
START : 12/6/2015
END : 12/6/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty Sand with Gravel (SM): 60% silty sand, 40% gravel	
2				Total Depth at 2 ft below ground surface
3				
4				
5				
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC4-24	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Northstar Environmental Remediation
WATER LEVELS :
START : 12/6/2015
END : 12/6/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty Sand with Gravel (SM): 60% silty sand, 40% 1-3 inch angular gravel	
2				Total Depth at 2 ft below ground surface
3				
4				
5				
6				
7				
8				
9				
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11				
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC4-25	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS :
START : 11/20/2015
END : 11/20/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Weather Bedrock: 70% 3-inch plus rock, 30% silt, slope is native	Total Depth at 1 ft below ground surface Bedrock encountered at 1 foot below ground surface
2				
3				
4				
5				
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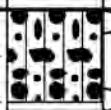
ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC4-26 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS :
START : 11/20/2015
END : 11/20/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty Gravel (GM): 80% 1-inch well graded gravel, 20% wind blown silt	
2				Total Depth at 2.2 ft below ground surface
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC4-27	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS :
START : 11/20/2015
END : 11/20/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Well Graded Gravel: 50% 3-inch or greater rock, 25% 1-inch gravel, 25% silt to sand	
2			Total Depth at 2 ft below ground surface
3			
4			
5			
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC4-28	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR :
WATER LEVELS :
START :
END :
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Weathered Bedrock: 80% bedrock, 20% silt from wind blown dust	Total Depth at 0.5 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC4-29	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 12/3/2015
END : 12/3/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Poorly Graded Sand (SP): 80% fine grained and poorly graded sand, 20% 1-4 inch angular gravel	
2			Interval 0.5 to 2 ft bgs not logged.	
3			Poorly Graded Sand (SP): 80% fine grained and poorly graded sand, 20% 1-4 inch angular gravel	
4			Interval 3 to 5 ft bgs not logged.	
5				
6			Poorly Graded Sand (SP): 80% fine grained and poorly graded sand, 20% 1-4 inch angular gravel	Total Depth at 6 ft below ground surface Refusal at 6 feet below ground surface due to boulders
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC4-30 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 12/3/2015 END : 12/3/2015 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–8			Poorly Graded Sand (SP): 80% fine grained and poorly graded sand, 20% 1-3 inch angular gravel	Total Depth at 8 ft below ground surface Refusal at 8 feet below ground surface due to boulders
9–30				

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC4-31	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 12/2/2015 END : 12/2/2015 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–4			Gravel with Sand: 60% 1-3 inch angular gravel, 40 % SP sand	
5–6			Poorly Graded Sand (SP): 100% poorly graded sand, predominantly medium grained	Total Depth at 6 ft below ground surface Refusal at 6 feet below ground surface due to boulders
7–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC4-32	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 12/2/2015
END : 12/2/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–6		Gravel With Sand (GW or GP): 70% 1-3 inch angular gravel, 30% SP sand	Total Depth at 6 ft below ground surface Refusal at 6 feet below ground surface due to boulders

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC4-BCW1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/6/2016 END : 1/6/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2			Crushed Rock (GW): 1"-3" crushed rock	
3–12			Well Graded Sand with Silt and Gravel (SW-SM): dark yellowish brown (10YR 4/4), 20/70/10, moist, loose, well graded sand, gravel is subangular to subround	4" core barrel, 6"casing to 12 fbs
12				Total Depth at 12 ft below ground surface Boring terminated at 12 feet below ground surface
13–30				

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC4-BCW2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/6/2016 END : 1/6/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2			Crushed Rock (GW): 1"-3" crushed rock	
3–12			Well Graded Sand with Silt and Gravel (SW-SM): dark yellowish brown (10YR 4/4), 20/70/10, moist, loose, well graded sand, gravel is subangular to subround	4" core barrel, 6" casing to 12 fbs
12				Total Depth at 12 ft below ground surface Boring terminated at 12 feet below surface
13–30				

ch2m

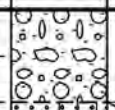
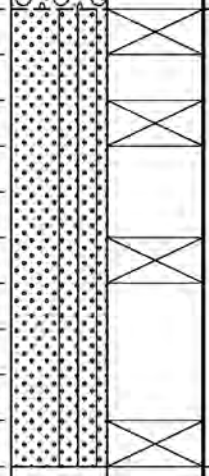
PROJECT NUMBER: 666665	LOCATION: AOC4-BCW3 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Rotosonic EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : START : 1/6/2016 END : 1/6/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2		Crushed Rock (GW): 1"-3" crushed rock	
3–12		Well Graded Sand with Silt and Gravel (SW-SM): dark yellowish brown (10YR4/4), 20/70/10, moist, loose, well graded sand, subangular to subround gravel	4" core barrel, 6" casing to 12 fbs Total Depth at 12 ft below ground surface Boring terminated at 12 feet below surface
13–30			

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC4-BCW4	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/6/2016
END : 1/6/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2			Crushed Rock (GW): 1"-3" crushed rock	
3–12			Well Graded Sand with Silt and Gravel (SW-SM): dark yellowish brown (10YR 4/4), moist, loose, well graded sand, subround gravel	4" core barrel, 6"casing to 15 fbs Total Depth at 12 ft below ground surface Boring terminated at 12 feet below surface
13–30				

ch2m

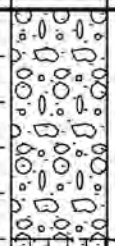
PROJECT NUMBER: 666665	LOCATION: AOC4-BCW5 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Rotosonic EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : START : 1/6/2016 END : 1/6/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–5		Crushed Rock (GW): 1"-6" angular crushed rock	
6–15		Silty Sand with Gravel (SM): dark yellowish brown (10YR 4/4) moist, loose, poorly graded, medium grained sand, angular to subangular gravel	4" inch drill barrel, 6" well casing to 15 fbs Total Depth at 15 ft below ground surface Boring terminated at 15 feet below surface
16–30			

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC4-BCW6 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/6/2016 END : 1/6/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2		Crushed Rock (GW): gravel is 1"-6" and angular	
3–12		Silty Sand with Gravel (SW-SM): dark yellowish brown (10YR 4/4) 20/60/20, moist, loose, poorly graded medium grained sand, angular to sub angular gravel and cobbles	Total Depth at 12 ft below ground surface Boring terminated at 12 feet below surface
13–30			

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC5-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/19/2016
END : 1/19/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP), medium brown, loose, moist, sand is medium grained and poorly graded, gravel 0.25 to 2-inches diameter.	
2			
3		Interval 0.5 to 2 ft bgs not logged.	
4		Clean sand with trace gravel (SP), light brown, loose, moist, sand is medium grained, poorly graded, gravel 0.5 to 1-inch diameter.	
5		Interval 3 to 5 ft bgs not logged.	
6		Clean sand with trace gravel (SP), light brown, loose, moist, sand is medium grained, poorly graded, gravel 0.5 to 1-inch diameter.	
7			
8		Interval 6 to 9 ft bgs not logged.	
9			
10		Clean sand with trace gravel (SP), light brown, loose, moist, sand is medium grained, poorly graded, gravel 0.5 to 2-inches diameter.	Total Depth at 10 ft below ground surface
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC5-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 12/8/2015
END : 12/8/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SM), 70% silty sand, poorly graded, medium dense, dry.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Silty sand with gravel (SM), 70% silty sand, poorly graded, medium dense, dry.	Total Depth at 3 ft below ground surface Boring terminated at 3 feet below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC5-3	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/23/2016
END : 1/23/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Clean sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 1-inch diameter.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Clean sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 2-inches diameter.	Total Depth at 3.5 ft below ground surface Boring refusal at 3.5 ft bgs on concrete
4		Interval 3 to 3.5 ft bgs not logged.	
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC5-4	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/23/2016
END : 1/23/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Clean sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.5 to 1.5-inches diameter.	
2			Interval 0.5 to 2 ft bgs not logged.	
3			Silty sand with gravel and trace cobbles (SP), medium brown, loose, moist, sand is medium grained and poorly graded, gravel 0.5 to 3-inches diameter, cobbles.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC5-5	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/14/2016
END : 1/14/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2		Clean sand with trace gravel (SP), light brown, loose moist, sand is medium grained, poorly graded, gravel 0.25 to 1-inch diameter, trace cobbles, metal debris and nail.	
3		Interval 0.5 to 2 ft bgs not logged.	
4		Clean sand with trace gravel (SP), light brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 1-inch diameter.	
5		Interval 3 to 5 ft bgs not logged.	
6–7		Clean sand with trace gravel (SP), light brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 1-inch diameter.	
8–9		Interval 6 to 9 ft bgs not logged.	
10		Clean sand with trace gravel (SP), light brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 1.5-inch diameter.	Total Depth at 10 ft below ground surface
11–30			

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC5-6	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not encountered
START : 1/19/2016
END : 1/19/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Clean sand with gravel (SP), light brown, loose, moist, sand is medium grained and poorly graded, gravel 0.25 to 1-inch diameter.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Clean sand with gravel (SP), light brown, loose, moist, sand is medium grained and poorly graded, gravel 0.25 to 1-inch diameter.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC6-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/20/2016
END : 1/20/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Clean sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 1.5-inch diameter.	
2		Interval 0.5 to 2-ft bgs not logged.	
3		Clean sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 1.5-inch diameter, trace cobbles to 6-inches diameter, one boulder 12-inches diameter.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC6-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/20/2016
END : 1/20/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Clean sand with gravel (SP), light brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 2-inches diameter.	
2		Interval 0.5 to 2 ft bgs no logged.	
3		Clean sand with gravel (SP), light brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 2-inches diameter, trace wood debris.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC6-3	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/20/2016
END : 1/20/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Clean sand with gravel (SP), medium brown, loose, moist, sand is medium grained and poorly sorted, gravel 0.25 to 2-inches diameter.	
2			
3		Interval 0.5 to 2 ft bgs not logged.	Total Depth at 3 ft below ground surface
4		Clean sand with gravel (SP), medium brown, loose, moist, sand is medium grained and poorly sorted, gravel 0.25 to 2-inches diameter, trace cobbles to 4-inches diameter.	
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC6-4	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/20/2016
END : 1/20/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Clean sand with gravel (SP), medium brown, loose, sand is medium grained, poorly graded, gravel 0.25 to 1-inch diameter.	
2		Interval 0.5 to 2 ft bgs no logged.	
3		Clean sand with trace gravel (SP), sand is medium grained and poorly graded, loose, moist, medium brown, gravel to 1-inch diameter.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC6-5	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/19/2016
END : 1/19/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP), light brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 1-inch diameter.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Clean sand with gravel (SP), light brown, loose, moist, sand is fine grained and poorly graded, gravel 0.5 to 1.5-inch diameter.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC6-7	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/19/2016
END : 1/19/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 2-inches diameter.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Clean sand with gravel (SP), light brown, loose, moist, sand is medium grained and poorly graded, gravel 0.25 to 2-inches diameter.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC6-8	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/25/2016
END : 1/25/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP), light brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 1-inch diameter.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Clean sand with trace gravel (SP), light brown, loose, moist, sand is medium grained, poorly graded, gravel is 0.25-inch diameter.	
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5		Interval 3 to 5 ft bgs not logged.	
6		Clean sand with trace gravel (SP), light brown, loose, moist, sand is medium grained, poorly graded, gravel is 0.25 to 1-inch diameter.	
7		Interval 6 to 7 ft bgs not logged.	
8		Clean sand with trace gravel (SP), light brown, loose, moist, sand is medium grained, poorly graded, gravel is 0.25 to 1-inch diameter.	Total Depth at 8 ft below ground surface Drilling terminated at 8 ft bgs on refusal.
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC7-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/6/2016
END : 1/6/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 1-inch diameter.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Silty sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 1-inch diameter.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC7-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/6/2016
END : 1/6/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 2-inches diameter.	
2			Interval 0.5 to 2-ft bgs not logged.	
3			Silty sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 2-inches diameter.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC7-3	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/9/2015
END : 12/9/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Sand with gravel (SP), 90% medium grained sand, moist, loose, poorly graded, 10% 1 to 3-inch diameter angular gravel.	
2			Interval 0.5 to 2 ft bgs not logged.	
3			Sand with gravel (SP), 90% medium grained sand, moist, loose, poorly graded, 10% 1 to 3-inch diameter angular gravel.	Total Depth at 3 ft below ground surface
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ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC7-4	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/9/2015
END : 12/9/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty sand with gravel (SM), 60% silty sand, poorly graded, dense, moist, 40% 1 to 4-inch diameter angular gravel.	
2			Interval 0.5 to 2 ft bgs not logged.	
3			Silty sand with gravel (SM), 60% silty sand, poorly graded, dense, moist, 40% 1 to 4-inch diameter angular gravel.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC7-5	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/6/2016
END : 1/6/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 1-inch diameter.	
2		Interval 0.5 to 2-ft bgs no logged.	
3		Silty sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 1-inch diameter.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC8-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/7/2016
END : 1/7/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 1-inch diameter.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Silty sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 1-inch diameter.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: AOC8-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/9/2015
END : 12/9/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Sand with gravel (SP), 90% medium grained, poorly graded moist sand, loose, 10% 1-inch diameter angular gravel.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Sand with gravel (SP), 90% medium grained, poorly graded moist sand, loose, 10% 1-inch diameter angular gravel.	Total Depth at 3 ft below ground surface
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CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC9-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100374.8 N, 7615472.5 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Long Reach Excavator

WATER LEVELS : N/A START : 10:10:00 AM 10/1/2008 END : 10:40:00 AM 10/1/2008 LOGGER : T. Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		3.0		GRAVELLY SILT (ML) with sand: light brown, loose consistency, dry, no odor, coarse fraction rounded and angular.	Pothole terminated at 3 ft and backfilled.
				WELL-GRADED SAND (SW) with gravel: light brown sand: well-graded, gravel with 90% angular, 10% rounded, few cobbles.	
				Total Depth at 3 ft below ground surface	
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CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC9-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100366.7 N, 7615484.4 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Excavator

WATER LEVELS : N/A START : 2:10:00 PM 10/1/2008 END : 2:25:00 PM 10/1/2008 LOGGER : T. Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		3.0		SILTY SAND (SM) with gravel: light brown, poorly graded, dry, no odor. Surface is crusty cemented sand/gravel layer, easily disrupted, 15% gravel.	Excavation terminated at 3 ft. Pothole backfilled.
				SILTY SAND (SM) with gravel: light brown, poorly graded, dry, no odor, 5% gravel.	
				Total Depth at 3 ft below ground surface	
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CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC9-3	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100353.7 N, 7615484.4 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Excavator

WATER LEVELS : N/A START : 1:45:00 PM 9/18/2008 END : 2:00:00 PM 9/18/2009 LOGGER : T. Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		3.0		SILTY SAND (SM) with gravel: light brown, poorly graded, dry, no odor, loose consistency, 15% gravel.	PG&E concerned about location of buried storm water pipe- pothole moved slightly to miss drain. Excavation terminated at 3 ft. Pothole backfilled.
				SILTY SAND (SM) with gravel: light brown, poorly graded, loose consistency, 5% gravel.	
				Total Depth at 3 ft below ground surface	
5					
10					
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC9-4 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100354.9 N, 7615501.2 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Excavator

WATER LEVELS : N/A START : 3:30:00 PM 9/18/2008 END : 3:45:00 PM 9/18/2008 LOGGER : T. Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		3.0		SANDY SILT (ML) with gravel to cobbles: light brown, rounded and angular, matted organic material on surface with roots extending to approx 18".	Pothole terminated at 3 ft and backfilled.
				Total Depth at 3 ft below ground surface	
5					
10					
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC9-5	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100337.9 N, 7615454.4 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Long Reach Excavator

WATER LEVELS : N/A START : 2:20:00 PM 10/1/2008 END : 2:40:00 PM 10/1/2008 LOGGER : T. Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		3.0		SILTY SAND (SM) with gravel and cobbles: light brown, poorly graded, concrete debris at surface and throughout pothole.	Pothole terminated at 3 ft and backfilled.
				Total Depth at 3 ft below ground surface	
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CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC9-6	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100338.3 N, 7615478.4 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Excavator

WATER LEVELS : N/A START : 4:10:00 PM 9/18/2008 END : 4:30:00 PM 9/18/2008 LOGGER : T. Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		3.0		SANDY SILT (ML) with gravel and cobbles: light brown,top 18" cemented, easily disrupted, dry, no odor.	Pothole terminated at 3 ft and backfilled.
				POORLY-GRADED SAND (SP): light brown, poorly graded, rounded and angular.	
				Total Depth at 3 ft below ground surface	
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10					
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CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC9-7	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100341.6 N, 7615499.1 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Excavator

WATER LEVELS : N/A START : 1:00:00 PM 9/18/2008 END : 1:15:00 PM 9/18/2008 LOGGER : T. Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		3.0		SILTY SAND (SM) with gravel: light brown, poorly graded, dry, no odor, loose consistency.	Pothole terminated at 3 ft and backfilled.
				SILTY SAND (SM) with gravel: light brown, poorly graded, dry, no odor, loose consistency.	
				Total Depth at 3 ft below ground surface	
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CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC9-8	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100360.1 N, 7615461.0 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Long Reach Excavator

WATER LEVELS : N/A START : 11:50:00 AM 10/1/2009 END : 12:30:00 PM 10/1/2008 LOGGER : T. Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	6.0	SANDY SILT (ML) with gravel: light brown, cobbles and debris, coarse fraction angular and rounded, large chunks of concrete throughout pothole.	Pothole terminated at 6 ft and backfilled.
5		Total Depth at 6 ft below ground surface	
10			
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC9-9	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100353.7 N, 7615472.8 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Long Reach Excavator

WATER LEVELS : N/A START : 10:45:00 AM 10/1/2008 END : 11:30:00 AM 10/1/2008 LOGGER : T. Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	6.0	GRAVELLY SILT (ML) with sand: light brown, concrete rubble.	Pothole terminated at 6 ft and backfilled.
5		Total Depth at 6 ft below ground surface	
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CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC9-10	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100328.7 N, 7615447.0 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Long Reach Excavator

WATER LEVELS : N/A START : 4:30:00 PM 10/1/2008 END : 4:41:00 PM 10/1/2008 LOGGER : T. Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		3.0		SILTY SAND (SM) with gravel and cobbles: light brown, poorly graded, concrete debris.	Pothole terminated at 3 ft and backfilled.
				Total Depth at 3 ft below ground surface	
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CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC9-11	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100324.9 N, 7615464.2 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Excavator

WATER LEVELS : N/A START : 4:40:00 PM 10/1/2008 END : 5:00:00 PM 10/1/2008 LOGGER : T. Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		3.0		SANDY SILT (ML) with gravel and cobbles: light brown,very loose, dry, angular, no odor.	Pothole terminated at 3 ft and backfilled.
				Total Depth at 3 ft below ground surface	
5					
10					
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC9-12	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100308.9 N, 7615436.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Excavator

WATER LEVELS : N/A START : 3:05:00 PM 10/1/2008 END : 3:51:00 PM 10/1/2008 LOGGER : T. Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		3.0		SILTY SAND (ML): with gravel and cobbles: light brown, poorly graded, concrete debris throughout	Pothole terminated at 3 ft and backfilled.
				Total Depth at 3 ft below ground surface	
5					
10					
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC9-13	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100304.5 N, 7615455.9 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Excavator

WATER LEVELS : N/A START : 9:00:00 AM 9/19/2008 END : 9:10:00 AM 9/19/2008 LOGGER : T. Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		3.0		POORLY-GRADED SAND (SW) with gravel: light brown, poorly graded, vegetation roots from 0.0 to 2.5 ft. 20% gravel. Small pieces of wood and metal at 2.5 ft bgs.	Pothole terminated at 3 ft and backfilled.
				Total Depth at 3 ft below ground surface	
5					
10					
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: AOC9-14	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (N, E)

ELEVATION : ft. () DRILLING CONTRACTOR : Turnkey Construction

DRILLING METHOD AND EQUIPMENT : Excavation, Long Reach Excavator

WATER LEVELS : N/A START : 8:35:00 AM 10/2/2008 END : 8:50:00 AM 10/2/2008 LOGGER : T. Frank

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		3.0		Surface sample of white accreted gravelly material. One sample contained white fibrous gravel size piece.	Pothole terminated at 3 ft and backfilled.
				SILTY SAND (SM) with gravel: light brown, concrete rubble.	
				Total Depth at 3 ft below ground surface	
5					
10					
15					

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC9-15	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Northstar Environmental Remediation
WATER LEVELS : Not Encountered
START : 12/6/2015
END : 12/6/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Sand with Gravel (SP), 70% medium to fine grained sand, poorly graded, 30% 1 to 3-inch angular gravel	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Sand with Gravel (SP), 70% medium to fine grained sand, poorly graded, 30% 1 to 3-inch angular gravel	
4		Interval 3 to 4 ft bgs not logged.	Total Depth at 4 ft below ground surface Boring refusal at 4 feet on a boulder.
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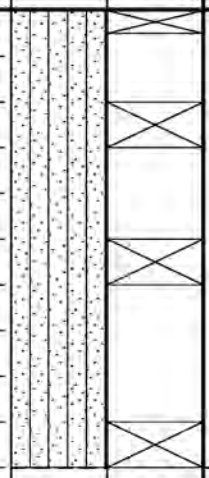
ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC9-16	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/13/2016
END : 1/13/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–10		Silty Sand with Gravel (SM), 30% gravel, 50% sand, 20% fines, dark yellowish brown (10YR 4/4), dry, loose, poorly graded, subangular gravel	Total Depth at 10 ft below ground surface
11–30			

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC9-18	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/10/2016
END : 1/10/2016
APPROVED BY : M. Cavaliere

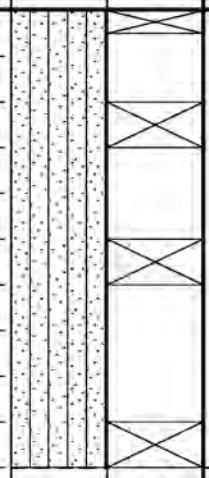
DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–4			Interval 0 to 5 ft bgs not logged.	
5–6			Silty Sand with Gravel (SP), medium brown, loose, dry, sand is fine to coarse, gravel is 0.25 to 2-inches diameter.	
7–9			Interval 6 to 9 ft bgs not logged.	
10			Silty Sand with Gravel (SP), medium brown, loose, dry, sand is fine to coarse, gravel 0.25 to 3-inches diameter.	Total Depth at 10 ft below ground surface Refusal at 10 feet on cobbles
11–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: AOC9-19	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Backhoe
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS : Not Encountered
START : 1/13/2016
END : 1/13/2016
APPROVED BY : M. Cavaliere

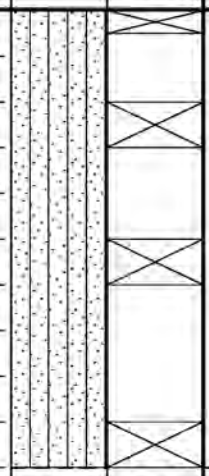
DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–10		Silty Sand with Gravel (SM), 30% gravel, 50% sand, 20% fines, dark yellow brown (10YR 4/4), dry, loose, poorly graded, gravel is subangular	Total Depth at 10 ft below ground surface
11–30			

ch2m

PROJECT NUMBER: 666665	LOCATION: AOC9-20	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/13/2016
END : 1/13/2016
APPROVED BY : M. Cavaliere

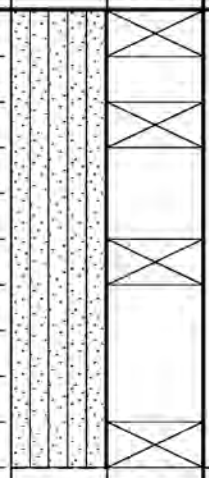
DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–10		Silty Sand with Gravel (SM), 30% gravel, 50% sand, 20% fines, dark yellow brown (10YR 4/4), dry, very loose, poorly graded	Total Depth at 10 ft below ground surface
11–30			

ch2m.

PROJECT NUMBER: 666665	LOCATION: PA-08	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/12/2016
END : 1/12/2016
APPROVED BY : M. Cavaliere

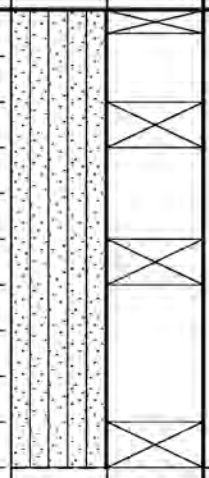
DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–10		Silty sand with gravel (SM): dark yellowish brown (10YR 4/4), slightly dense, dry, poorly graded, gavel is subangular, 30% gravel, 50% sand, 20% fines.	Total Depth at 10 ft below ground surface
11–30			

ch2m.

PROJECT NUMBER: 666665	LOCATION: SD-01	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/13/2016
END : 1/13/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–10		Silty sand with gravel (SM): dark yellowish brown (10YR 4/4), dry, loose, poorly graded, gavel is subangular, 30% gravel, 50% sand, 20% fines.	Total Depth at 10 ft below ground surface
11–30			

ch2m.

PROJECT NUMBER: 666665	LOCATION: SD-02	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS : Not Encountered
START : 11/10/2015
END : 11/10/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Well graded gravel with cobbles (GW): 60% fine to coarse gravel, 30% cobbles up to 3-inches in diameter, subangular, 10% silt to fine sand.	
2				
3				Total Depth at 3 ft below ground surface Refusal at 3-ft bgs due to large cobbles.
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ch2m.

PROJECT NUMBER: 666665	LOCATION: SD-03	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS : Not Encountered
START : 11/10/2015
END : 11/10/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Cobbles with gravel: 60% cobbles, 2to 6 inch diameter, 25% coarse gravel, 15% silt with some fine sand	
2				
3				Total Depth at 3 ft below ground surface large cobbles throughout, refusal at 3-ft bgs.
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ch2m.

PROJECT NUMBER: 666665	LOCATION: SD-04	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS : Not Encountered
START : 11/10/2015
END : 11/10/2015
APPROVED BY : M. Cavaliere

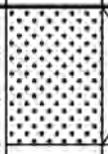
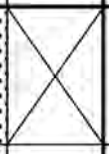
DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–3			Well graded gravel with sand (GW): 60% fine to coarse subangular gravel, 30% fine sand and silt, 10% cobbles up to 6-inches in diameter.	Total Depth at 3 ft below ground surface Refusal at 3-ft bgs
4–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: SD-05	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS : Not Encountered
START : 11/10/2015
END : 11/10/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Well graded sand with silt and gravel (SW): 60% fine to medium sand, 15% silt, 15% coarse gravel, 10% cobbles up to 3-inches in diameter.	Roots present. Total Depth at 3 ft below ground surface Refusal at 3-ft bgs due to roots
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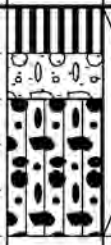
ch2m.

PROJECT NUMBER: 666665	LOCATION: SD-06	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS : Not Encountered
START : 11/10/2015
END : 11/10/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silt with gravel (MH): light brown in color, 50% silt, 20% gravel up to 2-inches in diameter, 20% fine sand.	
2		Well graded gravel (GW): fine to coarse, subangular.	
3		Well graded gravel with silt (GM): 50% gravel up to 2-inches in diameter, 25% silt, 20% medium sand, 5% cobbles.	
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5			Total Depth at 5 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: SD-07	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered.
START : 12/17/2015
END : 12/17/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 2 inches.	
2		Interval 0.5 to 2.0 ft bgs not logged.	
3		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 2 inches.	
4		Interval 3.0 to 5.0 ft bgs not logged.	
5			
6		Silty sand with gravel (SP): light brown, loose, moist, sand is medium grained, poorly graded, gravel 1/4 to 1 inches.	
7		Interval 6.0 to 8.0 ft bgs not logged.	
8			
9		Silty sand (SP): light brown, loose, moist, sand is medium and poorly graded.	Total Depth at 9 ft below ground surface
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ch2m.

PROJECT NUMBER: 666665	LOCATION: SD-08	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS : Not Encountered
START : 11/11/2015
END : 11/11/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Well graded sand with silt and cobbles (SW): 60% fine to medium sand, 30% silt, 10% subangular gravel to cobbles up to 6-inches in diameter	Total Depth at 3 ft below ground surface Refusal at 3-ft bgs due to cobbles.
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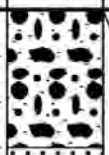
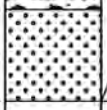
ch2m.

PROJECT NUMBER: 666665	LOCATION: SD-09	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS : Not Encountered
START : 11/10/2015
END : 11/10/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–3			Poorly graded gravel with silt (GP): 70% 1 to 2-inch diameter angular gravel as slope material, 20% silt, 10% fine sand.	
4–5			Well graded sand with gravel (SW): 60% fine to medium sand, 25% well graded gravel up to 2-inches in diameter, 15% silt.	Total Depth at 5 ft below ground surface
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ch2m.

PROJECT NUMBER: 666665	LOCATION: SD-10	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS : Not Encountered
START : 11/10/2015
END : 11/10/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Cobbles with silt and sand: 70% subangular to subrounded cobbles from 4 to 6-inches in diameter, 20% fine to coarse sand, loose, 10% silt.	Total Depth at 3 ft below ground surface Refusal due to large cobbles.
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ch2m.

PROJECT NUMBER: 666665	LOCATION: SD-11	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS : Not Encountered
START : 3/7/2016
END : 3/7/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Well graded sand with cobbles.	
2				
3			Increasing cobbles with depth.	
4				Total Depth at 4 ft below ground surface Boring refusal at 4 feet below ground surface.
5			Large cobbles.	
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ch2m.

PROJECT NUMBER: 666665	LOCATION: SD-12	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS : Not Encountered
START : 11/10/2015
END : 11/10/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–3			Cobbles with sand: 80% large subangular cobbles up to 16-inches in diameter, 15% fine sand, 5% silt, silt and sand is between large cobbles.	Total Depth at 3 ft below ground surface Refusal due to large cobbles.
4–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: SD-13	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS : Not Encountered.
START : 11/10/2015
END : 11/10/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Cobbles with sand and gravel: 70% angular cobbles to boulders, up to 20-inches long. gravel and sand between cobbles, 15% coarse gravel up to 2-inches in diameter, 10% sand, 5% silt.	Total Depth at 3 ft below ground surface Refusal due to large cobbles.
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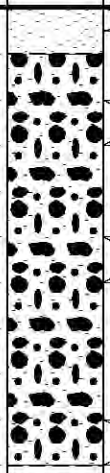
ch2m

PROJECT NUMBER: 666665	LOCATION: SD-14	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/11/2016
END : 1/11/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Sand (SP): dark yellowish brown (10YR 4/4), moist, loose, poorly graded, 5% gravel, 95% sand.	
2			Gravel with sand (GP): dark yellowish brown (10YR 4/4), moist, loose, poorly graded, 60% gravel, 30% sand, 10% fines, gravel is 1 to 3 inches and subangular, minor cobbles, mixed mineralogy.	
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10				Total Depth at 10 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: SD-15	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/12/2016
END : 1/12/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–10			Gravel with sand (GP): dark yellowish brown (10YR 4/4), slightly moist, loose, poorly graded, angular gravel, 60% gravel, 35% sand, 5% fines.	Total Depth at 10 ft below ground surface
11–30				

ch2m

PROJECT NUMBER: 666665	LOCATION: SD-16	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/12/2016
END : 1/12/2016
APPROVED BY : M. Cavaliere

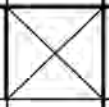
DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–10			Gravel with sand (GP): dark yellowish brown (10YR 4/4), slightly moist, loose, poorly graded, angular gravel, 60% gravel, 35% sand, 5% fines.	Total Depth at 10 ft below ground surface
11–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: SD-17	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS : Not Encountered.
START : 12/17/2015
END : 12/17/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silt with gravel (MH): gravel is 1/2 to 1-inch in diameter at the surface, 70% reddish brown silt, 20% angular gravel, 10% sand.	Total Depth at 2 ft below ground surface Samples collected underneath the storm drain pipe, at the 45-degree elbow joint. Refusal on large cobble at 2-ft bgs.
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ch2m

PROJECT NUMBER: 666665	LOCATION: SD-19	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Backhoe
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS : Not Encountered.
START : 1/13/2016
END : 1/13/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–8		Cobbles with sand: 80% cobbles from3 to12-inches in diameter, 20% sand with silt. Well graded gravel (GW): 75% angular gravel from 1/2 to 2-inches in diameter, 15% sand and silt, 10% cobbles. Silt with gravel (MH): 65% silt, 20% gravel from 1 to 3-inches in diameter, 10% fine to coarse sand, 5% cobbles up to 10-inches in diameter. Large cobbles/boulders with silt and sand, boulders up to 24-inches in diameter, 30% sand and silt.	Total Depth at 8.5 ft below ground surface Refusal at 8.5-ft bgs due to large boulders.
9–30			

ch2m.

PROJECT NUMBER: 666665	LOCATION: SD-20	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS : Not Encountered.
START : 11/11/2015
END : 11/11/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Well graded gravel with cobbles (GW): 70% fine to coarse angular to subangular gravel up to 3-inches in diameter, 15-20% subangular cobbles up to 16-inches in diameter, 10-15% sand and silt.	Located at break in the storm drain line #9 where storm water would discharge onto the ground/slope.
2				
3				Total Depth at 3 ft below ground surface Refusal at 3-ft bgs due to cobbles.
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ch2m.

PROJECT NUMBER: 666665	LOCATION: SD-21	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS :
START : 3/10/2016 END : 3/10/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Well Graded Sand with Silt and Cobbles (SW): 70% fine to medium sand, 30% gravel to cobbles up to 3", roots present	
2			
3			Total Depth at 3 ft below ground surface Boring terminated at 3 feet below surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: SD-24	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Hand Tools
EQUIPMENT OPERATOR : Groundwater Partners
WATER LEVELS :
START : 3/9/2016 END : 3/9/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Well Graded Sand with Gravel (SW): 70% fine to medium sand, loose, 30% coarse gravel up to 1" diameter, gravel is subround to subangular	
2			
3			Total Depth at 3 ft below ground surface Boring terminated at 3 feet below surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: SWMU11-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/19/2016
END : 1/19/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Clean sand with gravel (SP), medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.5 to 1-inch diameter.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Clean sand with trace gravel (SP), light brown, loose, moist, sand is medium grained, poorly graded, gravel 0.5 to 1-inch diameter.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: SWMU11-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/26/2016
END : 1/26/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SP), light brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 1-inch diameter.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Clean sand with gravel (SP), light brown, loose, moist, sand is medium grained, poorly graded, gravel 0.5 to 2-inches diameter.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: SWMU11-3	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/19/2016
END : 1/19/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2		Clean sand with gravel (SP), medium brown, loose, moist, sand is medium grained and poorly graded gravel 0.25 to 1.5-inch diameter.	
3		Interval 0.5 to 2 ft bgs not logged.	Total Depth at 3 ft below ground surface
4–5		Clean sand with gravel (SP), medium brown, loose, moist, sand is medium grained and poorly graded gravel 0.25 to 3-inches diameter, cobbles to 5-inches diameter.	
6–30			

ch2m.

PROJECT NUMBER: 666665	LOCATION: SWMU11-4	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/25/2016
END : 1/25/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with gravel (SW), light brown, sand is fine to coarse grained, loose, dry, gravel 0.25 to 3-inches diameter.	
2		Interval 0.5 to 2 ft bgs not logged.	
3		Silty sand with gravel (SW), light brown, sand is fine to coarse grained, loose, dry, gravel 0.25 to 3-inches diameter.	Total Depth at 3 ft below ground surface
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ch2m

PROJECT NUMBER: 666665	LOCATION: SWMU11-5	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 1/20/2016
END : 1/20/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2		Clean sand with gravel (SP), medium brown, loose, moist, sand is medium grained and poorly graded, gravel 0.5 to 2-inches diameter.	
3		Interval 0.5 to 2 ft bgs not logged.	Total Depth at 3 ft below ground surface
4–5		Clean sand with gravel (SP), medium brown, loose, moist, sand is medium grained and poorly graded, gravel 0.5 to 2-inches diameter, trace plastic debris.	
6–30			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-1 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100919.3 N, 7614876.0 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : N/A START : 8:14:00 AM 10/16/2008 END : 8:25:00 AM 10/16/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0			SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4) (40% gravel /40% sand/20% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size =50mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100875.9 N, 7614843.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : N/A START : 2:18:00 PM 10/15/2008 END : 2:30:00 PM 10/15/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0			SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4) (40% gravel/40% sand/20% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size =50mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-3	SHEET 1 OF 6

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100845.7 N, 7614831.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : 77 ft bgs START : 10:24:00 AM 10/6/2008 END : 9:15:00 AM 10/7/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0		SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/3), (40% gravel/40% sand/20% fines), poorly graded, subangular, no dominant mineralogy, loose density, clast/matrix-supported, dry, max clast size =50mm.	Drill rate steady. Borehole integrity sound. Backfilled with slurry grout. Objective is to reach groundwater.
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CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-3	SHEET 2 OF 6

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100845.7 N, 7614831.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : 77 ft bgs START : 10:24:00 AM 10/6/2008 END : 9:15:00 AM 10/7/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
20			
		POORLY GRADED GRAVEL(GP) with sand: brown (10YR 5/4), (60% gravel/40% sand/0% fines), poorly graded, subangular, no dominant mineralogy, loose density, clast-supported, dry, max clast size =40mm.	
25			
30			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-3	SHEET 3 OF 6

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100845.7 N, 7614831.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : 77 ft bgs START : 10:24:00 AM 10/6/2008 END : 9:15:00 AM 10/7/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		SILTY GRAVEL (GM) with sand: brown (10YR 5/3), (40% gravel/20% sand/40% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size =30mm.	
		POORLY GRADED SAND (SP-SM) with silt and gravel: brown (10YR 5/3), (40% gravel/50% sand/10% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size =40mm.	
35			
40	80.0		
		POORLY GRADED SAND (SP-SM) with silt: reddish brown (5YR 5/4), (10% gravel/80% sand/10% fines), poorly graded, subangular, no dominant mineralogy, predominantly fine grained sand, loose density, matrix-supported, dry, max clast size=10 mm.	
45			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-3	SHEET 4 OF 6

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100845.7 N, 7614831.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : 77 ft bgs START : 10:24:00 AM 10/6/2008 END : 9:15:00 AM 10/7/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
50		SILTY SAND (ML) with gravel: brown (10YR 5/3), (30% gravel/30% sand/40% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size=20 mm.	
		SILTY SAND (SM): reddish brown (5YR 4/4), (10% gravel/70% sand/20% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size=20mm.	
55			
60			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-3	SHEET 5 OF 6

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100845.7 N, 7614831.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : 77 ft bgs START : 10:24:00 AM 10/6/2008 END : 9:15:00 AM 10/7/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
65			Drilling stopped 10/6/08 at 16:30. Drilling resumed 10/7/08 at 08:05.
70		SANDY SILT (ML): reddish brown (5YR 4/4)(10% gravel/20% sand/70% fines), poorly graded, subangular to subrounded, no dominant mineralogy but larger clay component, loose to medium density, matrix-supported, moist, max clast size=10mm. 70 ft bgs: weathered bedrock.	
75			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-3	SHEET 6 OF 6

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100845.7 N, 7614831.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : 77 ft bgs START : 10:24:00 AM 10/6/2008 END : 9:15:00 AM 10/7/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
80		SILTY SAND (SM): dark reddish brown (5YR 3/3), (10% gravel/70% sand/20% fines), poorly graded, subangular to subrounded, no dominant mineralogy, predominantly medium-grained sand, loose density, matrix-supported, saturated, max clast size=10mm. 77 ft bgs: groundwater encountered. Total Depth at 80 ft below ground surface	
85			
90			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-4	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100786.2 N, 7614796.2 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : N/A START : 1:30:00 PM 10/15/2008 END : 1:56:00 PM 10/15/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5				SILTY GRAVEL(GM) with sand: yellowish brown (10YR 5/4)(40% gravel/40% sand/20% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size=50mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10	14.0			Total Depth at 14 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-5	SHEET 1 OF 2

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100808.4 N, 7614826.2 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : N/A START : 9:54:00 AM 10/15/2008 END : 10:35:00 AM 10/15/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5				SILTY GRAVEL(GM) with sand: yellowish brown (10YR 5/4), (40% gravel/40% sand/20% fines), poorly graded, no dominant mineralogy, subangular, loose density, matrix-supported, dry, max clast size =50mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10	20.0				
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-5	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100808.4 N, 7614826.2 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : N/A START : 9:54:00 AM 10/15/2008 END : 10:35:00 AM 10/15/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
20		Total Depth at 20 ft below ground surface	
25			
30			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-6	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100747.0 N, 7614782.8 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : N/A START : 12:58:00 PM 10/15/2008 END : 1:10:00 PM 10/15/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0			SILTY GRAVEL(GM) with sand: yellowish brown (10YR 5/4), (40% gravel/40% sand/20% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size =50 mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-7	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100742.0 N, 7614810.4 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : N/A START : 8:00:00 AM 10/15/2008 END : 8:18:00 AM 10/15/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0			SILTY GRAVEL(GM) with sand: yellowish brown (10YR 5/4), (40% gravel/40% sand/20% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size =50mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-8	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100703.7 N, 7614783.8 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : N/A START : 9:16:00 AM 10/15/2008 END : 12:04:00 AM 10/15/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0			SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4), (40% gravel/40% sand/20% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size =50 mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-9	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100683.9 N, 7614779.1 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : N/A START : 2:01:00 PM 10/14/2008 END : 2:19:00 PM 10/14/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0			SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4), (40% gravel/30% sand/30% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size =50mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-10 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100669.6 N, 7614740.0 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : N/A START : 1:32:00 PM 10/14/2008 END : 1:48:00 PM 10/14/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0	10.0		SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4), (40% gravel/30% sand/30% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size = 50 mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-11 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100695.9 N, 7614799.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : N/A START : 8:38:00 AM 10/15/2008 END : 8:54:00 AM 10/15/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0			SILTY GRAVEL (GM) with sand:yellowish brown (10YR 5/4), (40% gravel/40% sand/20% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size =50mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-12 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100634.7 N, 7614741.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : N/A START : 9:43:00 AM 10/14/2008 END : 10:02:00 AM 10/14/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0			SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4), (40% gravel/30% sand/30% fines),poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size =50mm	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-13 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100628.6 N, 7614759.5 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : N/A START : 10:14:00 AM 10/14/2008 END : 10:29:00 AM 10/14/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0			SILTY GRAVEL (GM) with sand: yellowish brown, (10YR 5/4), (40% gravel/30% sand/30% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size = 50 mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-14	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100588.6 N, 7614750.2 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : N/A START : 9:04:00 AM 10/14/2008 END : 9:19:00 AM 10/14/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0	10.0		SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4), (40% gravel/30% sand/30% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size = 50 mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10				Total Depth at 10 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-15	SHEET 1 OF 6

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100510.3 N, 7614763.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : 80 ft bgs START : 8:49:00 AM 9/22/2008 END : 9:44:00 AM 9/23/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5		SILTY GRAVEL (GM): yellowish brown (10YR 5/4), (50% gravel/10% sand/40% fines), poorly graded, subangular to angular, no dominant mineralogy, sand is fine-grained only, loose to medium density to five ft bgs, moderate to dense sand to 10 ft bgs, loose to medium density to 28 ft bgs, clast-or-matrix supported (varied), dry, max clast size =50mm.	Purpose of boring is to establish lithology to groundwater and/or to bedrock, not to exceed 100 ft bgs. Drill rates varied but met refusal at 90 feet bgs. Borehole integrity supplemented by 6" steel casing. Casing advanced to 70 ft bgs by end of 9/22/08 while boring advanced to 80 feet bgs by end of 9/22/08. Borehole caved in below 70 ft bgs by start of day 9/23/08. Water encountered at 80 ft bgs. Nearby well yielded groundwater level of 78 ft bgs. No presence of dark reddish-brown miocene conglomerate at this location. bedrock is granitic in nature.
10			
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-15	SHEET 2 OF 6

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100510.3 N, 7614763.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : 80 ft bgs START : 8:49:00 AM 9/22/2008 END : 9:44:00 AM 9/23/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
20			
25			
30		SILT (ML): reddish brown (5YR 5/4)(10% gravel/10% sand/80% fines), poorly graded, subangular, no dominant mineralogy, loose to medium density, matrix-supported, dry, max clast size=40mm.	

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-15	SHEET 3 OF 6

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100510.3 N, 7614763.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : 80 ft bgs START : 8:49:00 AM 9/22/2008 END : 9:44:00 AM 9/23/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
35		SILT (ML) with sand: yellowish brown (10YR 5/4)(10% gravel/10% sand/80% fines), poorly graded, subangular, no dominant mineralogy, loose to medium density, matrix-supported, dry, max clast size=80mm.	
40		SILTY GRAVEL (GM): reddish brown (5YR 5/4), (50% gravel/10% sand/40% fines), poorly graded, subangular to angular, no dominant mineralogy, loose to medium density, clast-or-matrix supported (varied), dry, max clast size =80mm.	
45			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-15	SHEET 4 OF 6

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100510.3 N, 7614763.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : 80 ft bgs START : 8:49:00 AM 9/22/2008 END : 9:44:00 AM 9/23/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
90.0			
		POORLY GRADED GRAVEL (GP-GM) with silt and sand: reddish brown (5YR 5/4)(50% gravel/40% sand/10% fines), poorly graded, angular to subangular, no dominant mineralogy, loose to medium density, clast-or-matrix supported (varied), dry, max clast size =40mm.	
50		SILT (ML) with sand: reddish brown (5YR 4/3), (0% gravel/25% sand/75% fines), poorly graded, angular to subangular, no dominant mineralogy, predominantly fine-grained sand, loose to medium density, matrix-supported, dry, max clast size =80 mm.	
55		SILTY GRAVEL (GM) with sand: reddish brown (5YR 5/4), (30% gravel/40% sand/30% fines), poorly graded, angular to subangular, no dominant mineralogy, fine-grained sand, loose to medium density, matrix-supported, dry, max clast size = 80 mm.	
60			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-15	SHEET 5 OF 6

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100510.3 N, 7614763.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : 80 ft bgs START : 8:49:00 AM 9/22/2008 END : 9:44:00 AM 9/23/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
65			
70		SILTY GRAVEL (GM) with sand: reddish brown (5YR 4/3), (30% gravel/40% sand/30% fines), poorly graded, subangular, no dominant mineralogy, fine-to medium grained sand, loose to medium density, matrix-supported, dry, max clast size = 50 mm.	
75		SILT (ML) with sand: brown (7.5YR 4/3), (10% gravel/10% sand/80% fines), higher content of clay, poorly graded, subangular to highly angular, no dominant mineralogy, soft clay and loose density, sand and silt, matrix-supported, moist, max clast size = 100 mm.	

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-15	SHEET 6 OF 6

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100510.3 N, 7614763.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : 80 ft bgs START : 8:49:00 AM 9/22/2008 END : 9:44:00 AM 9/23/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
80			
		Bedrock (BR): granitic, fragments are highly angular; presence of rock dust, brittle from 81.0-85.0 feet bgs.	
85			
		Total Depth at 90 ft below ground surface	
90			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-16 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100448.0 N, 7614749.7 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : N/A START : 10:35:00 AM 9/21/2008 END : 11:36:00 AM 9/21/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	9.0	POORLY GRADED GRAVEL (GP-GM): with silt and sand: yellowish brown (10YR 5/4),(55% gravel/35% sand/10% fines), poorly graded, subangular to subrounded, no dominant mineralogy, loosely consolidated, clast-supported, dry, max clast size= 80mm.	Drill rate quick up to 7 ft bgs zone where drill rig encountered a granite boulder. Moved rig approximately 2.0 feet due south and encountered granite boulder at 8.5 feet bgs. Borehole integrity was sound. Backfilled borehole with hydrated medium bentonite chips.
10		Total Depth at 9 ft below ground surface 8.5 feet bgs: granite boulder encountered, refusal at 9.0 feet bgs.	
15			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-17	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100456.0 N, 7614782.9 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : N/A START : 9:23:00 AM 9/21/2008 END : 10:07:00 AM 9/21/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	10.0			SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4), (50% gravel/15% sand/35% fines), poorly graded, subangular, no dominant mineralogy, loosely consolidated, clast-supported, dry, max clast size=50 mm.	Drill rate slow at approx 1.5 bgs, otherwise quick. Borehole integrity was sound. Borehole backfilled with hydrated medium bentonite chips.
10				Total Depth at 10 ft below ground surface	
15					

ch2m.

PROJECT NUMBER: 666665	LOCATION: SWMU1-18	SHEET 1 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/7/2016
END : 1/8/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–10		Poorly Graded Gravel with Silt and Sand (GP-GM): light olive brown (2.5y 3/3), 60/30/10, moderate density, slightly moist, gravel is 1"-3" subangular, sand is medium to coarse and poorly graded	
11–15		Poorly Graded Sand with Silt and Gravel (SP-SM): light olive brown (2.5y 3/3), 20/70/10, poorly graded, subangular, moderately dense, slightly moist	
16–30		Silty Sand with Gravel (SM): light olive brown (2.5y 3/3), 15/65/20, poorly graded, subangular, moderately dense, slightly moist	

ch2m.

PROJECT NUMBER: 666665	LOCATION: SWMU1-18	SHEET 2 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/7/2016 END : 1/8/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
31–49			4" core barrel with 6" casing to 81 fbs
50		Silty Sand with Gravel (SM): light olive brown (2.5y 3/3). 30/40/30, poorly graded, fines are predominantly silt	
51–60			

ch2m

PROJECT NUMBER: 666665	LOCATION: SWMU1-18	SHEET 3 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/7/2016
END : 1/8/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
61				
62				
63				
64				
65				
66				
67				
68				
69				
70			Poorly Graded Sand with Gravel (SP): light olive brown, (2.5y 3/3), 20/80/0, poorly graded, subangular gravel, loose	
71				
72				
73				
74				
75				
76				
77				
78				
79				
80				
81				Total Depth at 81 ft below ground surface Boring terminated at 81 feet below surface, Backfilled with type II-V portland cement
82				
83				
84				
85				
86				
87				
88				
89				
90				

ch2m.

PROJECT NUMBER: 666665	LOCATION: SWMU1-19	SHEET 1 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/9/2016
END : 1/10/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2		Poorly Graded Gravel with Sand (GP): light olive brown, (2.5y 3/3), 60/35/5, slightly moist, loose, gravel is 1"-3" angular to subangular, poorly graded	
3–20		Poorly Graded Sand with Silt and Gravel (SP-SM): light olive brown (2.5y 3/3). 30/60/10, sand is medium to coarse grained, gravel is subangular, poorly graded	
21–30		Silty Sand with Gravel (SM): light olive brown (2.5y 3/3), 20/60/20, slightly moist, loose, sand is medium to coarse, gravel is subangular, poorly graded	

ch2m.

PROJECT NUMBER: 666665	LOCATION: SWMU1-19	SHEET 2 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/9/2016
END : 1/10/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			4" core barrel with 6" casing to 81 fbs
41			
42			
43			
44			
45			
46			
47			
48			
49			
50			
51			
52			
53			
54			
55			
56			
57			
58			
59			
60			

ch2m.

PROJECT NUMBER: 666665	LOCATION: SWMU1-19	SHEET 3 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/9/2016
END : 1/10/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
61			
62			
63			
64			
65			
66			
67			
68			
69			
70			
71			
72			
73			
74			
75			
76			
77			
78			
79			
80			
81			Total Depth at 81 ft below ground surface Boring terminated at 81 feet below surface
82			
83			
84			
85			
86			
87			
88			
89			
90			

ch2m.

PROJECT NUMBER: 666665	LOCATION: SWMU1-20	SHEET 1 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/13/2016 END : 1/14/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Well Graded Sand with Gravel (SW) dark yellow brown (10YR 4/4), 40/60/0, dry, moderately dense, well graded sand, poorly graded gravel, gravel and cobbles are subangular	
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

ch2m

PROJECT NUMBER: 666665	LOCATION: SWMU1-20	SHEET 2 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/13/2016 END : 1/14/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
31–55			4" core barrel with 6" casing to 81 fbs
55–60		Poorly Graded Gravel with Silt and Sand (GP-GM): dark yellow brown (10YR 4/4), moderately dense, dry, sand is medium to fine grained and poorly graded, gravel is poorly graded and subangular	

ch2m.

PROJECT NUMBER: 666665	LOCATION: SWMU1-20	SHEET 3 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/13/2016
END : 1/14/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
61–80			
81			Total Depth at 81 ft below ground surface Boring terminated at 81 feet below surface
82–90			

ch2m

PROJECT NUMBER: 666665	LOCATION: SWMU1-21	SHEET 1 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/26/2016
END : 1/27/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–3		Silty Gravel with Sand (GM): medium brown, 50% silt to fine sand, 50% gravel to cobbles	
4–15		Silty Gravel with Sand (GM): grey-brown to green-grey, 60% gravel to cobbles, 40% silt to fine sand	
16–30		Silty Gravel (GM): green-grey, 70% gravel to cobbles, 30% fine sand to silt	

ch2m.

PROJECT NUMBER: 666665	LOCATION: SWMU1-21	SHEET 2 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/26/2016
END : 1/27/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
31–34			
35			
36–44		Silty Gravel (GM): 70% gravel to cobbles, 25% fine sand to silt, 5% stiff lean clay, soil becoming compacted	
45			
46–60		Silty Gravel with Sand (GM): grey-brown to green-grey, 55% gravel to cobbles, 40% fine sand to silt, 5% stiff lean clay, weakly to moderately consolidated	

ch2m.

PROJECT NUMBER: 666665	LOCATION: SWMU1-21	SHEET 3 OF 3

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Rotosonic
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS :
START : 1/26/2016
END : 1/27/2016
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
61			
62			
63			
64			
65			
66		Silty Gravel (GM): gray-brown to green-grey, moderately consolidated, 70% gravel to cobbles, 25% fine sand to silt, 5% stiff lean clay	
67			
68			
69			
70			
71			
72			
73			
74			
75			Water table encountered at ~75 feet below surface
76			
77			
78			
79			
80			Total Depth at 80 ft below ground surface Boring terminated at 80 feet below surface
81			
82			
83			
84			
85			
86			
87			
88			
89			
90			

ch2m

PROJECT NUMBER: 666665	LOCATION: SWMU1-25 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California LOCATION : (N, E)

EQUIPMENT : Rotosonic EQUIPMENT OPERATOR : Cascade Drilling, L.P.

WATER LEVELS : START : 1/26/2016 END : 1/26/2016 APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–10		Silty Gravel with Sand (GM): medium brown to grey-brown, 60% gravel to cobbles, 40 silt to fine sand,	Green staining of matrix from 0'-4' below surface Total Depth at 10 ft below ground surface Boring terminated at 10 feet below surface
11–30			

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-WP-3a SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100623.2 N, 7614784.7 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : N/A START : 10:50:00 AM 10/14/2008 END : 11:15:00 AM 10/14/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5				SILTY GRAVEL (GM) with sand: yellowish brown (10YR 5/4), (40% gravel/30% sand/30% fines), poorly graded, subangular, no dominant mineralogy, loose density, matrix-supported, dry, max clast size = 50 mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
		14.0			
10					
				Total Depth at 14 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-WPt-3a SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100548.3 N, 7614781.1 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : N/A START : 8:15:00 AM 10/5/2008 END : 8:45:00 AM 10/5/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5				GRAVELLY SILT (ML): greyish brown (2.5Y 5/2), (30% gravel/10% sand/60% fines), poorly graded, subangular to subrounded, no dominant miineralogy, loose density 0-1 ft bgs, medium density 1- 5 ft bgs, loose density 5-14 ft bgs, matrix-supported, dry, max clast size= 50 mm.	Drill rate quick, constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
		14.0			
10					
				Total Depth at 14 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-WP-5a SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100598.6 N, 7614784.7 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : N/A START : 10:53:00 AM 10/5/2008 END : 11:22:00 AM 10/5/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5				GRAVELLY SILT (ML): greyish brown (2.5Y 5/2), (30% gravel/10% sand/60% fines), poorly graded, subangular to subrounded, no dominant mineralogy, loose density 0-1 ft bgs, medium density 1- 5 ft bgs, loose density 5-14 ft bgs, matrix-supported, dry, max clast size 50mm.	Drill rate quick, constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10		14.0		Total Depth at 14 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-WP-6a SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100575.6 N, 7614783.7 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic, Spider w/4" core barrel

WATER LEVELS : N/A START : 9:20:00 AM 10/5/2008 END : 10:20:00 AM 10/5/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5				GRAVELLY SILT (ML): greyish brown (2.5Y 5/2), (30% gravel/10% sand/60% fines), poorly graded, subangular to subrounded, no dominant miineralogy, loose density 0-1 ft bgs, medium density 1- 5 ft bgs, loose density 5-14 ft bgs, matrix-supported, dry, max clast size =50mm.	Drill rate quick, constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
		14.0			
10					
				Total Depth at 14 ft below ground surface	
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: SWMU1-WP-09 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100545.9 N, 7614753.1 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : ,

WATER LEVELS : N/A START : 1:30:00 PM 9/21/2008 END : 2:20:00 PM 9/21/2008 LOGGER : A. Brewster

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	14.0	SILTY GRAVEL (GM): with sand: yellowish brown (10YR 5/4),(50% gravel/25% sand/25% fines), poorly graded, angular to subangular, no dominant mineralogy, loosely consolidated, clast-supported, dry, max clast size=50mm.	Drill rate constant. Borehole integrity sound. Backfilled with hydrated medium bentonite chips.
10		Total Depth at 14 ft below ground surface	
15			

ch2m.

PROJECT NUMBER: 666665	LOCATION: SWMU5-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/8/2015
END : 12/8/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1		Silty sand with cobbles (SM): 60% poorly graded silty sand, dry very dense, 40% angular cobbles	
2		Interval 1.0 to 2.0 ft bgs not logged.	
3		Silty sand with cobbles (SM): 60% poorly graded silty sand, dry very dense, 40% angular cobbles	Total Depth at 3 ft below ground surface
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

ch2m.

PROJECT NUMBER: 666665	LOCATION: SWMU5-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/7/2015
END : 12/7/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty sand with cobbles and gravel (SM): 60% poorly graded silty sand, dry very dense, 40% 1 to 6 inch angular gravel and 6 to 12 inch cobbles	
2				
3			Interval 0.5 to 2.0 ft bgs not logged.	Total Depth at 3 ft below ground surface
4			Silty sand with cobbles and gravel (SM): 60% poorly graded silty sand, dry very dense, 40% 1 to 6 inch angular gravel and 6 to 12 inch cobbles	
5				
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ch2m

PROJECT NUMBER: 666665	LOCATION: SWMU6-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/7/2015
END : 12/7/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC / SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2		Silty sand with gravel and cobbles (SM): 60% poorly graded silty sand, very stiff/dense, 40% 4 to 8 inch gravel and 8 to 12 inch cobbles, angular.	
2–3		Interval 1.0 to 2.0 ft bgs not logged.	
3–5		Silty sand with gravel and cobbles (SM): 60% poorly graded silty sand, very stiff/dense, 40% 4 to 8 inch gravel and 8 to 12 inch cobbles, angular.	
5–6		Interval 3.0 to 5.0 ft bgs not logged. at 4 ft bgs: piece of 1-inch wrapped air compressor line.	
6–8		Silty sand with gravel and cobbles (SM): 60% poorly graded silty sand, very stiff/dense, 40% 4 to 8 inch gravel and 8 to 12 inch cobbles, angular.	Total Depth at 7.5 ft below ground surface Boring refusal at 7.5 feet below ground surface due to boulders
8–9		Interval 6.0 to 7.5 ft bgs not logged.	
10–30			

ch2m.

PROJECT NUMBER: 666665	LOCATION: SWMU8-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/9/2015
END : 12/9/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1–2			Silty sand with gravel (SM), 60% silty sand, poorly graded, moist, very dense, 40% 1 to 3-inches diameter gravel and 6 to 8-inches diameter cobbles.	
2–3			Interval 0.5 to 2 ft bgs not logged.	Total Depth at 3 ft below ground surface
3–5			Silty sand with gravel (SM), 60% silty sand, poorly graded, moist, very dense, 40% 1 to 3-inches diameter gravel and 6 to 8-inches diameter cobbles. Caliche encountered at 3 ft bgs.	
5–30				

ch2m.

PROJECT NUMBER: 666665	LOCATION: Unit4.3-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/7/2015
END : 12/7/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty sand with gravel and cobbles (SM):	
2			Interval 1.0 to 2.0 ft bgs not logged.	
3			Silty sand with gravel and cobbles (SM):	Total Depth at 3 ft below ground surface
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
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15				
16				
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28				
29				
30				

ch2m

PROJECT NUMBER: 666665	LOCATION: UNIT4.3-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL RFI/RI, Topock, California
LOCATION : (N, E)
EQUIPMENT : Vacuum Excavation
EQUIPMENT OPERATOR : Cascade Drilling, L.P.
WATER LEVELS : Not Encountered
START : 12/7/2015
END : 12/7/2015
APPROVED BY : M. Cavaliere

DEPTH BELOW GROUND SURFACE (ft)	USCS GRAPHIC	SAMPLE INTERVAL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT	COMMENTS
1			Silty sand with gravel and cobbles (SM): 60% poorly graded silty sand, very dense, 40% 1 to 6 inch angular gravel and cobbles.	
2			Interval 1.0 to 2.0 ft bgs not logged.	
3			Silty sand with gravel and cobbles (SM): 60% poorly graded silty sand, very dense, 40% 1 to 6 inch angular gravel and cobbles.	Total Depth at 3 ft below ground surface
4				
5				
6				
7				
8				
9				
10				
11				
12				
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CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: 300B-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100969.7 N, 7616611.1 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 11:55:00 AM 10/3/2008 END : 12:40:00 PM 9/21/2008 LOGGER : R.Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	2.3	SANDY SILT (ML): brown (7.5YR 5/3), dry, no odor, poorly sorted (10% gravel/30% sand/ 60% fines), max gravel diameter =8cm, angular to subangular, metamorphic.	Hand auger to 1 ft before encountering refusal. Drilled two borings in unsuccessful effort to drill down to 6 ft bgs. Encountered drilling refusal at 5 ft bgs in first drilling attempt. Encountered drilling refusal at 3 ft refusal in second drilling attempt. Backfilled with bentonite chips and hydrated.
	1.8	
5		5.0 feet bgs: refusal
		Total Depth at 5 ft below ground surface
10		
15		

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: 300B-3	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100961.1 N, 7616598.6 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 11:00:00 AM 10/3/2008 END : 11:50:00 AM 10/3/2008 LOGGER : R.Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		3.0		SANDY SILT (ML): brown (7.5YR 5/3), dry, no odor, poorly sorted (10% gravel/30% sand/ 60% fines), max gravel diameter =8cm, angular to subangular, metamorphic.	Hand auger to 1 ft before refusal. Drilled three borings approximately 1 ft apart to collect sufficient soil volume. Boring terminated at 6 ft bgs. Backfilled with bentonite chips and hydrated.
5		2.7			
				Total Depth at 6 ft below ground surface	
10					
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: 300B-4	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100958.4 N, 7616609.8 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 9:40:00 AM 10/3/2008 END : 10:55:00 AM 10/3/2008 LOGGER : R.Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	RECOVERY (ft)	SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		2.3		SANDY SILT (ML): brown (7.5YR 5/3), dry, no odor, poorly sorted (10% gravel/30% sand/ 60% fines), max gravel diameter =6cm, angular to subangular, metamorphic.	Hand auger to .5 ft before refusal. Hit refusal in first boring at 4.5 bgs. Hit refusal in 2nd boring at 5 ft bgs. Hit refusal at 2.5 ft in 3rd boring. Drilled three borings in attempt to get to 6 ft bgs.
		1.5		5.0 feet bgs: refusal	
5				Total Depth at 5 ft below ground surface	
10					
15					

CH2MHILL

PROJECT NUMBER: 354948.FP.08.FW.SC	BORING NUMBER: 300B-5	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : TOPOCK - SOIL PART A, PHASE 1, PG&E Compressor Station LOCATION : (2100969.7 N, 7616620.9 E)

ELEVATION : ft. () DRILLING CONTRACTOR : Gregg Drilling and Testing

DRILLING METHOD AND EQUIPMENT : Geoprobe, Rhino Rig

WATER LEVELS : N/A START : 8:30:00 AM 10/3/2008 END : 9:40:00 AM 10/3/2008 LOGGER : R.Tweidt

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft) / RECOVERY (ft) / SAMPLE INTERVAL	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	2.3	SANDY SILT (ML): brown (7.5YR 5/3), dry, no odor, poorly sorted (10% gravel/40% sand/ 50% fines), max gravel diameter =7cm, angular to subangular, metamorphic.	First boring terminated at 5.5 ft bgs. Second boring terminated at 2.5 ft bgs. Third boring terminated at 3 ft bgs. Attempted three times to drill to 6 ft bgs. Locations drilled within 2 ft radius of stake location. Boring backfilled with bentonite chips and hydrated.
	2.1		
5		5.5 feet bgs: refusal.	
		Total Depth at 5.5 ft below ground surface	
10			
15			

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC1-5	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Rotosonic Drill Rig		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 9, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	15.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SW	**WELL GRADED SAND WITH GRAVEL AND COBBLES (SW) -** Light grayish brown, wet to moist, subangular, medium to loose, 60% sand, 30% coarse gravel, 10% cobbles and boulders	
2.5	2.0 - 3.0			
5.0	5.0 - 6.0		Loose, dry	
7.5				
10.0	9.0 - 10.0		Moist, cohesive, no boulders	
12.5				
15.0	14.0 - 15.0			

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	*AOC1-6*	*1*	*1*

SOIL BORING LOG

PROJECT:	*PG&E Topock Soils Remediation Investigation*	LOCATION:	*Topock Compressor Station, Needles, CA*
SAMPLING METHOD:	Rotosonic Drill Rig		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 9, 2017	LOGGER:	*E. Ludwig, PG, CHG*
TOTAL DEPTH (FT BGS):	*15.0*		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SW	**WELL GRADED SAND WITH GRAVEL (SW)** - Dark grayish brown, moist, subangular, loose, 60% fine to coarse sand, 40% coarse gravel	
2.5	2.0 - 3.0		Boulder	
5.0	5.0 - 6.0			
7.5			**WELL GRADED SAND WITH GRAVEL AND COBBLES (SW)** - Brown, moist, subangular, loose, 60% sand, 30% coarse gravel, 10% cobbles up to 4 inches in diameter	
10.0	9.0 - 10.0			
12.5				
15.0	14.0 - 15.0			

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC1-7	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Rotosonic Drill Rig		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 9, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	15.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SW-GW	**WELL GRADED SAND WITH GRAVEL (SW - GW)** - Brown, moist, loose, subangular, 50% very fine sand to coarse sand, 30% fine to coarse gravel, 20% cobbles up to 4 inches diameter	
2.5	2.0 - 3.0			
5.0	5.0 - 6.0			
7.5			Dry to moist	
10.0	9.0 - 10.0			
12.5			**WELL GRADED SAND WITH GRAVEL (SW - GW)** - Brown, dry, loose, subangular, 60% very fine sand to coarse sand, 40% fine to coarse gravel	
15.0	14.0 - 15.0			

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC1-8	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Hand Tools		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 5, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	3.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SW	**WELL GRADED SAND WITH GRAVEL (SW)** - Brown to grayish brown, moist, loose, 80% fine to coarse sand, 20% gravel to 3 inches diameter	Large boulder
2.5	2.0 - 3.0			
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC1-BCW31	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Hand Tools		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	February 20, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	3.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	ML	**SILT (ML) -** Dark brown to black, saturated, low plasticity, organic odor	
2.5	2.0 - 3.0			
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC1-BCW32	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Hand Tools		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	February 20, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	3.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	ML	**SILT (ML) -** Dark brown to black, saturated, low plasticity, organic odor	
2.5	2.0 - 3.0			
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC4-26	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	February 1, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	6.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	GW-GM	**WELL GRADED GRAVEL WITH SILT (GW-GM)** - Light reddish brown, dry, silt is loose, gravel and cobbles dark gray, 60% angular to subangular gravel (1"), 20% silt to very fine sand (wind blown), 20% angular cobbles (3"+)	Sample collected 11/20/15 Material appears to be backfill from water tank fill construction
2.5	2.0 - 3.0			Sample collected 11/20/15 3' total depth of 11/20/15 borehole
5.0	5.0 - 6.0			Refusal at 6.0' (Bedrock or large boulders) Sample collected 2/1/17
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC4-27	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	February 1, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	5.5		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5			Sample collected 11/20/15 Material appears to be backfill from water tank fill construction
2.5	2.0 - 3.0	GW-GM	**WELL GRADED GRAVEL WITH SILT (GW-GM)** - Light reddish brown, dry, silt is loose, gravel and cobbles dark gray, 50% angular cobbles (3"+), 25% angular to subangular gravel (1"), 25% silt to very fine sand	Sample collected 11/20/15 3' total depth of 11/20/15 borehole
5.0	5.0 - 5.5			Refusal at 5.5' (Bedrock or large boulders) Sample collected 2/1/17
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC4-33	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Hand Tools		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	February 14, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	3.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	GW	**WELL GRADED GRAVEL WITH SILT (GW-GM)** - Dry, loose, gravel is 1-2" angular, dark gray	
		SM	**SILTY SAND (SM)** - Light reddish brown, loose, dry, 50% very fine sand, 40% silt, 10% well graded gravel to 0.5"	
2.5	2.0 - 3.0			Refusal at 3.0' (Bedrock)
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC4-34	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Hand Tools		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	February 14, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	0.5		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	GW-GM	**WELL GRADED GRAVEL WITH SILT (GW-GM)** - Light brown, dry, loose, 60% gravel subangular, 40% silt	Refusal at 0.5' (Bedrock)
2.5				
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC4-35	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Hand Tools		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	February 14, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	0.5		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	GW-GM	**WELL GRADED GRAVEL WITH SILT (GW-GM)** - Light brown, dry, loose, 60% gravel subangular, 40% silt	Refusal at 0.5' (Bedrock)
2.5				
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	*AOC4-36*	*1*	*1*

SOIL BORING LOG

PROJECT:	*PG&E Topock Soils Remediation Investigation*	LOCATION:	*Topock Compressor Station, Needles, CA*
SAMPLING METHOD:	Hand Tools		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 5, 2017	LOGGER:	*E. Ludwig, PG, CHG*
TOTAL DEPTH (FT BGS):	*1.0*		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	GW	**WELL GRADED GRAVEL (GW)** - Dark gray, moist, loose 1" to 2" angular, loose	
	0.9 - 1.0	SM	**SILTY SAND (SM)** - Light redish brown, moist, loose, 50% poorly graded fine sand, 40% silt, 10% gravel	Refusal at 1.0' (Bedrock)
2.5				
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC4-37	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Hand Tools		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	February 4, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	0.5		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	GW-GM	**WELL GRADED GRAVEL WITH SILT AND SAND (GW)** - Light brown, dry, hard, 50% gravel subangular, 25% fine to medium sand, 25% silt	Refusal at 0.5' (Bedrock)
2.5				
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC4-38	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	February 2, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	2.2		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	GW - GP	**WELL GRADED GRAVEL WITH SILT AND SAND (GW)** - Light brown, dry, hard, 50% 1" gravel to cobbles, angular, 25% fine to medium sand, 25% silt	
	2.0 - 2.2			Refusal at 2.2' (Bedrock)
2.5				
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC4-39	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Hand Tools		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 5, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	1.7		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	GW	**WELL GRADED GRAVEL (GW)** - Dark gray, moist, loose 1" to 2" angular, loose	
		SM	**SILTY SAND (SM)** - Light redish brown, moist, loose, 50% poorly graded fine sand, 40% silt, 10% gravel	
	1.5 - 1.7			Refusal at 1.7' (Bedrock)
2.5				
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	*AOC4-40*	*1*	*1*

SOIL BORING LOG

PROJECT:	*PG&E Topock Soils Remediation Investigation*	LOCATION:	*Topock Compressor Station, Needles, CA*
SAMPLING METHOD:	Hand Tools		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	February 6, 2017	LOGGER:	*E. Ludwig, PG, CHG*
TOTAL DEPTH (FT BGS):	*1.0*		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	GW	**WELL GRADED GRAVEL (GW)** - Brown, moist, loose 1" to 2" angular, loose	
	0.5 - 1.0	SM	**SILTY SAND WITH GRAVEL (SM)** - Brownish gray, dry, loose, 50% well graded sand, 30% silt, 20% gravel	Refusal at 1.0' (Bedrock)
2.5				
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC4-41	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	February 2, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	0.5		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	GW-GM	**WELL GRADED GRAVEL WITH SILT AND SAND (GW-GM)** - Light brown, dry, hard, 50% gravel subangular, 25% fine to medium sand, 25% silt	Refusal at 0.5' (Bedrock)
2.5				
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC4-42	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	February 4, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	7.5		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SM	**SILTY SAND WITH GRAVEL (SM)** - Light brown, dry, hard packed, 40% fine sand, 30% silt, 25% fine to 2" gravel, subangular, 5% subangular cobbles to 6"	
2.5	2.0 - 3.0			
5.0	5.0 - 6.0	GW-GM	**WELL GRADED GRAVEL WITH SILT AND SAND (GW-GM)** - Light brown, dry, hard packed, 40% angular gravel to 2", 30% angular, blocky cobbles to 8", 15% fine sand, 15% silt	
7.5	7.0 - 7.5		Cobbles increase to 50%	Refusal at 7.5' (Boulders or Bedrock)
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	*AOC4-M06*	*1*	*1*

SOIL BORING LOG

PROJECT:	*PG&E Topock Soils Remediation Investigation*	LOCATION:	*Topock Compressor Station, Needles, CA*
SAMPLING METHOD:	Hand Tools		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:		LOGGER:	*E. Ludwig, PG, CHG*
TOTAL DEPTH (FT BGS):	*3.0*		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0		GW-GM	**WELL GRADED GRAVEL WITH SILT AND SAND (GW-GM)** - Light reddish brown, dry, hard, 40% well graded angular gravel to 1" (layered), 30% silt (matrix), 15% well graded sand (matrix), 15% cobbles, angular	
2.5	2.0 - 3.0			Refusal at 3.5' (Bedrock)
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	*AOC4DAM-OS1*	*1*	*1*

SOIL BORING LOG

PROJECT:	*PG&E Topock Soils Remediation Investigation*	LOCATION:	*Topock Compressor Station, Needles, CA (1' East of AOC4 Dam)*
SAMPLING METHOD:	Hand Tools		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	February 22, 2017	LOGGER:	*E. Ludwig, PG, CHG*
TOTAL DEPTH (FT BGS):	*1.5*		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.2	SM	**SILTY SAND (SM)** - Light redish brown, moist, loose, medium to high plasticity	
	1.0 - 1.5			Refusal at 1.5' (Bedrock)
2.5				
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC4DAM-OS2	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA (4' East of AOC4 Dam)
SAMPLING METHOD:	Hand Tools		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	February 22, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	1.5		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.2	SM	**SILTY SAND (SM)** - Light redish brown, moist, loose, medium to high plasticity	
	1.0 - 1.5			Refusal at 1.5' (Bedrock)
2.5				
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC5-2	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 18, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	6.5		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SM	**SILTY SAND WITH GRAVEL (SM)** - Medium brown, dry, medium density, 70% silty sand, poorly graded, 30% angular gravel up to 2"	Sample collected 12/8/15
	0.5 - 0.5	Debris	**DEBRIS** - White scale, 0.25" thick	Sample collected 1/18/17
2.5	2.0 - 3.0			Sample collected 12/8/15
		SM	**SILTY SAND WITH GRAVEL (SM)** - Medium brown, moist, medium density, 70% silty sand, poorly graded, 30% angular gravel up to 2"	
5.0	5.0 - 6.0			Sample collected 1/18/17
				Refusal at 6.5' (possibly concrete)
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS	PROJECT NUMBER: 684141.FP.RI	SAMPLE LOCATION: AOC5-4	SHEET: 1 OF: 1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 19, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	7.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SP	**POORLY GRADED SAND WITH GRAVEL (SP)** - Medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.5 to 1.5-inches diameter	Sample collected 1/23/16
2.5	2.0 - 3.0	SM	**SILTY SAND WITH GRAVEL AND TRACE COBBLES (SM)** - Medium brown, loose, moist, sand is medium grained and poorly graded, gravel 0.5 to 3-inches diameter, cobbles.	Sample collected 1/23/16
5.0	5.0 - 5.5			Sample collected 1/18/17
	6.5 - 7.0		Increase in cobbles to 30%, up to 8-inches diameter	Refusal at 7.0' (Cobbles)
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC6-5	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 24, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	10.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SM	**SILTY SAND WITH GRAVEL (SM)** - Light brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 1-inch diameter	Sample collected 1/19/16
2.5	2.0 - 3.0			Sample collected 1/19/16 3.0' total depth of 1/19/16 borehole
5.0	5.0 - 6.0	SP	**POORLY GRADED SAND WITH GRAVEL (SP)** - Light brown, loose, moist, 80% fine to medium grained sand, 20% gravel 0.5 to 1.5-inch diameter	Sample collected 1/24/17
7.5				
10.0	9.0 - 10.0			Sample collected 1/24/17
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	*AOC6-7*	*1*	*1*

SOIL BORING LOG

PROJECT:	*PG&E Topock Soils Remediation Investigation*	LOCATION:	*Topock Compressor Station, Needles, CA*
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 24, 2017	LOGGER:	*E. Ludwig, PG, CHG*
TOTAL DEPTH (FT BGS):	*10.0*		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SM	**SILTY SAND WITH GRAVEL (SM)** - Medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 2-inch diameter	Sample collected 1/19/16
2.5	2.0 - 3.0			Sample collected 1/19/16 3.0' total depth of 1/19/16 borehole
5.0	5.0 - 6.0	SP	**POORLY GRADED SAND WITH GRAVEL (SP)** - Light brown, loose, moist, 85% fine to medium grained sand, 15% gravel 0.5 to 2.0-inch diameter	Sample collected 1/24/17
7.5				
10.0	9.0 - 10.0			Sample collected 1/24/17
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC9-21	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Rotosonic Drill Rig		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 8, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	6.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SW - GW	**WELL GRADED SAND WITH GRAVEL (SW - GW)** - Brown, moist, loose, subangular, 60% very fine sand to medium sand, 40% fine gravel to 1 inch diameter	
2.5	2.0 - 3.0			
5.0	5.0 - 6.0	SW	**WELL GRADED SAND WITH SILT AND GRAVEL (SW)** - Brown, dry, loose, subangular, 60% very fine sand to coarse sand, 25% silt, 15% gravel to 1 inch diameter, silt is low plasticity	
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC9-22	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Hand tools, hand auger		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 4, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	5.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS		USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5		SP	**POORLY GRADED SAND WITH GRAVEL (SP)** - Grayish brown, wet to moist, loose, 60% poorly graded medium to coarse sand, 10% fine sand, 20% fine to coarse gravel, 10% silt, high concentration of roots at 2.0'.	
2.5	2.0 - 3.0		ML	**SILT (ML)** - Brown, moist transitioning to dry with depth, medium plasticity, cohesive	
		2.5-2.6	Debris	**WHITE DEBRIS LAYER** - 2.5' to 2.6' white layer deposited within the silt, massive	Collected a debris sample of white material, with little to no "soil", 2.5-2.6'
			ML	Silt as above	
			GW	**WELL GRADED GRAVEL WITH SAND AND SILT (GW)** - Grayish brown, moist to dry, 60% fine to coarse gravel, up to 0.75", angular, 20% medium sand, 20% silt	Sample 2.0-3.0' is a composite of "soil" and white debris layer
5.0	4.5 - 5.0				Refusal at 5.0 ft (Cobbles or bedrock)

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	*AOC10a-4*	*1*	*1*

SOIL BORING LOG

PROJECT:	*PG&E Topock Soils Remediation Investigation*	LOCATION:	*Topock Compressor Station, Needles, CA*
SAMPLING METHOD:	Rotosonic Drill Rig		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 8, 2017	LOGGER:	*E. Ludwig, PG, CHG*
TOTAL DEPTH (FT BGS):	*10.0*		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SW - SM	**WELL GRADED SAND WITH SILT (SW-SM)** - Dark brown, moist, 60% fine to medium sand, 30% silt, 10% coarse gravel	
2.5	2.0 - 3.0	SM	**SILT WITH SAND (SM)** - Light reddish brown, dry, very loose, 70% coarse silt, 25% very fine sand to fine sand, poorly graded, 5% gravel, 0.5 to 1 inch diameter, subangular	
5.0	5.0 - 6.0			
7.5		GW	**WELL GRADED GRAVEL WITH SILT AND SAND (GW)** - Light gray, dry, loose, 50% fine to coarse gravel, subangular, 30% silt, 20% fine sand	
10.0	9.0 - 10.0			
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	*AOC10-25*	*1*	*1*

SOIL BORING LOG

PROJECT:	*PG&E Topock Soils Remediation Investigation*	LOCATION:	*Topock Compressor Station, Needles, CA*
SAMPLING METHOD:	Rotosonic Drill Rig		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 8, 2017	LOGGER:	*E. Ludwig, PG, CHG*
TOTAL DEPTH (FT BGS):	*10.0*		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SM	**SILT WITH GRAVEL AND SAND (SM)** - Brown, moist, loose; 70% silt, 20% fine to coarse gravel, 10% fine sand	
2.5	2.0 - 3.0	GW	**WELL GRADED GRAVEL WITH SILT AND SAND (GW)** - Brown with light gray layers, dry, loose, 60% angular gravel, 0.5 to 1 inch diameter, 30% silt, 10% fine sand	
5.0	5.0 - 6.0	SM	**SILT WITH GRAVEL AND SAND (SM)** - Light gray, dry, very loose; 50% silt, 30% gravel, fine to coarse up to 1 inch diameter, angular to subangular, 20% fine to medium sand	
7.5				
10.0	9.0 - 10.0			
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC10-26	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Hand tools, hand auger		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	February 21, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	5.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS		USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5		ML	**SILT (ML)** - Stong brown, moist, silt, medium to high plasticity	
2.5	2.0 - 3.0	2.5-2.7	Debris	**WHITE DEBRIS LAYER** - 2.5' to 2.7" white layer deposited within the silt, massive	Collected a debris sample of white material, with little to no "soil", 2.5-2.7'
			ML	**SILT (ML)** - Stong brown, dry to moist, silt, medium to high plasticity	Sample 2.0-3.0' is a composite of "soil" and white debris layer
5.0	4.5 - 5.0				Refusal at 5.0 ft (Cobbles or bedrock)

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC10-27	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Hand tools, hand auger		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 4, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	5.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	ML	**SILT (ML)** - Wet, fine grained silt, medium to high plasticity	
2.5	2.0 - 3.0	ML	**SILT WITH GRAVEL (ML)** - Moist to wet, fine grained silt, medium to high plasticity, 20% medium grained gravel, subangular	
		SM	**POORLY GRADED SAND WITH GRAVEL AND SILT (SM)** - Moist, 60% fine grained sand, 20% medium grained gravel (1/4"), subangular and 20% silt	
5.0	4.5 - 5.0			Refusal at 5.0 ft (Cobbles or bedrock)

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC13-33	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Hand Tools		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	February 15, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	3.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	DEBRIS	**BROWN SCALE** - Light brown, brown, tan and white scale on the surface of the slope, scale forms a thick large layer that covers several square feet	
2.5	2.0 - 3.0	SW	**WELL GRADED SAND WITH GRAVEL (SW)** - Light brown, dry, loose, 50% fine to coarse sand, 20% well graded gravel up to 2-inches diameter, 20% cobbles, 10% silt	
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC13-34	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 21, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	6.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SP	**POORLY GRADED SAND (SP)** - Light brown, dry, loose, 95% medium grained sand, poorly graded, 5% well graded gravel	Sample collected below asphalt
2.5	2.0 - 3.0			
5.0	5.0 - 6.0			
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	*AOC15-1*	*1*	*1*

SOIL BORING LOG

PROJECT:	*PG&E Topock Soils Remediation Investigation*	LOCATION:	*Topock Compressor Station, Needles, CA*
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	1/22/16, 1/19/17, 1/20/17	LOGGER:	*E. Ludwig, PG, CHG*
TOTAL DEPTH (FT BGS):	*14.5*		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SP	**POORLY GRADED SAND WITH GRAVEL (SP)** - Medium brown, loose, moist, medium graind sand, poorly graded, gravel 0.25 to 1.5-inches diameter	Sample collected 1/22/16
2.5	2.0 - 3.0		**POORLY GRADED SAND WITH GRAVEL (SP)** - Medium brown, loose, moist, medium grained sand, poorly graded, gravel 0.5 to 2.0-inches diameter	Sample collected 1/22/16 3.0' total depth of 1/22/16 borehole
5.0	5.0 - 6.0			Sample collected 1/19/17
7.5	9.0 - 10.0		**POORLY GRADED SAND WITH GRAVEL (SP)** - Medium brown, loose, moist, loose, 75% medium grained sand, 15% gravel 0.5 to 2.0-inches diameter, 10% cobbles 6.0 to 10.0 inches-diameter	Sample collected 1/20/17
10.0				
12.5				Refusal (Flowing sand from 14.0 to 14.5')
14.5	14.0 - 14.5		**POORLY GRADED SAND (SP)** - Light brown, dry, loose, 100% medium grained sand, flowing sand	Sample collected 1/20/17

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC16-5	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Hand Tools		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	February 20, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	3.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	GP	**POORLY GRADED GRAVEL (GP)** - Gravel 0.5 to 3.0-inches diameter, iron debris	
		SM	**SILTY SAND WITH GRAVEL (SM)** - Light tan, dry, cohesive, 50% fine to medium sand, 30% silt, 20% gravel to cobbles from 0.5 to 4.0-inches diameter	
2.5	2.0 - 3.0		**SILTY SAND WITH GRAVEL (SM)** - Light reddish brown, dry, loose, 40% fine to medium sand, 30% silt, 30% gravel to cobbles from 0.5 to 4.0-inches diameter	
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	*AOC19-10*	*1*	*1*

SOIL BORING LOG

PROJECT:	*PG&E Topock Soils Remediation Investigation*	LOCATION:	*Topock Compressor Station, Needles, CA*
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	12/16/15, 1/22/17	LOGGER:	*E. Ludwig, PG, CHG*
TOTAL DEPTH (FT BGS):	*7.0*		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SM	**SILTY SAND WITH GRAVEL (SM)** - Light brown, loose, moist, sand is poorly graded, gravel 0.25 to 2.0-inches diameter	Sample collected 12/16/15
2.5	2.0 - 3.0		**SILTY SAND WITH GRAVEL (SM)** - Light brown, loose, moist, sand is poorly graded, gravel 0.25 to 1.0-inches diameter	Sample collected 12/16/15 3.0' total depth of 12/16/15 borehole
5.0	5.0 - 6.0	SP	**POORLY GRADED SAND WITH COBBLES (SP)** - Light brown, moist, loose,780% medium sand. 20% cobbles from 3.0 to 10.0-inches diameter. 10% gravel	Sample collected 1/22/17
7.0	6.5 - 7.0			Sample collected 1/22/17 Refusal at 7.0' (Boulder)
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC19-11	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	3/10/16, 1/23/17	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	10.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SP	**POORLY GRADED SAND WITH GRAVEL (SP)** - Medium brown, moist, cohesive, 80% medium sand, 20% gravel, 0.5 to 1.5-inches diameter	Sample collected 3/10/16
2.5	2.0 - 3.0			Sample collected 3/10/16 3.0' total depth of 3/10/16 borehole
5.0	5.0 - 6.0			Sample collected 1/23/17
7.5				
10.0	9.0 - 10.0			Sample collected 1/23/17
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC19-12	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 21, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	5.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SP	**POORLY GRADED SAND (SP)** - Light brown, moist to dry, cohesive from 0.0 to 4.0-ft, loose from 4.0 to 5.0-ft, 100% fine poorly graded sand	
2.5	2.0 - 3.0			
	4.0 - 5.0			Refusal (Flowing sand from 4.0 to 5.0')
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC19-13	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 22, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	6.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SP	**POORLY GRADED SAND (SP)** - Medium brown, moist, loose to cohesive, 80% medium sand, 10% 1-inch gravel, 10% silt	
2.5	2.0 - 3.0			
5.0	5.0 - 6.0			
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC19-14	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 21, 2017	LOGGER:	E. Ludwig, PG, CHG

TOTAL DEPTH (FT BGS): 6.0

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SP	**POORLY GRADED SAND (SP)** - Medium brown, moist, cohesive, 90% medium sand, 10% 1-inch gravel in upper 2 ft, 10% silt	
2.5	2.0 - 3.0			
5.0	5.0 - 6.0			
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC19-15	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 21, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	6.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5			
2.5	2.0 - 3.0	SP	**POORLY GRADED SAND (SP)** - Medium brown, moist, loose to cohesive, 100% medium sand	
5.0	5.0 - 6.0			
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC20-08-OS1	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	December 18, 2016	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	5.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	GW	**WELL GRADED GRAVEL WITH SAND (GW)** - Light brown, dry, hard, 60% subangular gravel from 0.5 to 1.5-inches diameter, 30% fine to medium sand, 10% silt	
2.5				Red clay pipe (Y-fitting), from 3.0 - 4.0'
	4.0 - 5.0		Soil is wet below the pipe	
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC20-09-OS1	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	December 20, 2016	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	5.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SW	**WELL GRADED SAND (SW)** - Light brown, dry, medium, 75% fine to medium sand, 15% subangular gravel from 0.5 to 1.0-inches diameter, 10% silt	
2.5		SP	**POORLY GRADED SAND (SP)** - Light brown, moist, loose, poorly graded medium sand	Blue PVC pipe (T-fitting), from 3.0 - 4.0'
	4.0 - 5.0			
5.0				Total depth 5.0'
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	*AOC20-11-OS1*	*1*	*1*

SOIL BORING LOG

PROJECT:	*PG&E Topock Soils Remediation Investigation*	LOCATION:	*Topock Compressor Station, Needles, CA*
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	December 21, 2016	LOGGER:	*E. Ludwig, PG, CHG*
TOTAL DEPTH (FT BGS):	*7.0*		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SW	**WELL GRADED SAND (SW)** - Light brown, dry, medium, 75% fine to medium sand, 15% subangular gravel from 0.5 to 1.0-inches diameter, 10% silt	
2.5	2.0 - 3.0			
		SP	**POORLY GRADED SAND (SP)** - Light brown, moist, loose, poorly graded medium sand	
5.0				Stee pipe (T-fitting), from 5.0 - 6.0"
	6.0 - 7.0			
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC20-12-OS1	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	December 21, 2016	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	6.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SW	**WELL GRADED SAND (SW)** - Light brown, dry, medium, 75% fine to medium sand, 15% subangular gravel from 0.5 to 1.0-inches diameter, 10% silt	
2.5	2.0 - 3.0	SP	**POORLY GRADED SAND (SP)** - Light brown, moist, loose, poorly graded medium sand	Blue PVC pipe (T-fitting), from 1.5 - 2.5'
5.0	5.0 - 6.0			
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	*AOC20-13-OS1*	*1*	*1*

SOIL BORING LOG

PROJECT:	*PG&E Topock Soils Remediation Investigation*	LOCATION:	*Topock Compressor Station, Needles, CA*
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	December 21, 2016	LOGGER:	*E. Ludwig, PG, CHG*
TOTAL DEPTH (FT BGS):	*6.0*		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SW	**WELL GRADED SAND (SW)** - Light brown, dry, medium, 75% fine to medium sand, 15% subangular gravel from 0.5 to 1.0-inches diameter, 10% silt	
				Blue PVC pipe (T-fitting), from 1.5 - 2.5'
2.5	2.0 - 3.0			
		SP	**POORLY GRADED SAND (SP)** - Light brown, moist, loose, poorly graded medium sand	
5.0	5.0 - 6.0			
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC20-14-OS1	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	December 19, 2016	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	7.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5			Sample collected below asphalt
2.5	2.0 - 3.0			
		SP	**POORLY GRADED SAND (SP)** - Medium brown, moist, loose, poorly graded medium sand	
5.0				Red clay pipe (Y-fitting) 5.0 - 6.0'
	6.0 - 7.0			
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC20-16-OS1	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	December 19, 2016	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	9.5		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5			Sample collected below asphalt
2.5	2.0 - 3.0			
5.0	5.0 - 6.0	SP	**POORLY GRADED SAND (SP)** - Medium brown, moist, loose, poorly graded medium sand	
7.5				Red clay pipe (Y-fitting) 8.0 - 9.0'
	9.0 - 9.5			
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	*AOC20-18-OS1*	*1*	*1*

SOIL BORING LOG

PROJECT:	*PG&E Topock Soils Remediation Investigation*	LOCATION:	*Topock Compressor Station, Needles, CA*
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	December 17, 2016	LOGGER:	*E. Ludwig, PG, CHG*
TOTAL DEPTH (FT BGS):	3.5		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SP	POORLY GRADED SAND (SP)	Sample collected below asphalt
2.5	3.0 - 3.5			Blue PVC pipeline with steel flanges from 1.5 to 2.5 feet.
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	*AOC20-19-OS1*	*1*	*1*

SOIL BORING LOG

PROJECT:	*PG&E Topock Soils Remediation Investigation*	LOCATION:	*Topock Compressor Station, Needles, CA*
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	December 17, 2016	LOGGER:	*E. Ludwig, PG, CHG*
TOTAL DEPTH (FT BGS):	*1.5*		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	GW	**WELL GRADED GRAVEL WITH SAND (GW)** - Medium brown, moist, consolidated, 60% gravel from 0.5 to 2.0-inch diameter, 30% fine to coarse sand, 10% silt, 10% cobbles	Sample collected below asphalt Refusal at 1.5' due to concrete
2.5				
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC20-21-OS1	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	December 20, 2016	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	9.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	GW-GM	**WELL GRADED GRAVEL WITH SITL AND SAND (GW-GM)** - Light brown, dry to moist, loose, 40% well graded gravel from 0.5 to 2.0-inches diameter, 30% silt, 20% fine to medium sand, 10% cobbles from 3.0 to 8.0-inches diameter	
2.5	2.0 - 3.0			
5.0	5.0 - 6.0			
7.5	8.5 - 9.0			Red clay pipe (Y-fitting) 7.5 - 8.5'
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	*AOC21-1*	*1*	*1*

SOIL BORING LOG

PROJECT:	*PG&E Topock Soils Remediation Investigation*	LOCATION:	*Topock Compressor Station, Needles, CA*
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	1/12/16: to a depth of 6', 1/11/17: depths 6' to 15'	LOGGER:	*E. Ludwig, PG, CHG*
TOTAL DEPTH (FT BGS):	*15.0*		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SP	**Silty Sand with Gravel (SP)** - Light brown, loose, moist, sand fine to coarse, gravel 1/4" to 1"	
2.5	2.5 - 3.0	Debris	**White Powder** - No soil, white powder from 2.5' to 5.5'	Orignial borehole advanced on 1-12-2016 to a depth of 6.0', and samples collected at the depths shown.
5.0	5.5 - 6.0		**Silty Sand with Gravel (SP)** - Light brown, loose, moist, mixed with trace white powder	
7.5		SP	**Silty Sand with Gravel and Cobbles (SP)** - Light brown, loose, moist, 20% cobbles, little to no white powder	
10.0	9.0 - 10.0			The original borehole was "reopened" and then advanced to a total depth of 15'. Additional samples were collected below the original borehole's total depth of 6'
12.5		SW	**Well Graded Sand with Cobbles (SW)** - Light to medium brown, moist, compacted,60% very fine to medium sand, 30% cobbles and boulders from 2" to 10", 10% well graded gravel	
15.0	14.0 - 15.0			

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC22-2	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	1/6/16, 1/17/17	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	10.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SM	**SILTY SAND WITH GRAVEL (SM)** - Medium brown, loose, moist, sand is medium grained, poorly graded, gravel 0.25 to 2-inch diameter	Sample collected 1/16/16
2.5	2.0 - 3.0			Sample collected 1/16/16 3.0' total depth of 1/16/16 borehole
5.0	5.0 - 6.0	SW	**WELL GRADED SAND WITH GRAVEL (SW)** - Medium brown, loose, moist, sand is very fine to coarse grained, 20% gravel 0.5 to 3.0-inch diameter	Sample collected 1/17/17
7.5				
10.0	9.0 - 10.0			Sample collected 1/17/17
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	AOC22-3	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 17, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	10.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	GW-GM	**WELL GRADED GRAVEL WITH SILT AND SAND (GW-GM)** - Light brown, hard, dry, 50% angular well graded gravel from 0.5 to 2.0-inches diameter, 20% well graded sand, 20% silt, 10% cobbles up to 5.0 inches diameter	
2.5	2.0 - 3.0	SW		
5.0	5.0 - 6.0		**WELL GRADED SAND WITH GRAVEL (SW)** - Light brown, hard, moist, 60% well graded sand, 20% 0.5 to 2.5-inch diameter gravel, 10% silt, 10% cobbles	
7.5				
10.0	9.0 - 10.0		**WELL GRADES SAND WITH GRAVEL (SW)** - 50% well graded sand, 20% gravel, 20% cobbles and boulders, 10% silt	
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	*AOC23-4*	*1*	*1*

SOIL BORING LOG

PROJECT:	*PG&E Topock Soils Remediation Investigation*	LOCATION:	*Topock Compressor Station, Needles, CA*
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 17, 2017	LOGGER:	*E. Ludwig, PG, CHG*
TOTAL DEPTH (FT BGS):	*3.0*		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SP	**POORLY GRADED SAND (SP)** - Medium brown, moist, loose, 95% medium to coarse sand, poorly graded, 5% gravel 0.5 to 1.0-inches diameter	
2.5	2.0 - 3.0			
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	PA-10	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 26, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	6.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SW - SM	**WELL GRADED SAND WITH SILT AND GRAVEL (SW-SM)** - Light brown, moist, loose to medium, 60% fine to coarse sand, 15% silt, 15% coarse gravel, 1 to 2 inch diameter, subangular to angular, 10% cobbles up to 8 inch diameter	High concentration of roots from 0 to 2 ft.
2.5	2.0 - 3.0			1 inch diameter white and yellow pvc pipe
5.0	5.0 - 6.0			
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	PA-11	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 25, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	6.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SM	**SILTY SAND WITH GRAVEL (SM)** - Light grayish brown, moist, consolidated, 50% fine sand to very fine sand, poorly graded, 35% silt, 15% gravel, 1 to 2 inch diameter, subangular	rust staining
2.5	2.0 - 3.0			rust staining
5.0	5.0 - 6.0			
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	PA-12	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 25, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	6.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SM	**SILTY SAND (SM)** - Light brown, dry, loose, 60% very fine sand, 20% silt, 10% angular grave, 1 to 2 inches diameter, 10% cobbles up to 10 inches	
2.5	2.0 - 3.0			
5.0	5.0 - 6.0	GM	**SILTY GRAVEL WITH SAND (GM)** - Light brown, dry, loose, 70% angular gravel, one to three inch diameter, 20% silt to very fine sand, 10% cobbles up to 6 inch diameter	Concrete debris from 3 to 6 feet
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	PA-18	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 26, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	6.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SW	**WELL GRADED SAND WITH COBBLES (SW)** - Medium to dark brown, moist, cohesive, 75% fine to coarse sand, 15% cobbles to boulders, 10% gravel, 1 to 2 inch diameter, subangular	Roots from 0 to 6 feet, with some large diameter roots
2.5	2.0 - 3.0			
5.0	5.0 - 6.0			Boulder from 4 to 5 feet
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	PA-19	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 31, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	6.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SP	**POORLY GRADED SAND (SP)** - Brown, moist, loose, 95% fine to medium sand, 5% cobbles	Roots from 0 to 6 feet, with some large diameter roots
2.5	2.0 - 3.0			
5.0	5.0 - 6.0			Boulder from 4 to 5 feet
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	PA-20	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 31, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	6.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5			Red colored soil/staining in upper 6 inches Cobbles and asphalt debris from 0 to 1.5 feet
2.5	2.0 - 3.0	SP	**POORLY GRADED SAND (SP)** - Brown, moist, loose, poorly graded fine to medium sand	
5.0	5.0 - 6.0			
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	PA-21	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 31, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	6.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SP	**POORLY GRADED SAND WITH GRAVEL (SP)** - Brown, moist, cohesive, 75% medium sand, 10% gravel, 1 to 2 inch diameter, subangular, 10% cobbles up to 6 inch diameter, 5% silt.	Red colored soil/staining in upper 8 inches Some roots from 0 to 6 feet.
2.5	2.0 - 3.0			
5.0	5.0 - 6.0			
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	SD-27	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Hand Tools		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	February 15, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	5.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0		NA	**NO SAMPLE**	Soil above the steel pipe was eroded, so no sample to collect or describe Steel pipe from 1.0 - 2.0'
2.5	2.0 - 3.0	GW-GM	**WELL GRADED GRAVEL WITH SILT AND SAND (GW-GM)** - Grayish brown, dry to moist, loose, 50% well graded gravel from 0.5 to 2.0-inches diameter, 20% fine sand, 20% silt, 10% cobbles from 2.0 to 6.0-inches diameter, cobbles increase in percent with depth	
5.0	4.0 - 5.0			
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	SD-28	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	February 5, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	10.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	GP	**POORLY GRADED GRAVEL (GP)** - Dry, loose, 1-inch subangular gravel	
2.5	2.0 - 3.0			
5.0	5.0 - 6.0	SP	**POORLY GRADED SAND (SP)** - Light brown, moist, medium, cohesive, 85% poorly graded medium sand, 10% gravel, 5% silt	
7.5				White PVC pipe from 7.5 - 8.5'
10.0	9.0 - 10.0			
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	SD-29	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	2/4/2017 - 2/5/2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	8.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SW	**WELL GRADED SAND WITH GRAVEL (SW)** - Brown, moist, hard, 70% well graded sand from fine to coarse, 30% 1-inch diameter subangular gravel	Sample collected below asphalt
2.5	2.0 - 3.0			
				Red clay pipe from 3.0 - 4.0'
5.0	4.5 - 5.0	SP	**POORLY GRADED SAND (SP)** - Grayish brown, moist, loose, 90% medium grained poorly graded sand, 10% 1-inch diameter subangular gravel, 3 to 6-inch diameter red clay and concrete fragments (as debris) mixed with the sand	
7.5	7.5 - 8.0			
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS	PROJECT NUMBER: 684141.FP.RI	SAMPLE LOCATION: SD-30	SHEET: 1 OF: 1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	July 18, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	7.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SM	**SILTY SAND WITH GRAVEL (SM)** - Light brown, moist, hard, 40% poorly graded sand, 30% silt, 20% well graded subangular gravel from 1.0 to 2.0-inches diameter, 10% cobbles from 2.0 to 6.0-inches diameter	
2.5	2.0 - 3.0			
	4.0 - 5.0 Material from inside of pipe			Red clay pipe from 4.0 - 5.0' Pipe is broken (disconnected from TD-3), but continous north from SD-30 to SDL-11
5.0	5.0 - 6.0			
	6.0 - 7.0			
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	*SD-31*	*1*	*1*

SOIL BORING LOG

PROJECT:	*PG&E Topock Soils Remediation Investigation*	LOCATION:	*Topock Compressor Station, Needles, CA*
SAMPLING METHOD:	Hand Tools		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	February 15, 2017	LOGGER:	*E. Ludwig, PG, CHG*
TOTAL DEPTH (FT BGS):	*3.0*		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SM	**SILTY SAND WITH GRAVEL (SM)** - Light brown, dry, loose, 40% well graded sand, 25% silt, 25% well graded gravel from 0.5 to 2.0-inches diameter, 10% cobbles from 2.0 to 8.0-inches diameter	Boulders, cobbles and gravel on surface
	1.0 - 2.0 Material from inside of pipe			Steel pipe from 1.0 - 2.0' (Corroded)
2.5	2.0 - 3.0			
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	*SD-33-OS1*	*1*	*1*

SOIL BORING LOG

PROJECT:	*PG&E Topock Soils Remediation Investigation*	LOCATION:	*Topock Compressor Station, Needles, CA*
SAMPLING METHOD:	Hand Tools		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	December 20, 2016	LOGGER:	*E. Ludwig, PG, CHG*
TOTAL DEPTH (FT BGS):	*2.0*		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	1.5-2.0	ML	**SILT WITH SAND AND GRAVEL (ML)** - Light reddish brown, dry, loose, 40% silt, 30% fine to medium sand, 30% gravel from 0.5 to 1.5-inches diameter	45 degree gray PVC elbow
2.5				
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	SD-34-OS1	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	12/2/2016 - 12/3/2016	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	6.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SW	**WELL GRADED SAND WITH GRAVEL (SW)** - Medium brown, dry, loose, 70% well graded sand, 15% gravel, 10% silt	
				Red clay pipe (90deg fitting), from 0.5 - 1.0'
	1.0 - 1.5	SP		
2.5	2.0 - 3.0		**POORLY GRADED SAND WITH GRAVEL (SP)** - Medium brown, wet, loose, 50% well graded sand, 50% gravel	
5.0	5.0 - 6.0		**POORLY GRADED SAND (SP)** - Medium brown, moist, loose, 90% poorly graded medium grained sand, 10% gravel	
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	SD-34A-OS1	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	December 2, 2016	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	6.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SW	**WELL GRADED SAND WITH GRAVEL (SW)** - Medium brown, dry, loose, 60% well graded sand, 40% gravel	
				Red clay pipe (near ramp), from 0.5 - 1.0'
	1.0 - 1.5	SP	**POORLY GRADED SAND WITH GRAVEL (SP)** - Medium brown, wet, loose, 50% well graded sand, 50% gravel	
2.5	2.0 - 3.0			
5.0	5.0 - 6.0		**POORLY GRADED SAND (SP)** - Medium brown, moist, loose, 80% poorly graded medium grained sand, 10% gravel, 10% cobbles	
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	SD-35-OS1	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	12/4/2016 - 12/5/2016	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	5.5		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SP	**POORLY GRADED SAND WITH GRAVEL (SP)** - Medium brown, dry, loose, 80% poorly graded medium sand, 20% gravel 0.5 to 1.0-inch diameter	
			Moist	
2.5	2.0 - 3.0			
			POORLY GRADED SAND (SP) - Medium brown, moist, loose, 90% poorly graded medium sand, 10% fine gravel to 0.5-inch diameter	Red clay pipe from 3.5 - 4.5'
5.0	4.5 - 5.5			
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	*SD-35A-OS1*	*1*	*1*

SOIL BORING LOG

PROJECT:	*PG&E Topock Soils Remediation Investigation*	LOCATION:	*Topock Compressor Station, Needles, CA*
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	December 5, 2017	LOGGER:	*E. Ludwig, PG, CHG*
TOTAL DEPTH (FT BGS):	*5.5*		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SP	**POORLY GRADED SAND WITH GRAVEL (SP)** - Medium brown, dry, loose, 60% poorly graded medium sand, 40% gravel 0.5 to 1.0-inch diameter	
2.5	2.0 - 3.0		**POORLY GRADED SAND (SP)** - Medium brown, moist, loose, 90% poorly graded medium sand, 10% fine gravel to 0.5-inch diameter	Red clay pipe from 3.5 - 4.5'
5.0	4.5 - 5.5			
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	SD-36-OS1	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	December 1, 2016	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	6.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SP	**POORLY GRADED SAND (SP)** - Medium brown, moist, loose, 90% medium grained poorly graded sand, 5% silt, 5% gravel	Sample collected below asphalt
		CN	**CONCRETE**	
2.5	2.5 - 3.0	SP	**POORLY GRADED SAND (SP)** - Medium brown, moist, loose, 90% medium grained poorly graded sand, 5% silt, 5% gravel	
5.0	5.0 - 6.0			Red clay pipe (Y-fitting), from 4.0 - 5.0'
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	*SD-37-OS1*	*1*	*1*

SOIL BORING LOG

PROJECT:	*PG&E Topock Soils Remediation Investigation*	LOCATION:	*Topock Compressor Station, Needles, CA*
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	November 30, 2016	LOGGER:	*E. Ludwig, PG, CHG*
TOTAL DEPTH (FT BGS):	*5.5*		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SW	**WELL GRADED SAND WITH SILT AND GRAVEL (SW)** - Light brown, dry, loose, 50% fine sand, 30% silt, 20% fine gravel	
2.5		SM		PVC/steel pipe transition from 1.5 - 2.5'
	3.0 - 3.5		**SILTY SAND (SM)** - Light reddish brown, dry, loose, 50% fine sand, 40% silt, 10% fine to coarse gravel	
5.0	5.0 - 5.5			
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	SD-38-OS1	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	December 13, 2016	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	4.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SW-SM	**WELL GRADED SAND WITH SILT AND GRAVEL (SW-SM)** - Light brown, dry, loose, 70% well graded sand, 20% gravel from 0.5 to 2.0-inches diameter, 10% silt	
2.5				PVC/red clay pipe from 2.0 - 3.0'
	3.0 - 4.0			
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	*SD-39-OS1*	*1*	*1*

SOIL BORING LOG

PROJECT:	*PG&E Topock Soils Remediation Investigation*	LOCATION:	*Topock Compressor Station, Needles, CA*
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:		LOGGER: *E. Ludwig, PG, CHG*	TOTAL DEPTH (FT BGS): *3.0*

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	GW - GM	**WELL GRADED GRAVEL WITH SILT AND SAND (GW-GM)** - Light grayish brown, dry, loose, 50% well graded gravel from 1.0 to 2.0-inches diameter, 30% poorly graded sand, 20% silt	
2.5	2.0 - 3.0			PVC/steel pipe transition from 1.5 - 2.5'
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	SD-40-OS1	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	12/6/2016 - 12/11/16	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	10.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SW	**WELL GRADED GRAVEL WITH SILT AND SAND (GW-GM)** - Light brown, dry, hard, compacted, 45% gravel 0.5 to 1.0-inch diameter, 40% fine to medium sand, 15% silt	
2.5	2.0 - 3.0			
5.0				4" gray PVC pipe from 4.5 to 7.0'
	5.0 - 6.0 Two samples: (1) Below 4" gray PVC 90 (2) Above PVC 6"x4" T	SM	**SILTY SAND WITH GRAVEL (SM)** - Brown, moist, cohesive, medium to hard, 50% fine to medium sand, 30% silt, 15% gravel from 0.5 to 1.5-inches diameter, 5% cobbles 2.0 to 8.0-inches diameter	
	6.0 - 7.0 From inside of 6" PVC pipe			6" white PVC pipe from 6.0 - 7.0'
7.5	7.0 - 8.0 Two samples: (1) Below red clay "Y" (2) Below PVC 6"x4" T			
10.0	9.0 - 10.0 2' below PVC 6"x4" T			
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	SD-41-OS1	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	December 13, 2016	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	8.5		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SW	**WELL GRADED SAND WITH GRAVEL (SW)** - Light brown, dry, hard, 50% well graded sand, 25% gravel, 15% silt, 10% cobbles	
2.5	2.0 - 3.0	SM	**SILTY SAND WITH GRAVEL (SM)** - Light to medium brown, moist, cohesive, 50% fine sand, 30% silt, 15% gravel 0.5 to 2.0-inches diameter, 5% cobbles	Conduit pipes or other utilities (3 total going in different directions)
5.0	5.0 - 6.0	GP	**POORLY GRADED GRAVEL WITH SAND (GP)** - Dark brown, moist, loose, 70% poorly graded gravel 1.0-inch diameter, subangular, 15% fine to medium sand, 15% cobbles and boulders	Large boulder
7.5	8.0 - 8.5	SP-SM	**POORLY GRADED SAND WITH SILT (SP-SM)** - Medium brown, moist to wet, loose, 85% fine sand, 10% silt, 5% gravel	Red clay pipe from 7.5 - 8.5'
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	SD-42-OS1	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	July 17, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	6.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SM	**SILTY SAND WITH GRAVEL (SM)** - Light brown, dry, medium to hard, 40% well graded sand, 30% silt, 20% well graded subangular gravel from 0.5 to 2.0-inches diameter, 10% cobbles from 2.0 to 6.0-inches diameter	
2.5	2.0 - 3.0			
	3.0 - 4.0 Material from inside of pipe			Red clay pipe from 3.0 - 4.0'
5.0	5.0 - 6.0			
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	SD-43-OS1	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	July 18, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	6.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SM	**SILTY SAND WITH GRAVEL (SM)** - Light brown, dry, medium to hard, 50% well graded sand, 25% silt, 15% well graded subangular gravel from 1.0 to 2.0-inches diameter, 10% cobbles from 2.0 to 10.0-inches diameter	
2.5	2.0 - 3.0			
5.0	5.0 - 6.0			Red clay pipe from 4.0 - 5.0'
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	SD-44-OS1	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	July 19, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	6.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SP	**POORLY GRADED SAND WITH COBBLES (SP)** - Light brown, moist, loose, 70% poorly graded medium grained sand, 30% cobbles from 6.0 to 10.0-inches diameter, cobbles are poorly graded, one boulder 16-inches	Sample collected below asphalt
2.5	2.0 - 3.0			
5.0	5.0 - 6.0			Red clay pipe "T" from 4.0 - 5.0'
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	SWMU1-26	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Rotosonic Drill Rig		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 8, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	30.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	GW	**WELL GRADED GRAVEL WITH SAND (GW)** - Light gray, moist, subangular, loose, 50% fine to coarse gravel, 40% very fine to coarse sand, 10% silt	
	2.0 - 3.0			
5.0	5.0 - 6.0	SW	**POORLY GRADED SAND WITH GRAVEL (SW)** - Dark grayish brown, moist, loose, 70% medium sand, 30% gravel	
10.0	9.0 - 10.0	GW	**WELL GRADED GRAVEL WITH SAND (GW)** - Brown, moist, semi-cemented to loose, 60% fine to coarse gravel, 30% very fine to coarse sand, 10% sill	
15.0	14.0 - 15.0			
20.0	19.0 - 20.0			Some cobbles
25.0				Becomes well cemented
30.0	29.0 - 30.0			Total Depth = 30'

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	SWMU1-27	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Rotosonic Drill Rig		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 7, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	30.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	GW		
	2.0 - 3.0			
5.0	5.0 - 6.0	GW-SW		
10.0	9.0 - 10.0	GW	Gravel cemented layer - dry **WELL GRADED GRAVEL (GW)** - Strong brown, dry, loose, fine to coarse gravel Gravel cemented layer - dry	
15.0	14.0 - 15.0		**WELL GRADED GRAVEL (GW)** - Strong brown, dry, loose, fine to coarse gravel	
20.0	19.0 - 20.0			
25.0			Gravel cemented layer, color mottled, matrix is strong brown, clasts are greenish gray	
30.0	29.0 - 30.0			Total Depth = 30'

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	SWMU1-28	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Hand Tools		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	February 14, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	3.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SM	**SILTY SAND WITH GRAVEL (SM)** - Light grayish brown, dry, 45% very fine sand, 35% silt, 20% gravel	
2.5	2.0 - 3.0	GW-GM	**WELL GRADED GRAVEL WITH SILT AND SAND (GW-GM)** - Light grayish brown, dry, angular gravel, 1 to 2 inch diameter, loose, 60% gravel, 25% silt, 15% very fine sand	
5.0				
7.5				
10.0				
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	SWMU5-2	1	1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 12, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	10.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SM	**SILTY SAND WITH GRAVEL AND COBBLES (SM)** - Medium brown, moist, very stiff to dense, 60% silty sand, poorly graded, very dense, 40% angular gravel, 4"to 8", cobbles 8" to 12", angular	Sample collected 12/7/15
2.5	2.0 - 3.0			Sample collected 12/7/15
5.0	5.0 - 6.0			1" diameter air line, wrapped pipe, likely for sand blasting shed Sample collected 12/7/15
7.5				7.5' total depth of 12/7/15 borehole
10.0	9.0 - 10.0	GW	**COBBLES WITH GRAVEL AND SAND (GW)** - 70% angular cobbles, 20% well graded gravel, 10% fine sand to silt	Sampled collected 1/12/17
12.5				
15.0				

GROUNDWATER PARTNERS	PROJECT NUMBER: 684141.FP.RI	SAMPLE LOCATION: SWMU6-1	SHEET: 1 OF: 1

SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 12, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	10.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SM	**SILTY SAND WITH COBBLES AND GRAVEL (SM)** - Medium brown, moist, dense to hard, 60% silty sand, poorly graded, very dense, 40% angular gravel, 1"to 6", cobbles 6" to 12"	Sample collected 12/7/15
2.5	2.0 - 3.0			Sample collected 12/7/15 3' total depth of 12/7/15 borehole
5.0	5.0 - 6.0	GW-GM	**WELL GRADED GRAVEL WITH SILT AND SAND (GW-GM)** - Light grayish brown, moist, 50% well graded gravel, 1" to 6", angular to subangular, 25% sill, 15% fine sand, 10% cobbles 6" to 12"	Sample collected 1/12/17
7.5				
10.0	9.0 - 10.0		**WELL GRADED GRAVEL WITH SILT AND SAND (GW-GM)** - Light grayish brown, moist, 50% well graded gravel, 1" to 6", angular to subangular, 20% silt, 10% fine sand, 20% cobbles 6" to 12"	Sample collected 1/12/17
12.5				
15.0				

GROUNDWATER PARTNERS

PROJECT NUMBER:	SAMPLE LOCATION:	SHEET:	OF:
684141.FP.RI	SWMU11-3	1	1

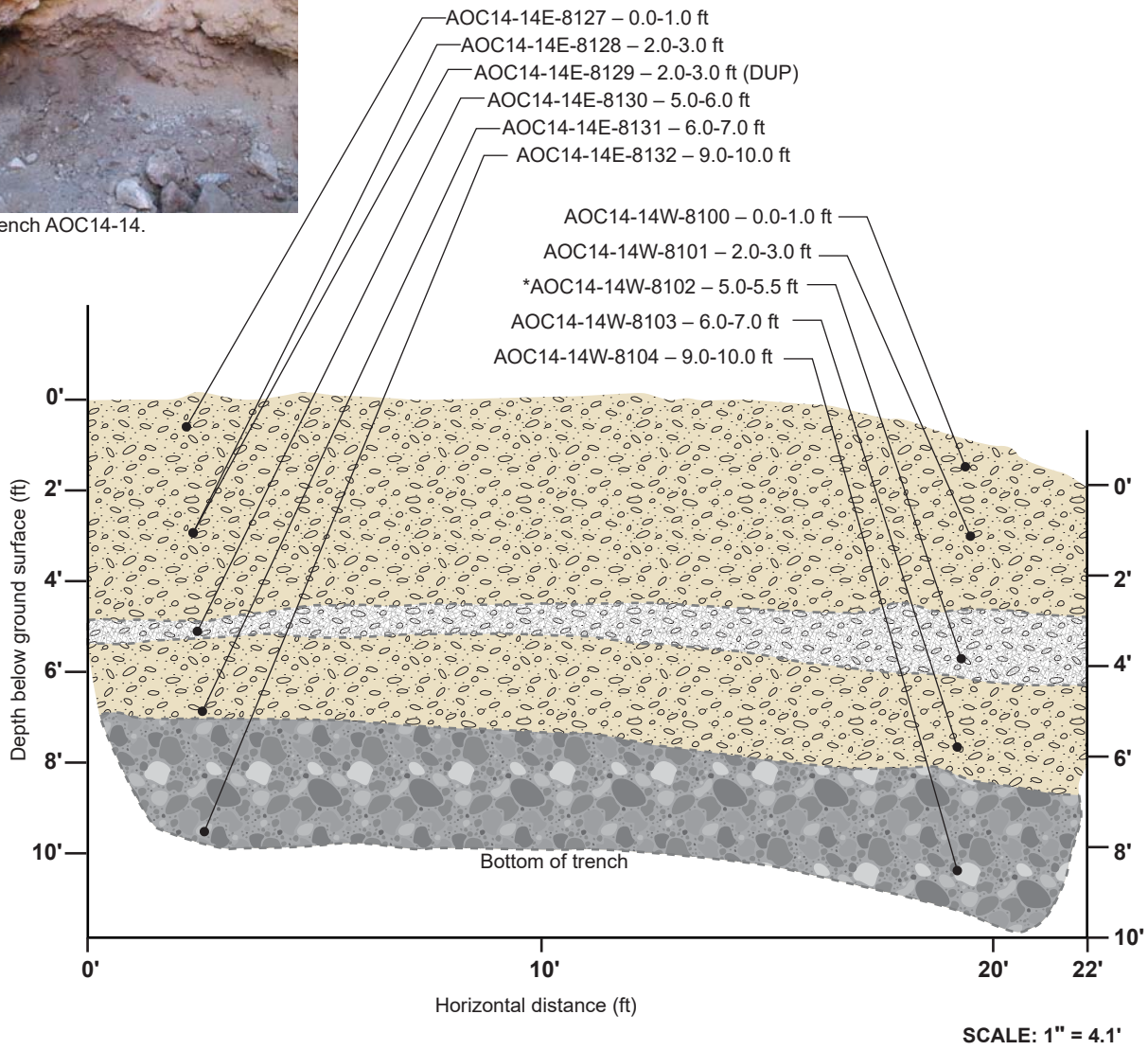
SOIL BORING LOG

PROJECT:	PG&E Topock Soils Remediation Investigation	LOCATION:	Topock Compressor Station, Needles, CA
SAMPLING METHOD:	Airvac/Hydrovac		
SUBCONTRACTOR:	Groundwater Partners, Inc		
SAMPLE DATE:	January 18, 2017	LOGGER:	E. Ludwig, PG, CHG
TOTAL DEPTH (FT BGS):	7.0		

DEPTH (FT) BELOW SURFACE	SAMPLE INTERVALS	USCS GROUP SYMBOL	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, CONSISTENCY, GRAIN SIZE, GRAIN SHAPE, PLASTICITY	COMMENTS
0.0	0.0 - 0.5	SP	**POORLY GRADED SAND WITH GRAVEL (SP)** - Medium brown, loose, moist, medium sand, sand is poorly graded, gravel 0.25" to 1.5", subangular	Sample collected 1/19/16
2.5	2.5 - 3.0			Sample collected 1/19/16 3' total depth of 1/19/16 borehole
5.0	5.0 - 6.0		**POORLY GRADED SAND (SP)** - Medium brown, loose, moist, medium to fine sand, sand is poorly graded, 10% well graded gravel, subangular, 10% cobbles up to 8", rust colored sand	Sample collected 1/18/17
	6.5 - 7.0			Sample collected 1/18/17 Refusal at 7.0' (Concrete with cobbles)
7.5				
10.0				
12.5				
15.0				

Attachment B2
Trench Logs

Debris at Trench AOC14-14.



SCALE: 1" = 4.1'

LEGEND

DEBRIS AND BURN MATERIAL

GRAVEL, COBBLES AND BOULDERS

WELL GRADED GRAVEL WITH SAND AND SILT

TRENCH SIDEWALL RECORD

TRENCH VIEW: LOOKING SOUTH DATE: 2/16/16 – 2/18/16

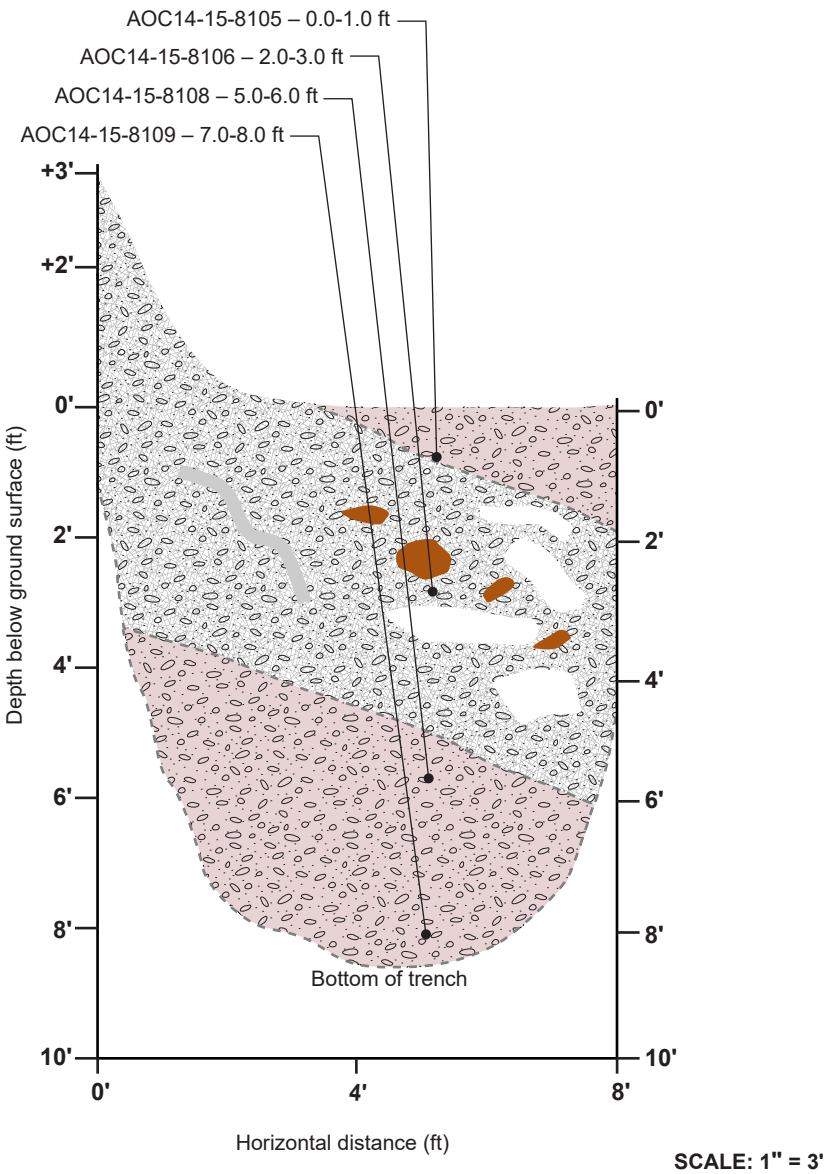
NOTES:

1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. *DTSC TOOK SPLIT/DUP SAMPLE
3. DEBRIS INCLUDES: METALLIC MATERIAL, CHARCOAL, GLASS, WIRE W/PIPE INSULATION, WIRE, HOSE, TILE, MISC. UNIDENTIFIED DEBRIS, APPEARS MELTED OR BURNED

FIGURE B2-1
Trench AOC14-14
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs

Debris at Trench AOC14-15.



SCALE: 1" = 3'

LEGEND

DEBRIS LAYER

WELL GRADED SAND WITH COBBLES AND SILT

TRENCH SIDEWALL RECORD

TRENCH VIEW: LOOKING SOUTH DATE: 2/18/16

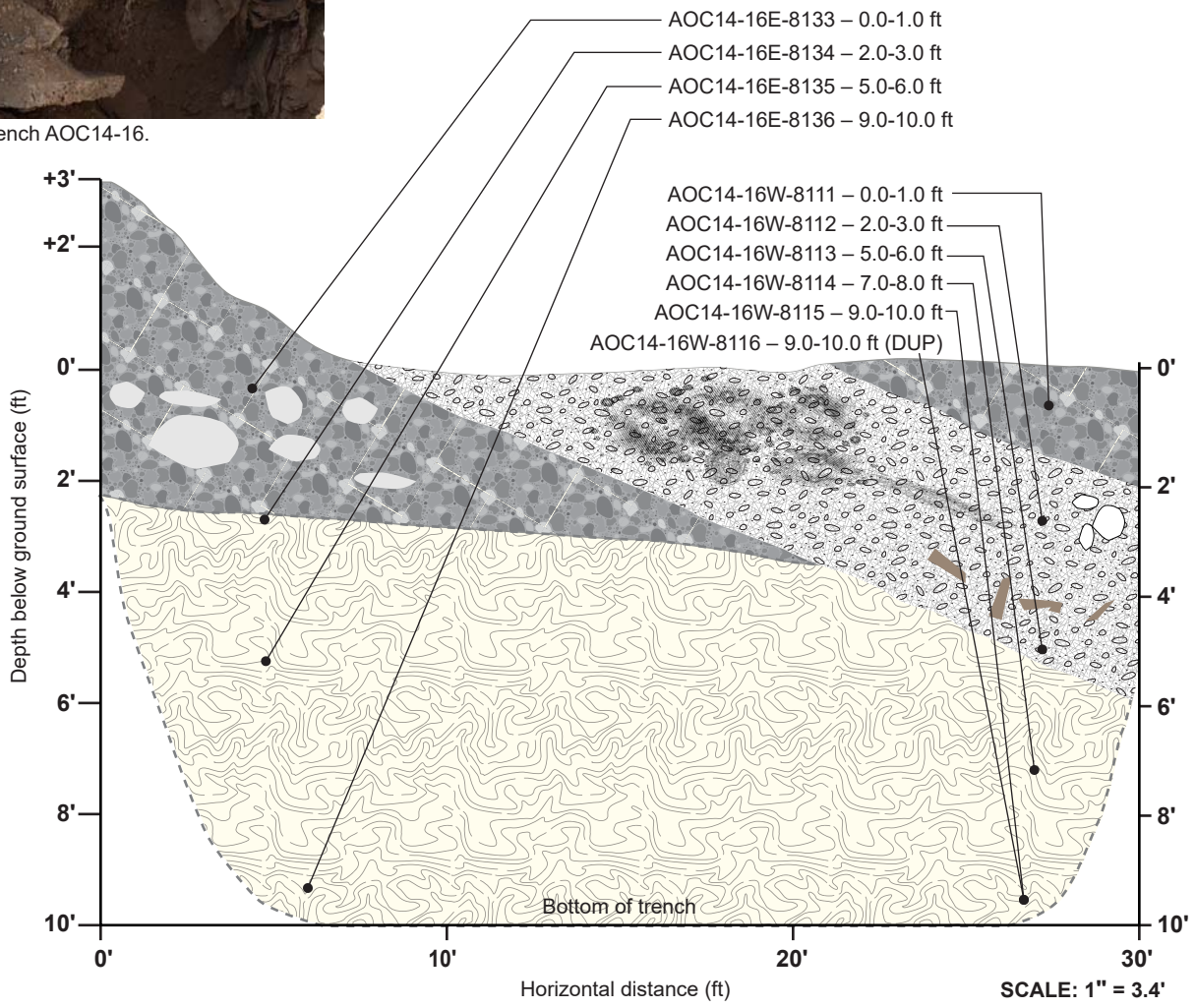
NOTES:

1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. DEBRIS INCLUDES: STAINLESS STEEL BANDING STRAP, METALLIC DEBRIS, ABUNDANT WHITE MATERIAL AND WHITE FOAM BOARD INSULATION
3. BACKHOE COULD NOT EXCAVATE ANY DEEPER THAN 8' BELOW THE DATUM GROUND SURFACE AS THE BACKHOE WAS SITTING AT A HIGHER ELEVATION ON TOP OF THE TERRACE LOCATED EAST OF THE TRENCH

FIGURE B2-2
Trench AOC14-15
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs

Debris at Trench AOC14-16.



LEGEND

DEBRIS LAYER

SAND, BOULDERS AND COBBLES

HARDPAN, CONSOLIDATED GRAVEL AND SAND

TRENCH SIDEWALL RECORD

TRENCH VIEW: LOOKING SOUTH DATE: 2/22/16 – 2/23/16

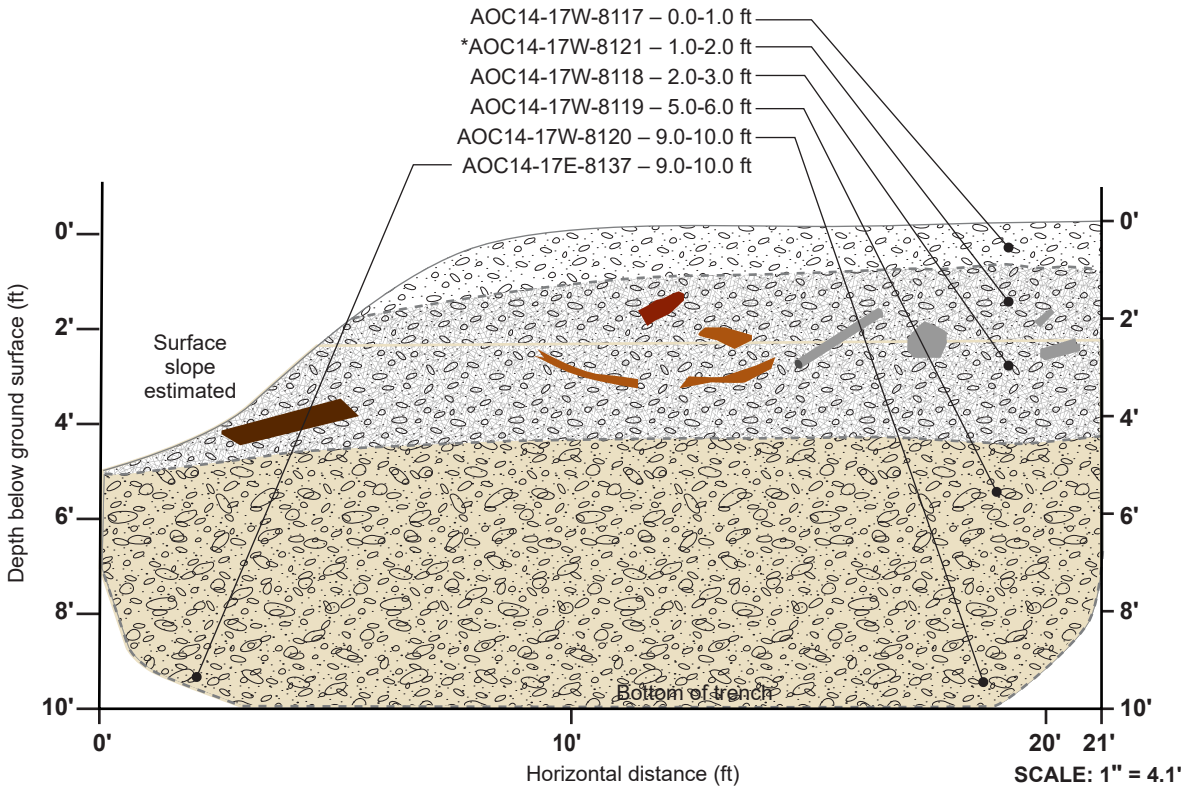
NOTES:

1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. DEBRIS INCLUDES: CONCRETE SLABS, PLASTIC, WOOD, CEMENTED GRANULAR BLACK DEBRIS

FIGURE B2-3
Trench AOC14-16
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs

Debris at Trench AOC14-17.



LEGEND

DEBRIS LAYER

WELL GRADED GRAVEL

WELL GRADED GRAVEL WITH SILT, COBBLES AND BOULDERS

TRENCH SIDEWALL RECORD

TRENCH VIEW: LOOKING SOUTH DATE: 2/24/16

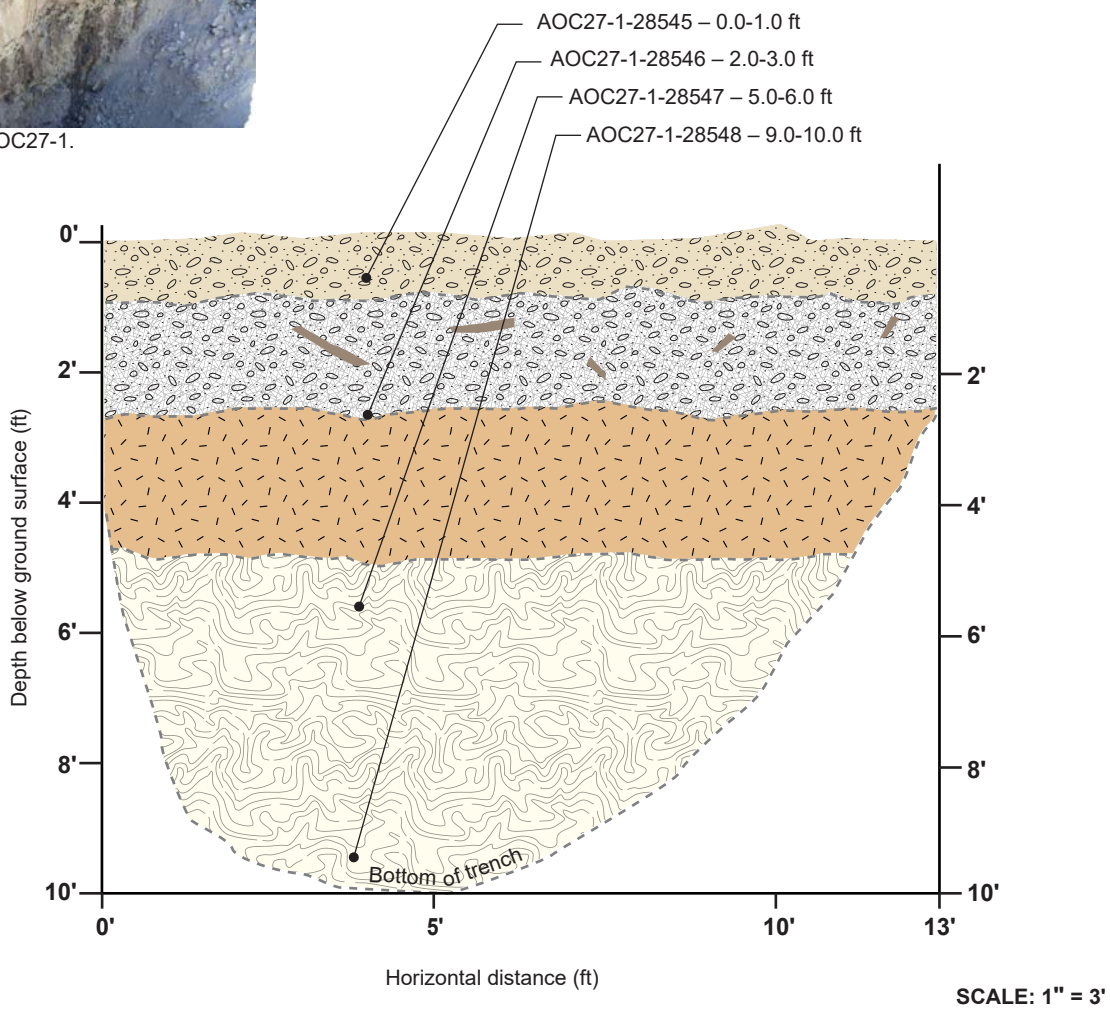
NOTES:

1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. *DTSC TOOK SPLIT/DUP SAMPLE
3. DEBRIS INCLUDES: CHARCOAL, WOOD, PIPE, METALLIC MATERIAL (RUSTY) AND RED CONCRETE

FIGURE B2-4
Trench AOC14-17
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs

Debris at Trench AOC27-1.



SCALE: 1" = 3'

LEGEND

- HARDPAN - SEMI-CONSOLIDATED GRAVEL AND COBBLES
- CONSOLIDATED SILT
- DEBRIS LAYER: GRAVEL, COBBLES AND SAND
- WELL GRADED GRAVEL, NO DEBRIS

TRENCH SIDEWALL RECORD

TRENCH VIEW: LOOKING SOUTH DATE: 3/18/16

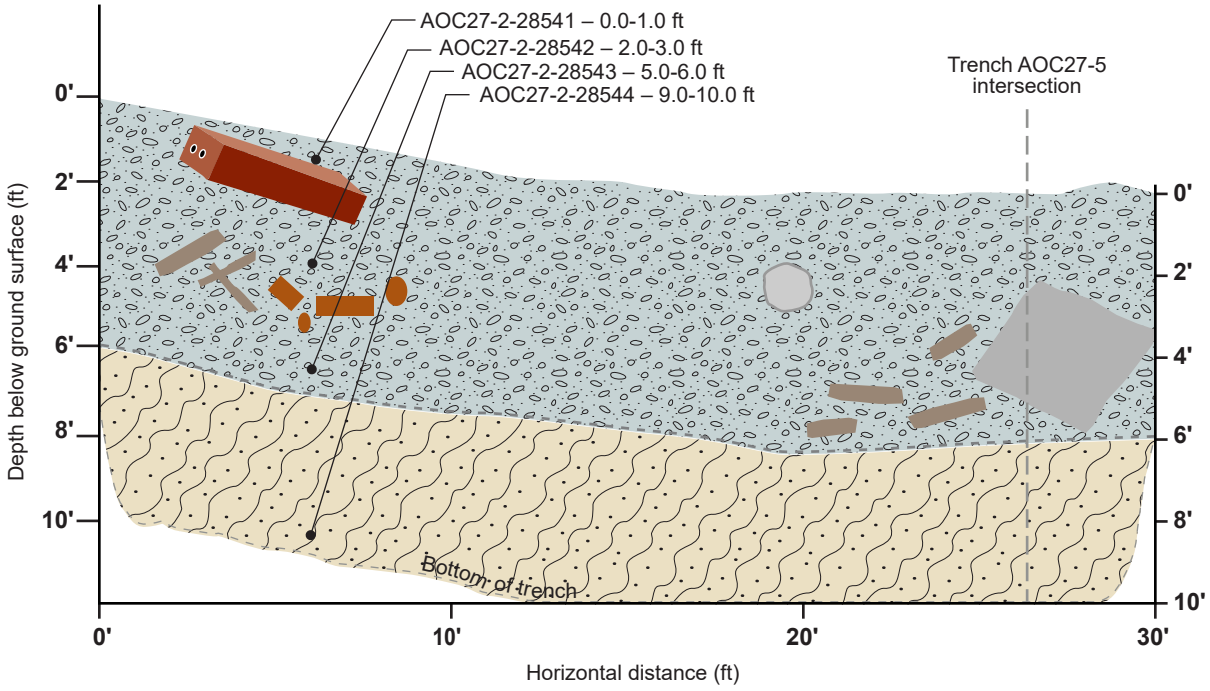
NOTES:

1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. DEBRIS INCLUDES: WOOD FRAGMENTS, METALLIC RUSTY MATERIAL

FIGURE B2-5
Trench AOC27-1
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs

Debris at Trench AOC27-2.



Trench slope/angle is estimated.

SCALE: 1" = 4.65'

LEGEND

CONSOLIDATED SILT AND SAND

DEBRIS: WOOD, CONCRETE, AND METAL

TRENCH SIDEWALL RECORD

TRENCH VIEW: LOOKING SOUTH DATE: 3/18/16

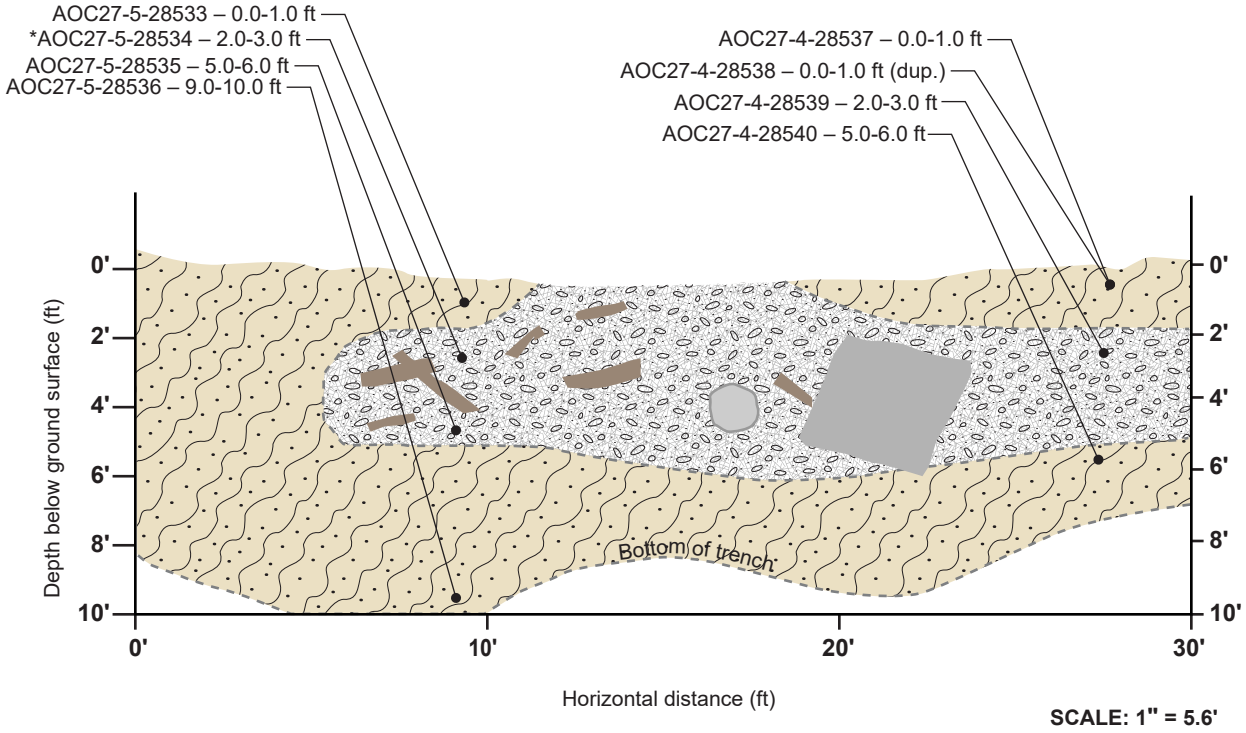
NOTES:

1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. DEBRIS INCLUDES: WOOD FRAGMENTS, TIMBERS, 3'X3' CONCRETE BLOCK, 2'X2'X6' BLOCK OF RED CONCRETE W/CONDUIT, RED CLAY PIPE (AS TRASH), AND METAL DEBRIS

FIGURE B2-6
Trench AOC27-2
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs

Debris at Trench AOC27-5.



LEGEND

CONSOLIDATED SILT WITH SOME BOULDERS

HEAVY DEBRIS

TRENCH SIDEWALL RECORD

TRENCH VIEW: LOOKING EAST DATE: 3/17/16

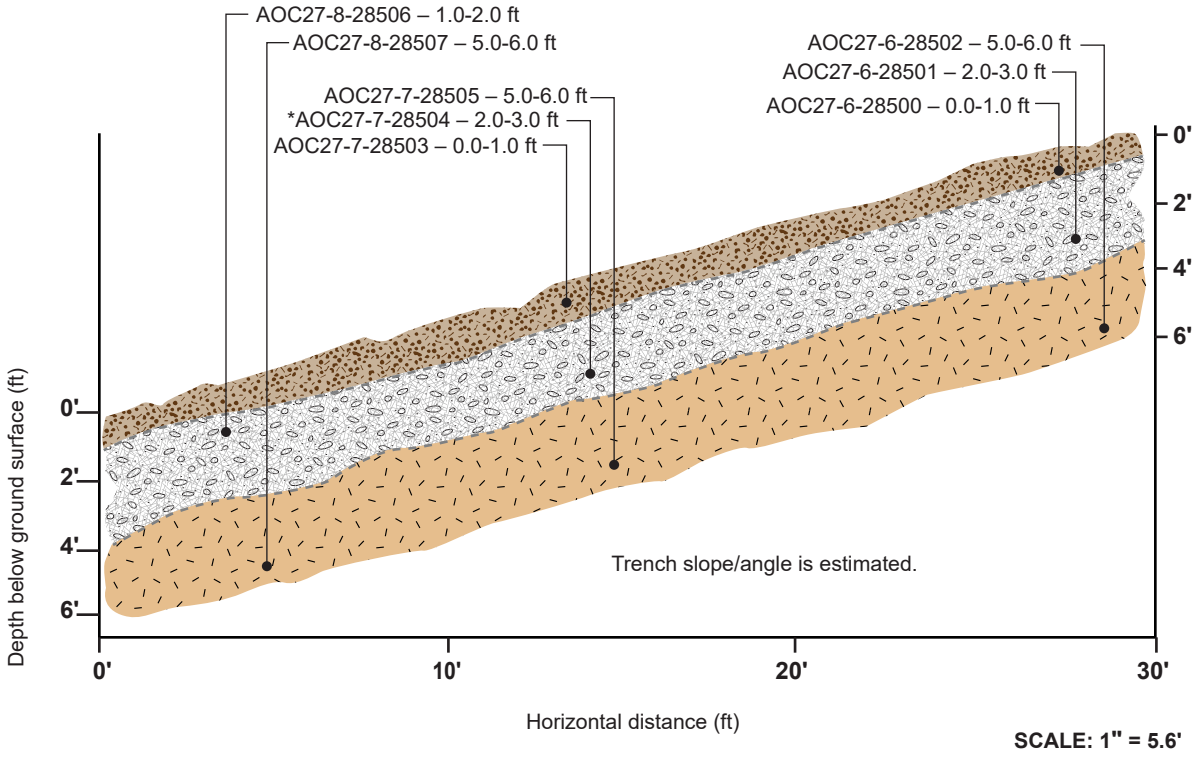
NOTES:

1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. *DTSC TOOK SPLIT/DUP SAMPLE
3. DEBRIS INCLUDES: WOOD FRAGMENTS, TIMBERS, LARGE CONCRETE BLOCK, ONE ROUND PIECE OF METAL DEBRIS

FIGURE B2-7
Trench AOC27-4, AOC27-5 *Pacific Gas and Electric Company Topock Compressor Station Needles, California*

Jacobs

Debris at Trench AOC27-7.



LEGEND

CONSOLIDATED SILT, SAND, GRAVEL, COBBLES, & BOULDERS OF VARYING PERCENTAGES

REWORKED ROAD FILL, WITH LIGHT DEBRIS

HEAVY DEBRIS

TRENCH SIDEWALL RECORD

TRENCH VIEW: LOOKING NORTHWEST DATE: 12/29/16 – 3/1/16

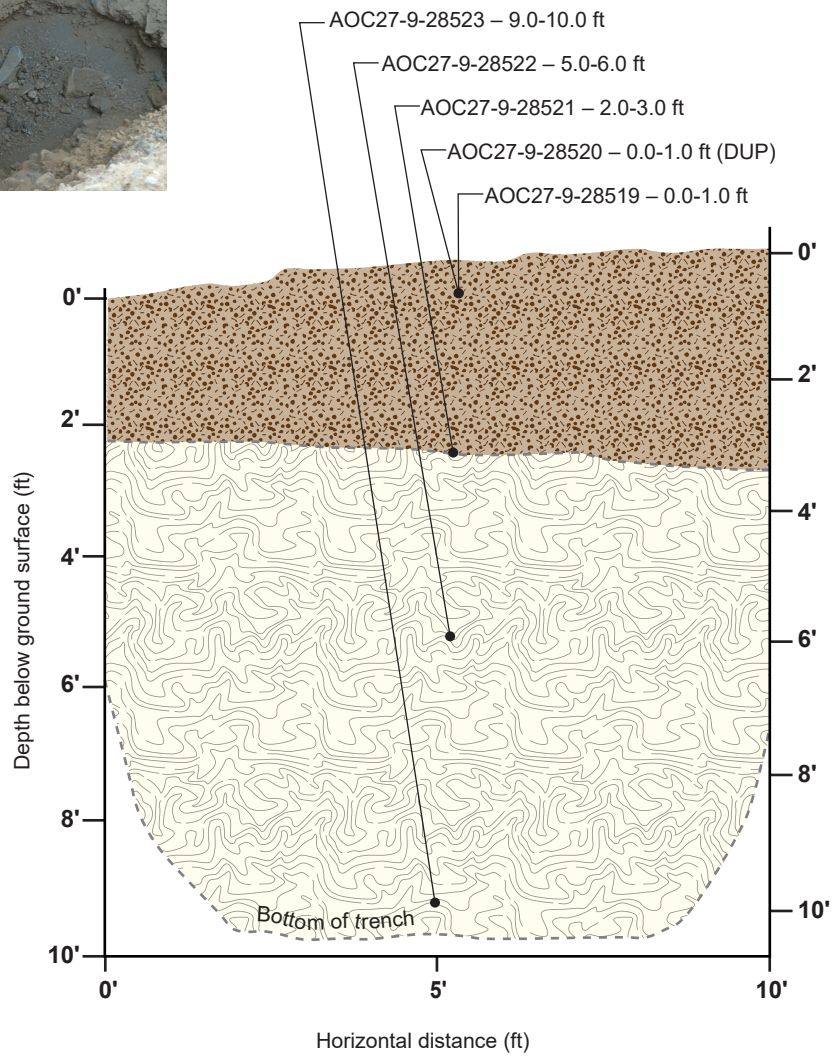
NOTES:

1. TRENCH ALONG ACCESS ROAD FROM MW-24 BENCH TO BCW, THEREFORE SLOPING TOWARDS THE SOUTHWEST
2. DEBRIS DIPS TOWARDS THE NORTHWEST, DEBRIS EXPOSED AT GROUND SURFACE ON SOUTHEAST SIDE OF TRENCH, AND IS ONLY 1' - 2' DEEP ON SOUTHEAST SIDE OF TRENCH
3. *DTSC TOOK SPLIT/DUP SAMPLE
4. DEBRIS INCLUDES: PIPE, METALLIC FRAGMENTS, GLASS, WIRE, TILE, CONSTRUCTION DEBRIS, INSULATION, PIPE WRAP, CABLE, WOOD

FIGURE B2-8
Trench AOC27-6, AOC27-7, and AOC27-8
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs

Debris at Trench AOC27-9.



SCALE: 1" = 3'

LEGEND

HARDPAN - HIGHLY CONSOLIDATED GRAVEL WITH SAND, SILT AND COBBLES

REWORKED ROAD FILL, WITH NO DEBRIS, WELL GRADED GRAVEL, SAND AND COBBLES

TRENCH SIDEWALL RECORD

TRENCH VIEW: LOOKING NORTH DATE: 3/8/16

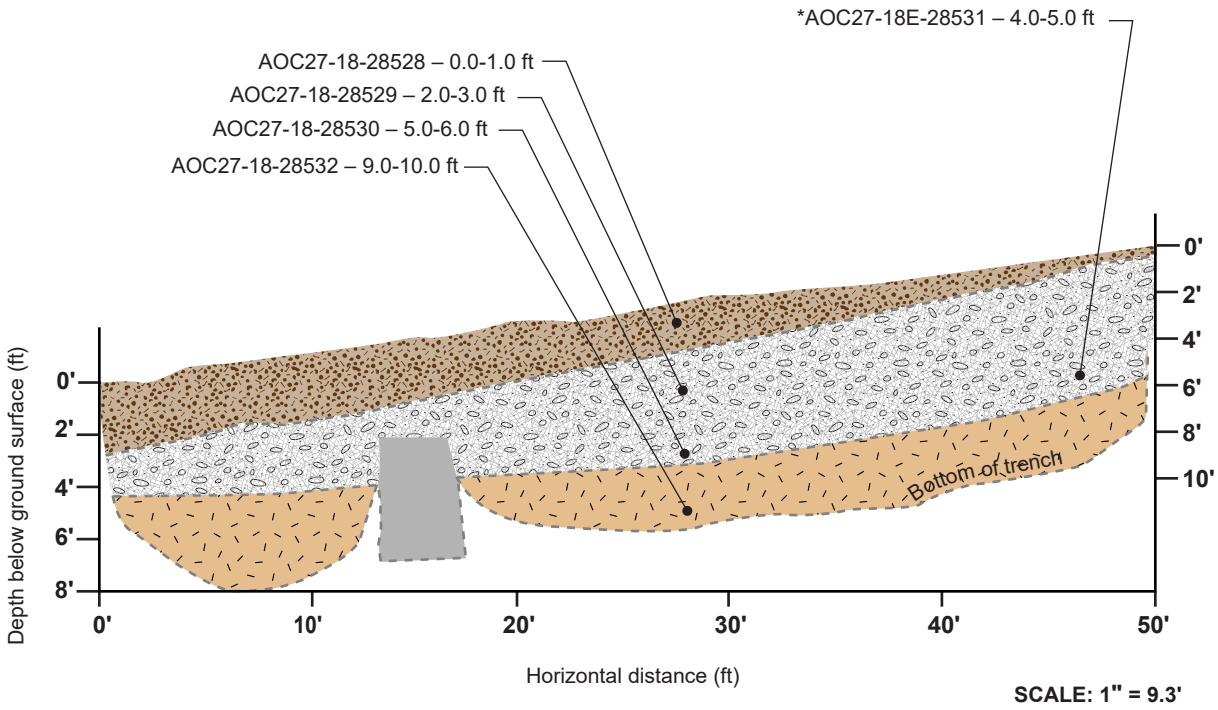
NOTES:

1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. NO DEBRIS OBSERVED
3. TRENCH ALONG ACCESS ROAD FROM MW-24 BWENCH TO BCW

FIGURE B2-9
Trench AOC27-9
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs

Debris at Trench AOC27-18.



SCALE: 1" = 9.3'

LEGEND

CONSOLIDATED SILT

DEBRIS LAYER: WELL GRADED GRAVEL WITH COBBLES, SAND AND BOULDERS. DEBRIS IS DISSEMINATED THROUGHOUT LAYER

REWORKED ROAD FILL, WITH NO DEBRIS, WELL GRADED GRAVEL, SAND AND COBBLES

TRENCH SIDEWALL RECORD

TRENCH VIEW: LOOKING NORTH DATE: 3/17/16

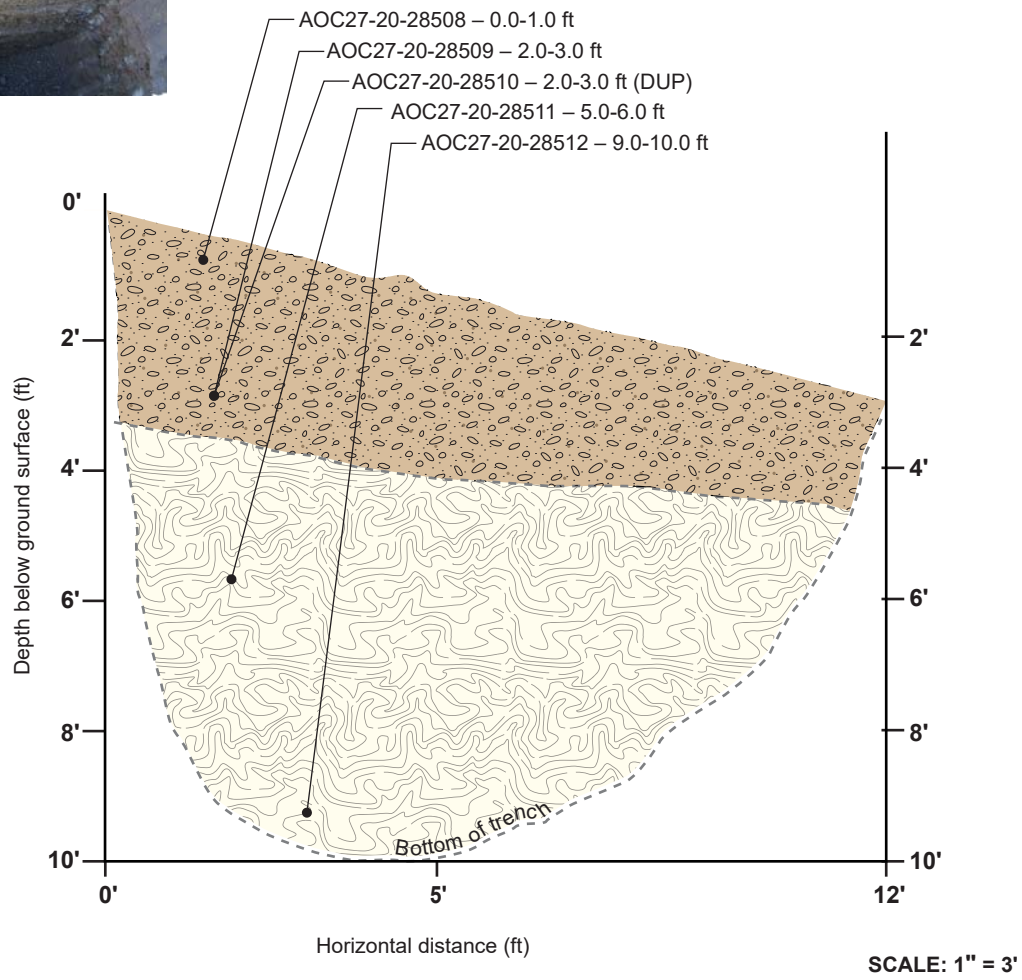
NOTES:

1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. *DTSC TOOK SPLIT/DUP SAMPLE
3. TRENCH ALONG ACCESS ROAD FROM TCS TO MW-24 BENCH
4. DEBRIS INCLUDES: RED CONCRETE BLOCK, TIRE, REBAR, RUSTY METALLIC PIECES, ASPHALT CHUNKS, CHARCOAL, OLD ROAD BASE, ONE LARGE CONCRETE BLOCK
5. THE CONCRETE BLOCK WAS NOT REMOVED AND SPANNED THE ENTIRE TRENCH

FIGURE B2-10
Trench AOC27-18
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs

Debris at Trench AOC27-20.



LEGEND

HARDPAN - HIGHLY CONSOLIDATED GRAVEL WITH SAND AND SILT

WELL GRADED SAND WITH COBBLES, SOME SILT AND GRAVEL

TRENCH SIDEWALL RECORD

TRENCH VIEW: LOOKING NORTH DATE: 3/8/16

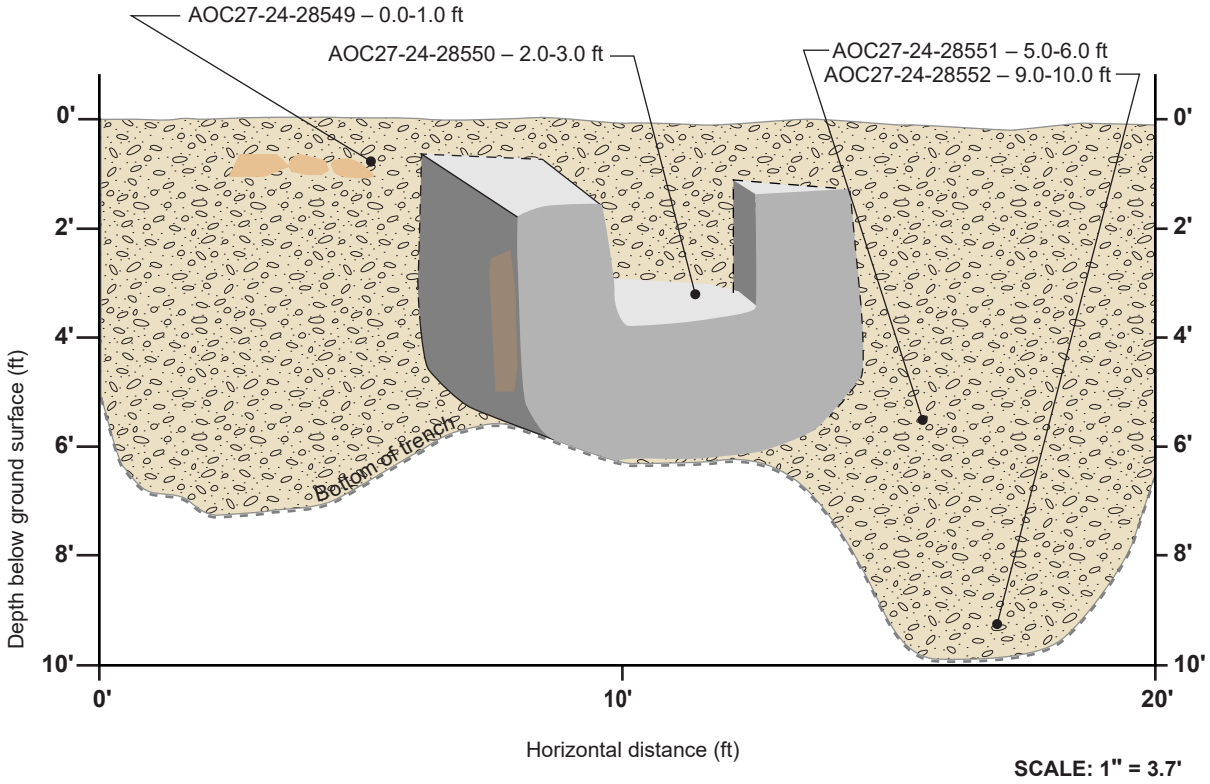
NOTES:

1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. NO DEBRIS OBSERVED

FIGURE B2-11
Trench AOC27-20
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs

Debris at Trench AOC27-24.



SCALE: 1" = 3.7'

LEGEND

WELL GRADED GRAVEL WITH SILT AND COBBLES

TRENCH SIDEWALL RECORD

TRENCH VIEW: LOOKING SOUTHWEST DATE: 3/18/16

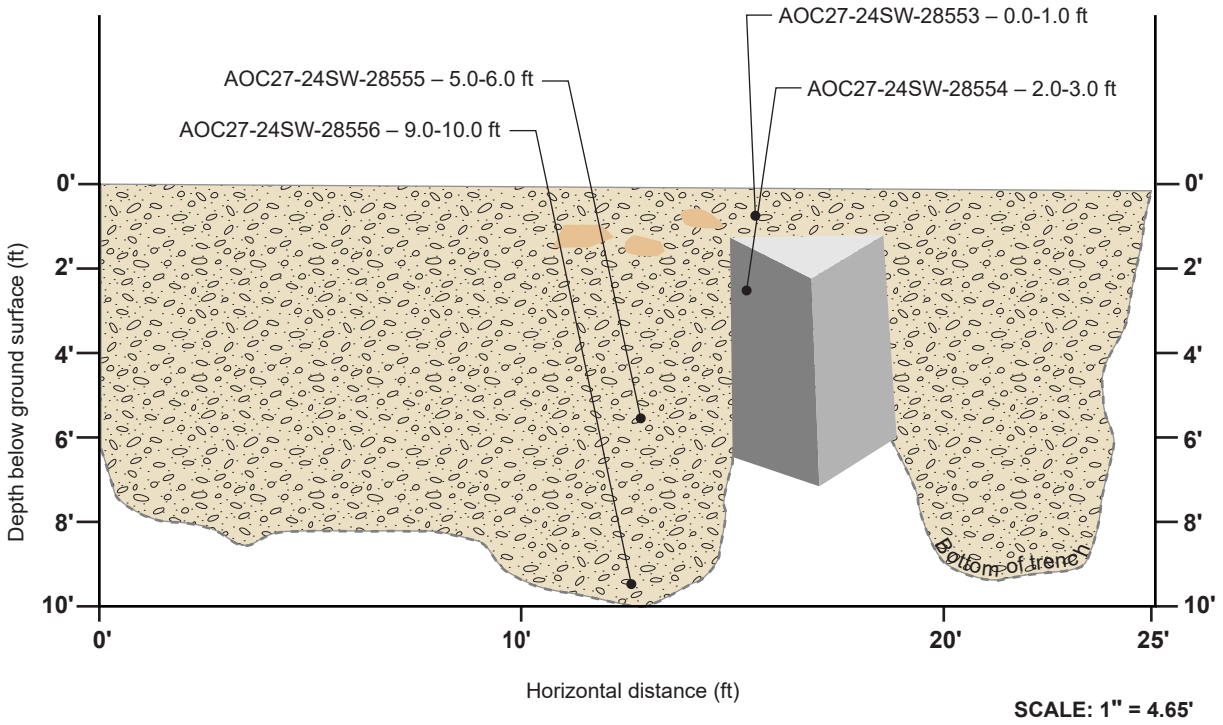
NOTES:

1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. DEBRIS INCLUDES: METALLIC DEBRIS (RUSTED), LATGE BLOCK OF CONCRETE IN THE SHAPE OF A "U" WITH WOOD NEXT TO CONCRETE (FORMS?)

FIGURE B2-12
Trench AOC27-24
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs

Debris at Trench AOC27-24SW.



LEGEND

WELL GRADED GRAVEL WITH SILT AND COBBLES

TRENCH SIDEWALL RECORD

TRENCH VIEW: LOOKING SOUTHWEST DATE: 3/18/16

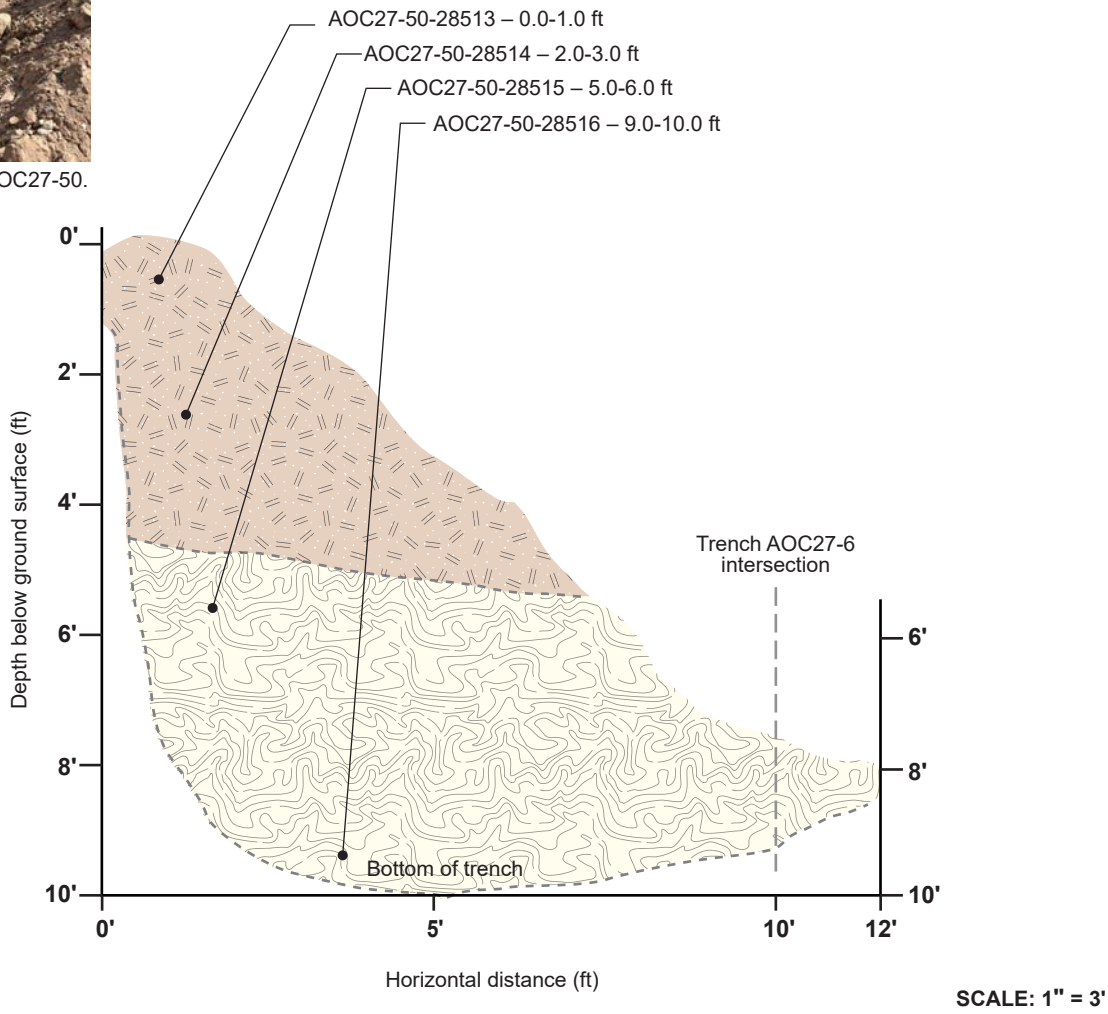
NOTES:

1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. DEBRIS INCLUDES: METALLIC DEBRIS (RUSTED), LATGE BLOCK OF CONCRETE, WITH WOOD NEXT TO CONCRETE (FORMS?)

FIGURE B2-13
Trench AOC27-24SW
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs

Debris at Trench AOC27-50.



SCALE: 1" = 3'

LEGEND

HARDPAN - HIGHLY CONSOLIDATED GRAVEL WITH SAND AND FILL

LOOSE SILT WITH SAND AND COBBLES, DEBRIS DISSEMINATED

TRENCH SIDEWALL RECORD

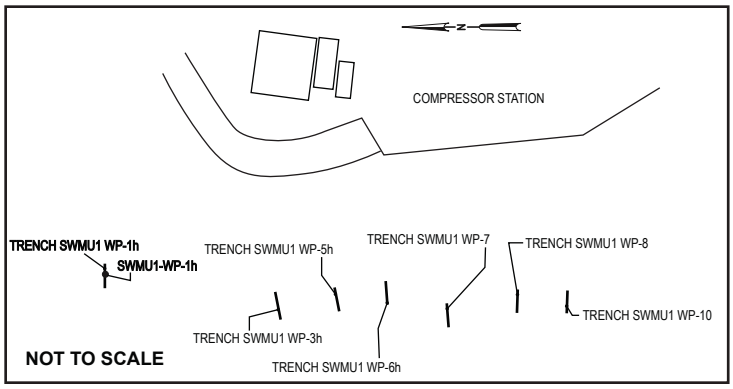
TRENCH VIEW: LOOKING SOUTH DATE: 3/2/16

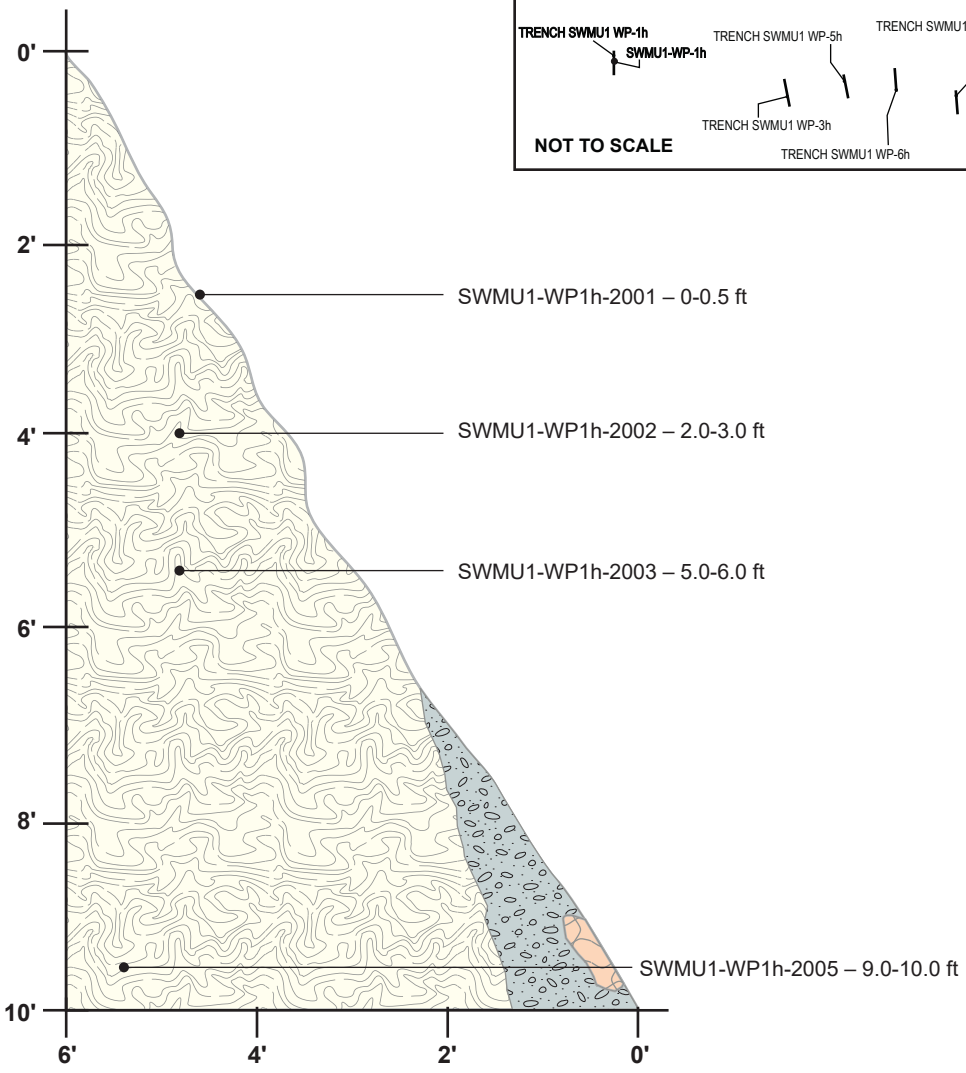
NOTES:

1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. DEBRIS INCLUDES: METALLIC RUSTY DEBRIS, TILES, RED CLAY PIPE AND GLASS DEBRIS PRESENT AT SURFACE OF THE PILE

FIGURE B2-14
Trench AOC27-50
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs





SCALE: 1" = 2'

LEGEND

- HARDPAN: NATIVE HIGHLY CONSOLIDATED SILTY SAND (SM) WITH GRAVEL AND COBBLES
- ROCKY RUBBLE
- GREEN STAINED ROCKY RUBBLE AND DEBRIS
- SAMPLE LOCATION

TRENCH SIDEWALL RECORD
TRENCH VIEW: LOOKING SOUTH DATE: 10/7/08

NOTES:
1. EXCAVATION TRENCH TO INVESTIGATE EXTENT OF WHITE MATERIAL TO SOUTH OF SITE
2. SAMPLES COLLECTED FROM EXCAVATOR BUCKET

FIGURE B2-15
Trench SWMU1 WP-1h
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs

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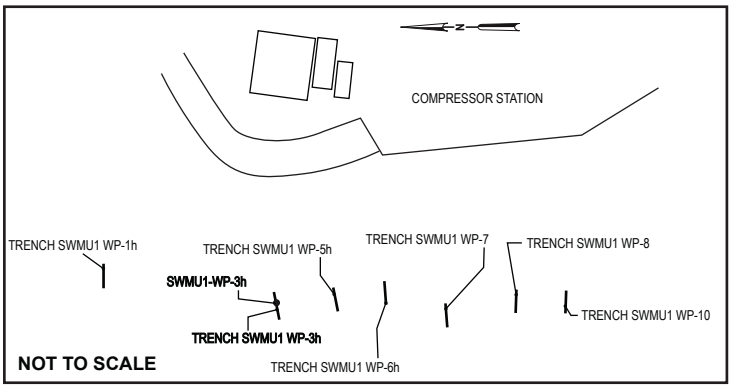

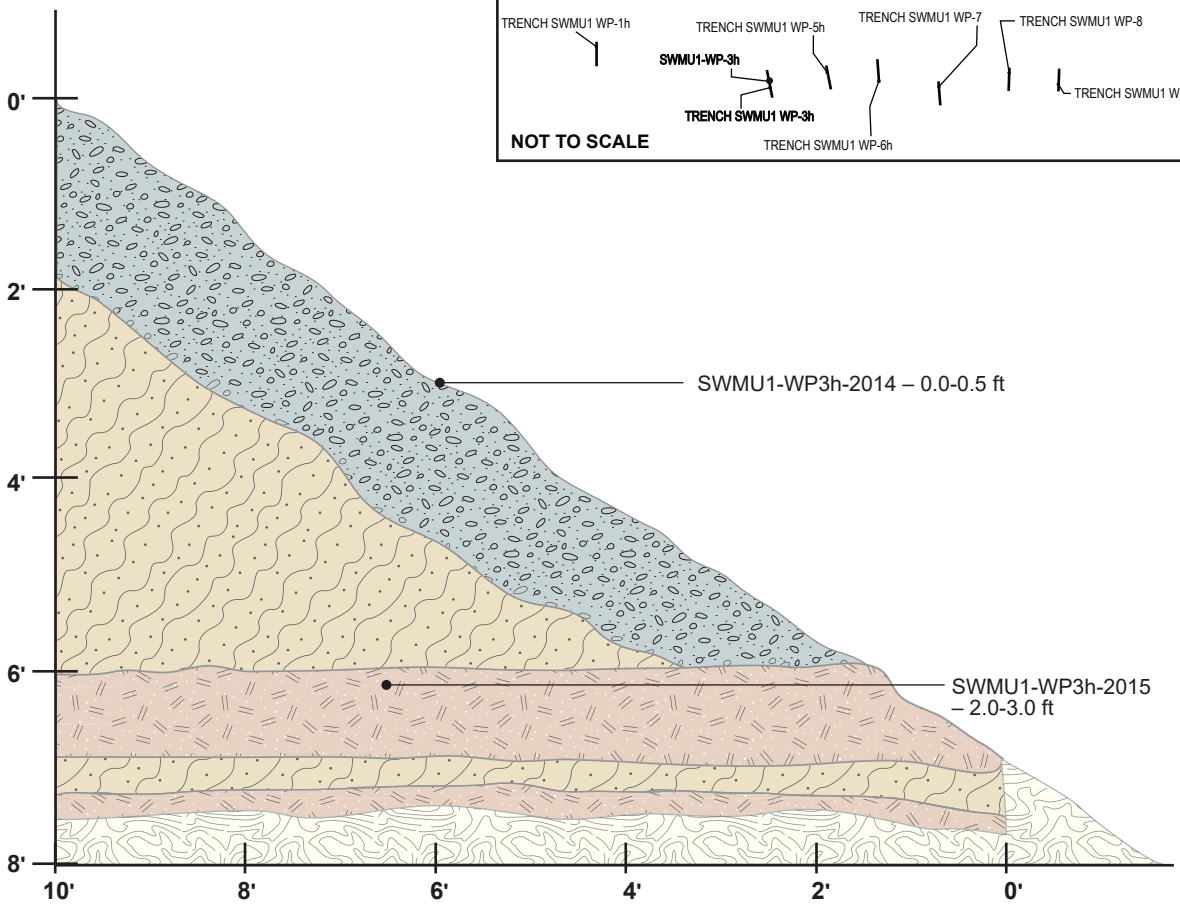

SCALE: 1" = 2'

LEGEND

- HARDPAN: NATIVE HIGHLY CONSOLIDATED SILTY SAND (SM) WITH GRAVEL AND COBBLES
- LIGHT BROWN SANDY SILT (ML) WITH WHITE POWDER MATERIAL
- LIGHT BROWN SANDY SILT (ML) WITH GRAVEL
- ROCKY RUBBLE
- SAMPLE LOCATION

TRENCH SIDEWALL RECORD

TRENCH VIEW: LOOKING SOUTH DATE: 10/7/08

NOTES:

1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. TRENCH EXTENDS 10' INTO SLOPE
3. SIDE WALL COMPETENT
4. ROCKY RUBBLE FROM ROCK FALLS ON SURFACE, LIGHT BROWN SANDY SILT BELOW RUBBLE
5. LAYER OF CONSOLIDATED WHITE POWDERY MATERIAL JUST BELOW SURFACE AT TOE OF SLOPE, 10"-12" THICK
6. NO GROUNDWATER OR ODORS ENCOUNTERED, TRENCH BACKFILLED

FIGURE B2-16
Trench SWMU1 WP-3h
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs

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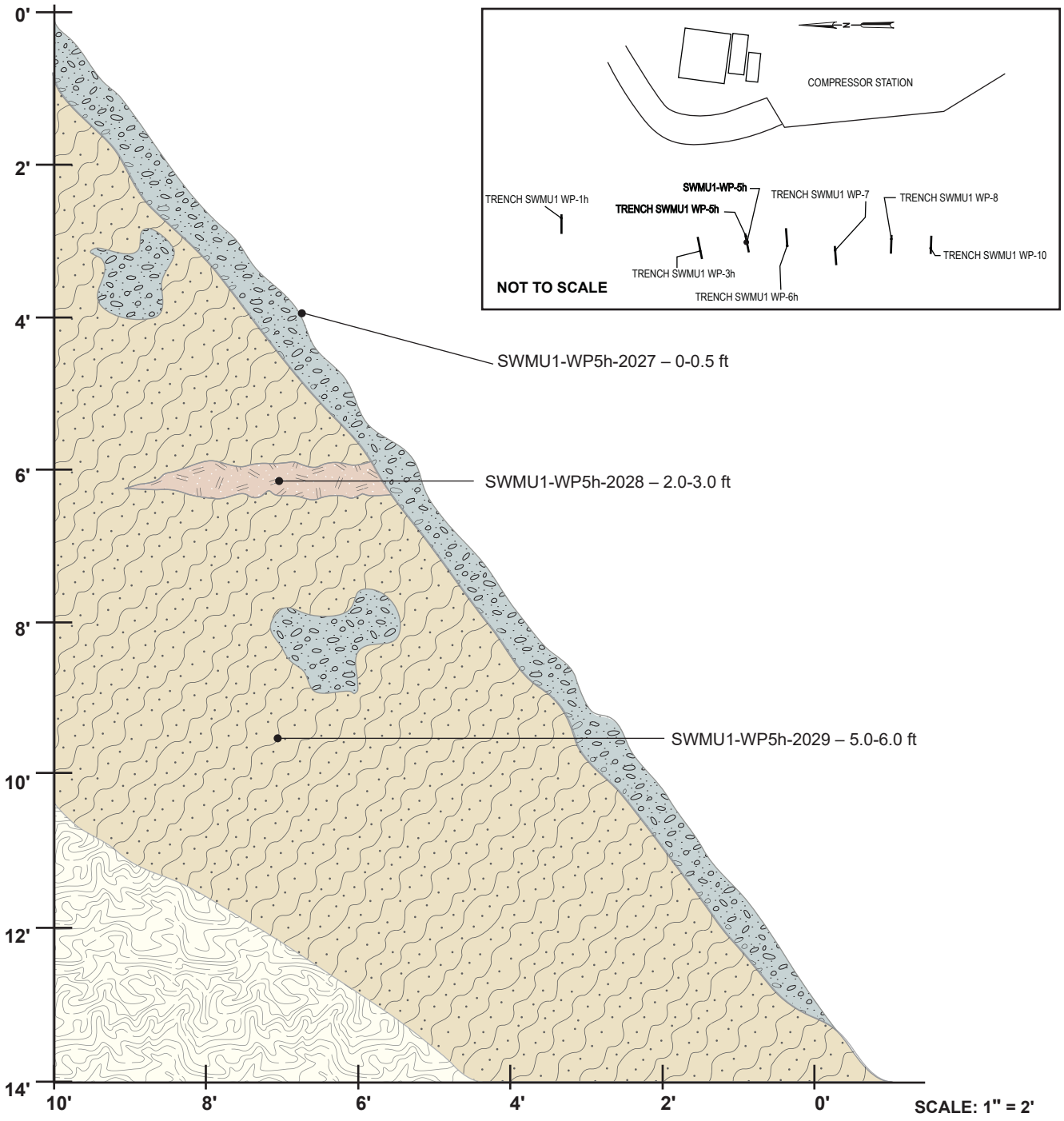

LEGEND

- HARDPAN: NATIVE HIGHLY CONSOLIDATED SILTY SAND (SM) WITH GRAVEL AND COBBLES
- LIGHT BROWN SANDY SILT (ML) WITH GRAVEL
- SAMPLE LOCATION
- LIGHT BROWN SANDY SILT (ML) WITH WHITE POWDER MATERIAL
- ROCKY RUBBLE

TRENCH SIDEWALL RECORD

TRENCH VIEW: LOOKING SOUTH DATE: 10/7/08

NOTES:

1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. TRENCH EXTENDS 10' INTO SLOPE
3. SIDE WALL COMPETENT, SURFACE LAYER ROCKY RUBBLE OVER HETEROGENEOUS LIGHT BROWN SILTY SAND WITH ONE LENSE OF WHITE POWDER AND POCKETS OF ROCKY RUBBLE
4. NO GROUNDWATER OR ODORS ENCOUNTERD, TRENCH BACKFILLED

FIGURE B2-17
Trench SWMU1 WP-5h
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs

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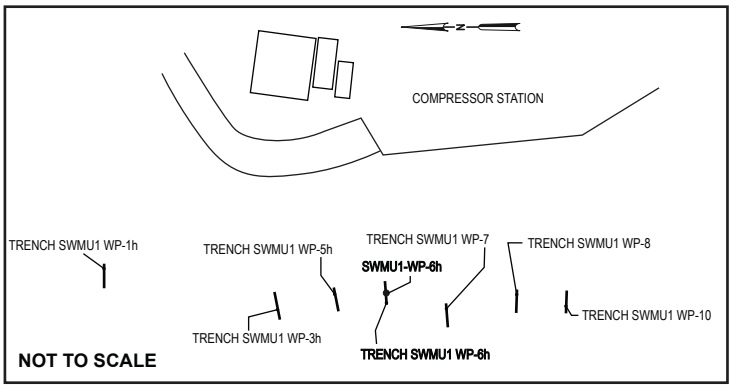

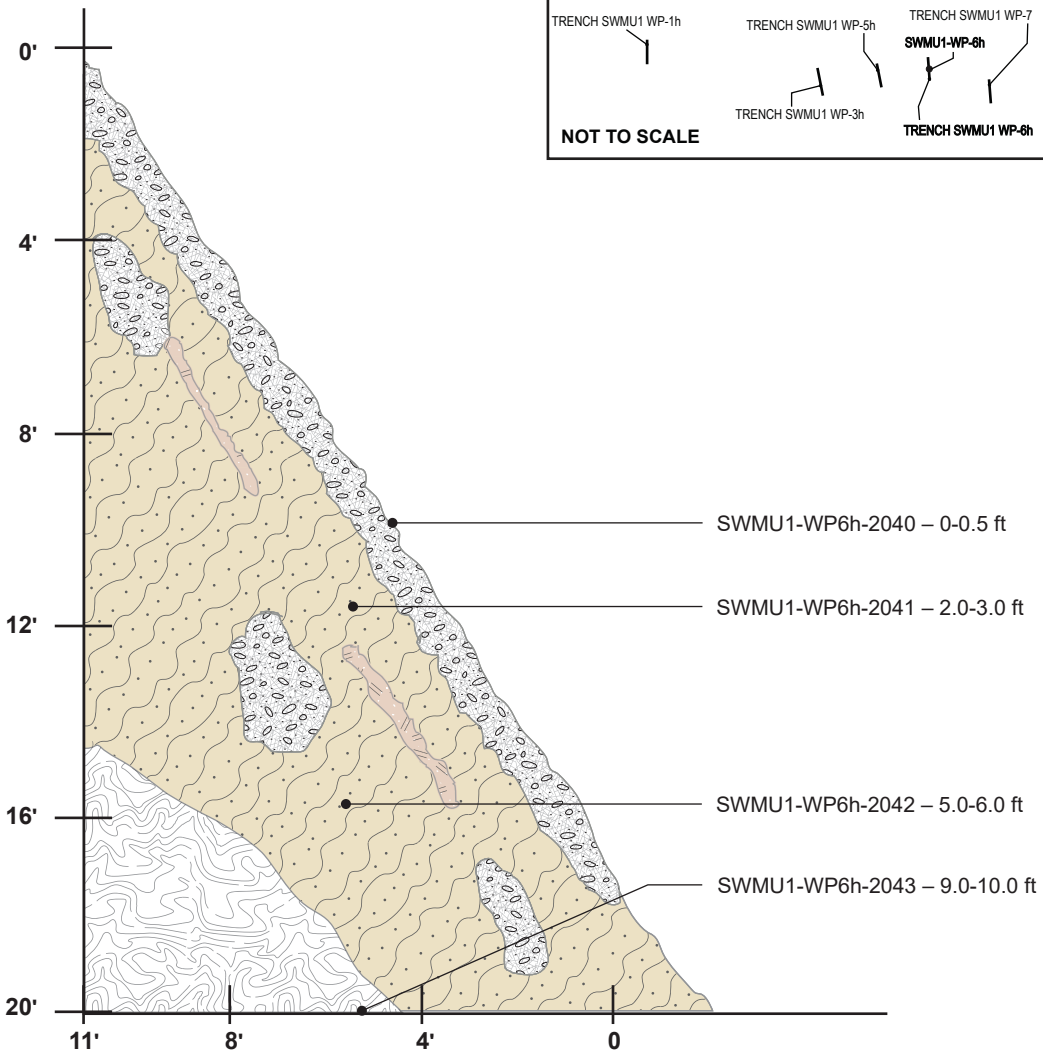

SCALE: 1" = 4'

LEGEND

- HARDPAN: NATIVE HIGHLY CONSOLIDATED SILTY SAND (SM) WITH GRAVEL AND COBBLES
- LIGHT BROWN SANDY SILT (ML) WITH WHITE POWDER MATERIAL
- LIGHT BROWN SANDY SILT (ML) WITH GRAVEL
- ROCKY RUBBLE AND DEBRIS
- SAMPLE LOCATION

TRENCH SIDEWALL RECORD

TRENCH VIEW: LOOKING SOUTH DATE: 10/6/08

NOTES:

1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. TRENCH EXTENDS 11' INTO SLOPE
3. SIDE WALL COMPETENT
4. SURFACE LAYER CONTAINS ROCKS, GRAVEL, COBBLES AND DEBRIS INCLUDING WIRE, GLASS, ETC., CONTAINING SOME LENSES OF WHITE POWDERY MATERIAL
5. TRENCH MAINLY LIGHT BROWN SANDY SILT WITH GRAVEL CONTAINING THIN LENSES OF WHITE POWDERY MATERIAL. SOME POCKETS OF COARSER GROUND GRAVEL
6. NO GROUNDWATER OR ODORS ENCOUNTERED, TRENCH BACKFILLED

FIGURE B2-18
Trench SWMU1 WP-6h
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs

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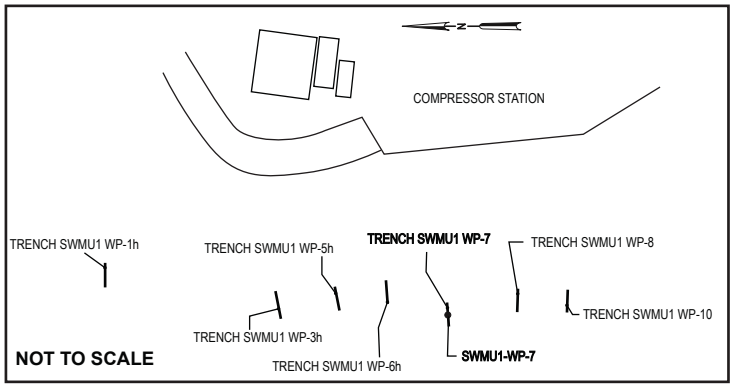
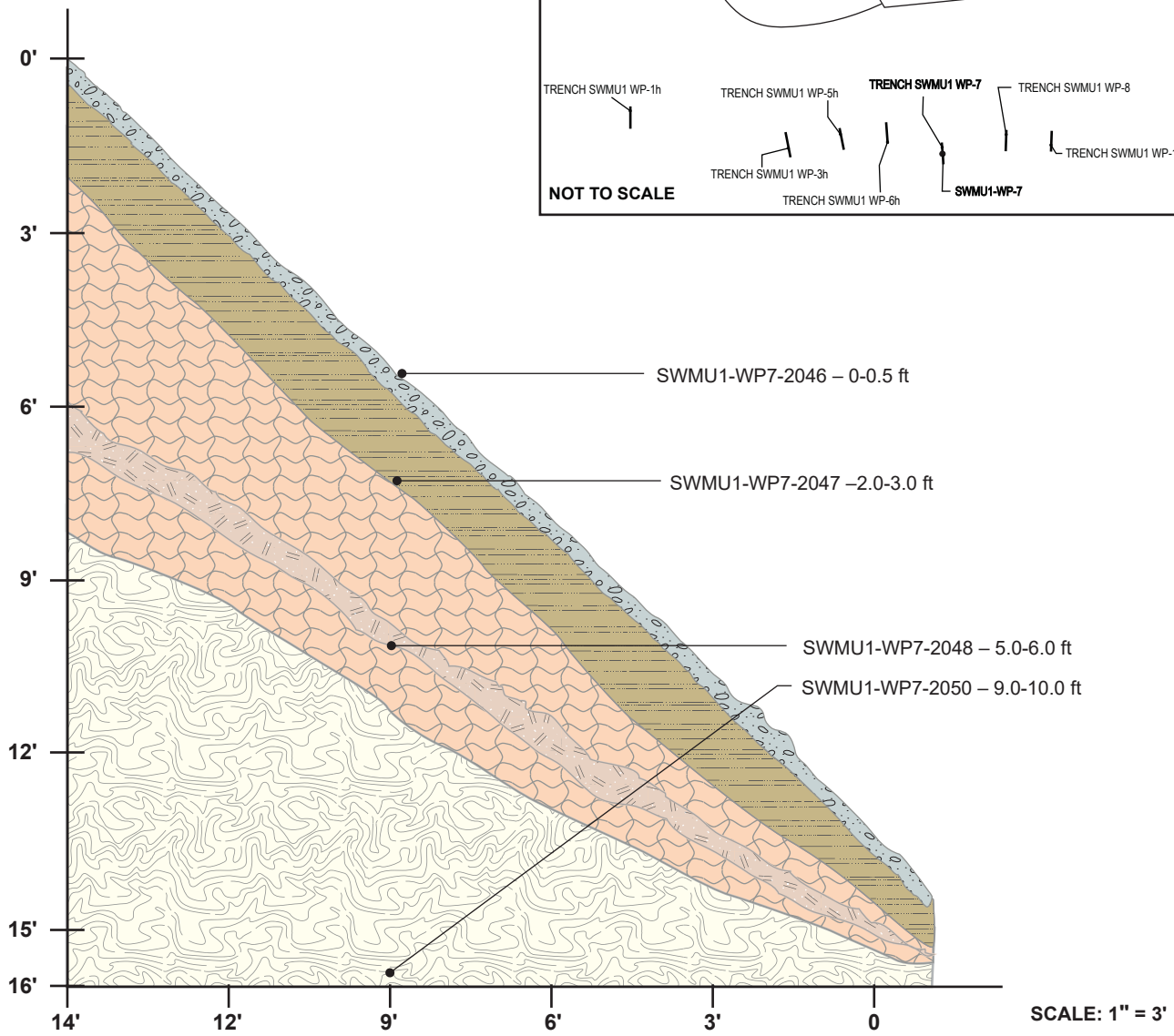




LEGEND

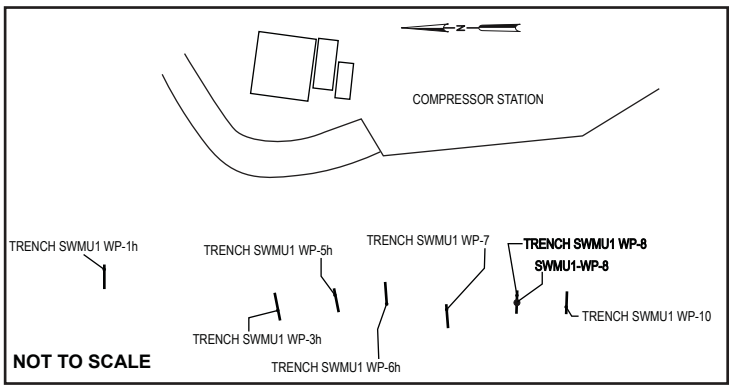
- HARDPAN: NATIVE HIGHLY CONSOLIDATED SILTY SAND (SM) WITH GRAVEL, AND COBBLES
- GREEN STAINED LIGHT BROWN SILTY SAND (SM) WITH GRAVEL
- LIGHT BROWN SANDY SILT (ML) WITH WHITE POWDER MATERIAL
- CONSOLIDATED WHITE CHALKY MATERIAL STAINED IN SOME PLACES 2 RED STREAKS
- ROCKY RUBBLE
- SAMPLE LOCATION

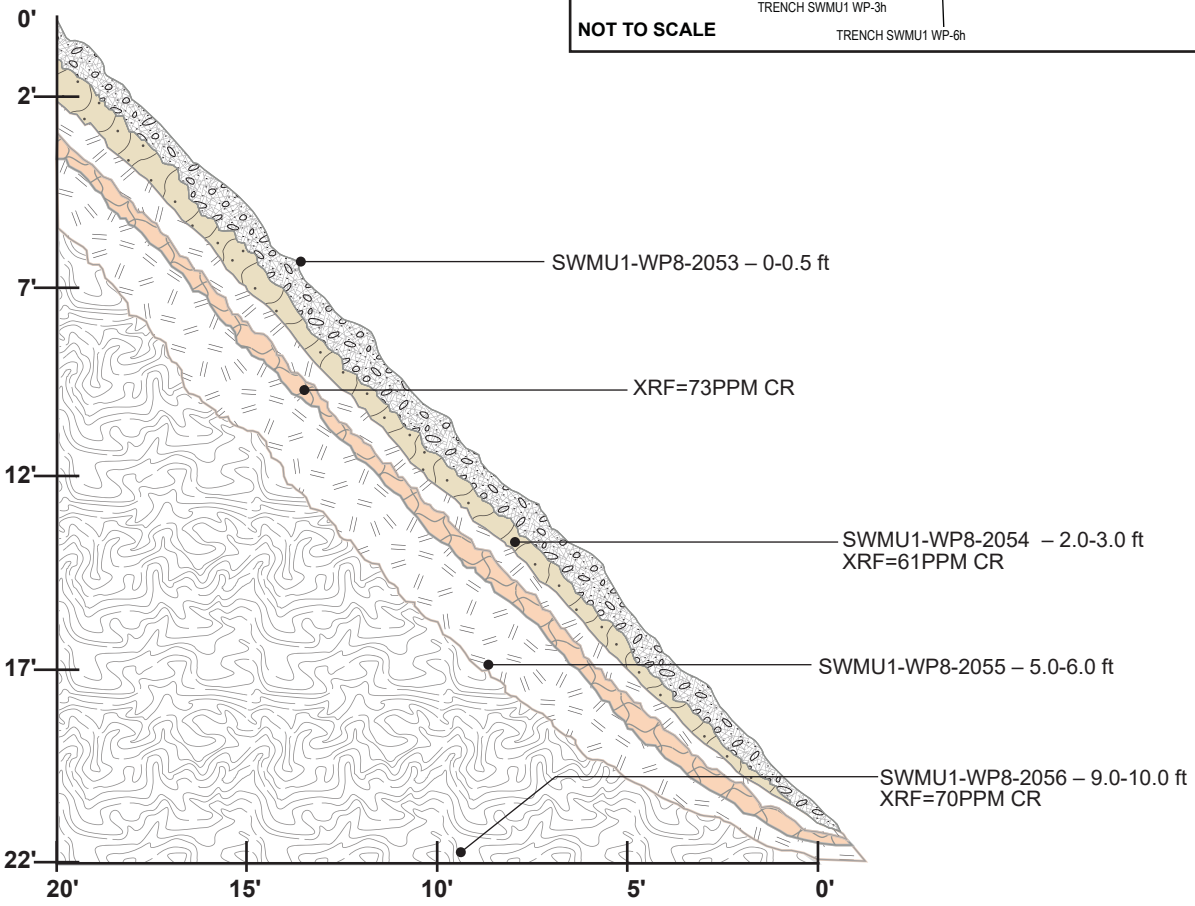
TRENCH SIDEWALL RECORD
TRENCH VIEW: LOOKING SOUTH DATE: 10/6/08

NOTES:
1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. TRENCH EXTENDS 14' INTO SLOPE
3. SIDE WALL COMPETENT, SURFACE LAYER OF ROCKY RUBBLE
4. OVER 2' THICK LAYER OF CONSOLIDATED WHITE MATERIAL STAINED 2 RED STREAKS
5. OVER LENSES OF WHITE MATERIAL MIXED IN NATIVE LIGHT BROWN SANDY SILT AND MOST GREENISH SAND
6. NO GROUNDWATER OR ODORS ENCOUNTERED, TRENCH BACKFILLED

FIGURE B2-19
Trench SWMU1 WP-7
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs





SCALE: 1" = 5'

LEGEND

- GREEN STAINED LIGHT BROWN SILTYSAND (SM) WITH GRAVEL
- WHITE POWDER MATERIAL WITH LIGHT BROWN SILTY SAND (SM) WITH GRAVEL
- LIGHT BROWN SILTY SAND (SM) WITH GRAVEL
- RUBBLE & DEBRIS
- HARDPAN: NATIVE HIGHLY CONSOLIDATED SILTY SAND (SM) WITH GRAVEL, AND COBBLES
- SAMPLE LOCATION
- PPM = PARTS PER MILLION

TRENCH SIDEWALL RECORD

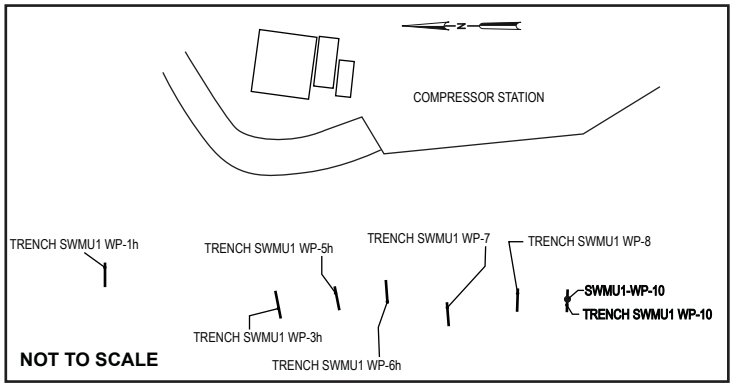
TRENCH VIEW: LOOKING SOUTH DATE: 10/6/08

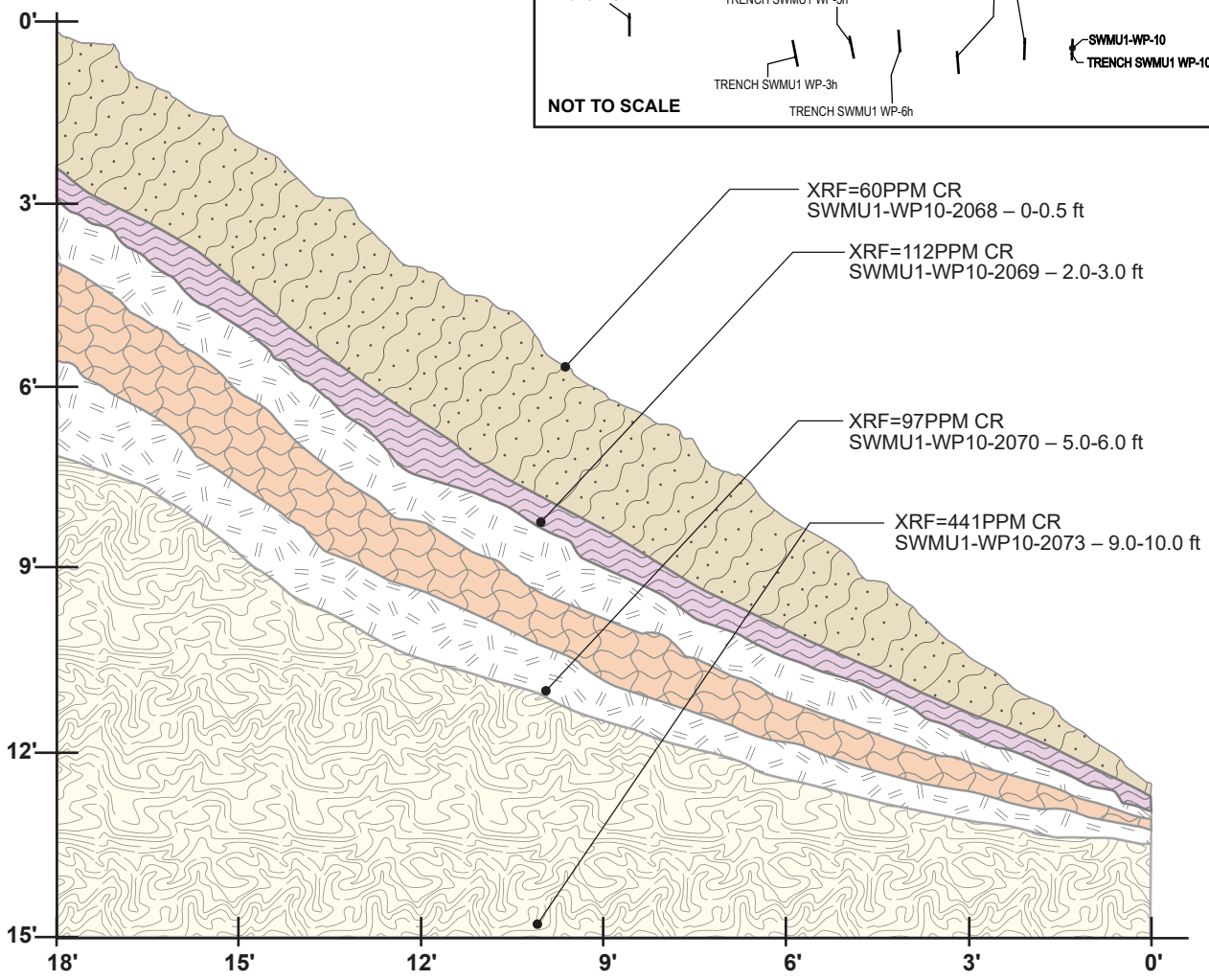
NOTES:

1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. TRENCH EXTENDS 20' INTO SLOPE
3. SIDE WALLS COMPETENT, LAYERS OF RUBBLE AT SURFACE CONTAINING DEBRIS INCLUDING CHICKEN WIRE, A ROAD SIGN, REDDISH GRITTY MATERIAL, POORLY SORTED GRAVEL AND COBBLES
4. NO GROUNDWATER OR ODOR ENCOUNTERED, TRENCH BACKFILLED

FIGURE B2-20
Trench SWMU1 WP-8
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs





SCALE: 1" = 3'

LEGEND

- GREEN STAINED LIGHT BROWN SILTY SAND (SM) WITH GRAVEL
- WHITE POWDER MATERIAL WITH LIGHT BROWN SILTY SAND (SM) WITH GRAVEL
- LIGHT BROWN SILTY SAND (SM) WITH GRAVEL
- LIGHT BROWN SANDY SILT (ML) WITH GRAVEL WITH WHITE POWDER MATERIAL
- HARDPAN: NATIVE HIGHLY CONSOLIDATED SILTY SAND (SM) WITH GRAVEL, AND COBBLES
- • SAMPLE LOCATION

PPM = PARTS PER MILLION

TRENCH SIDEWALL RECORD

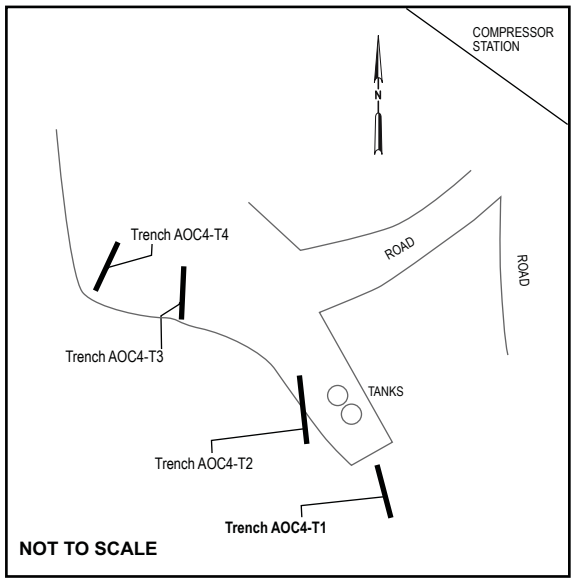
TRENCH VIEW: LOOKING SOUTH DATE: 10/5/08

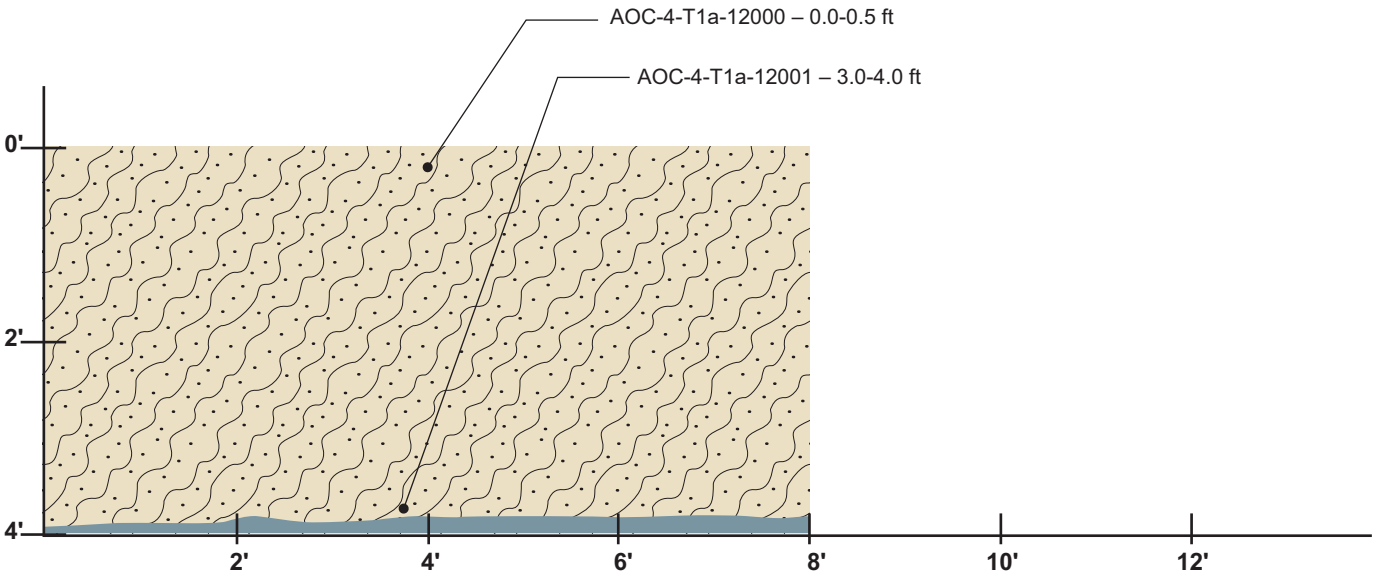
NOTES:

1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. TRENCH EXTENDS 18' INTO SLOPE
3. SIDE WALLS COMPETENT, SOME SMALL AREAS OF SLIDING. LAYERS OF WHITE POWDER AND GREEN STAINED SOIL UNCOVERED, WATER USED LIBERALLY TO CONTAIN DUST
4. NO GROUNDWATER OR ODORS ENCOUNTERED, TRENCH BACKFILLED

FIGURE B2-21
Trench SWMU1 WP-10
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs





SCALE: 1" = 2'

LEGEND

- LIGHT BROWN SANDY SILT (ML) WITH GRAVEL - FILL MATERIAL
- BEDROCK
- SAMPLE LOCATION

TRENCH SIDEWALL RECORD
TRENCH VIEW: LOOKING EAST DATE: 10/22/08

NOTES:
1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. NO GROUNDWATER OR ODORS ENCOUNTERED; TRENCH BACKFILLED

FIGURE B2-22
Trench AOC4-T1
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs

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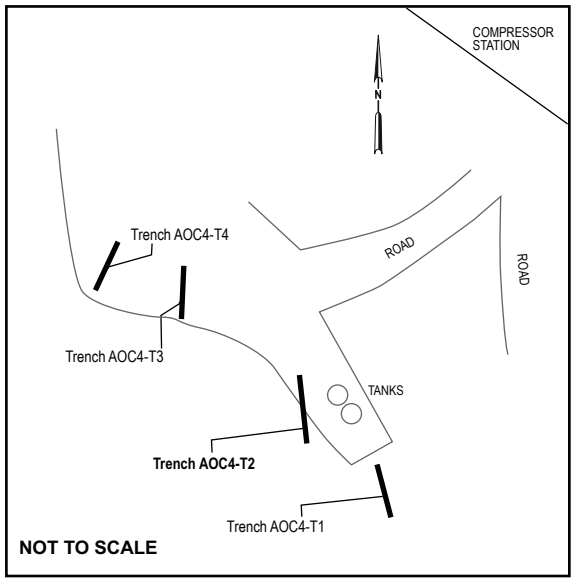
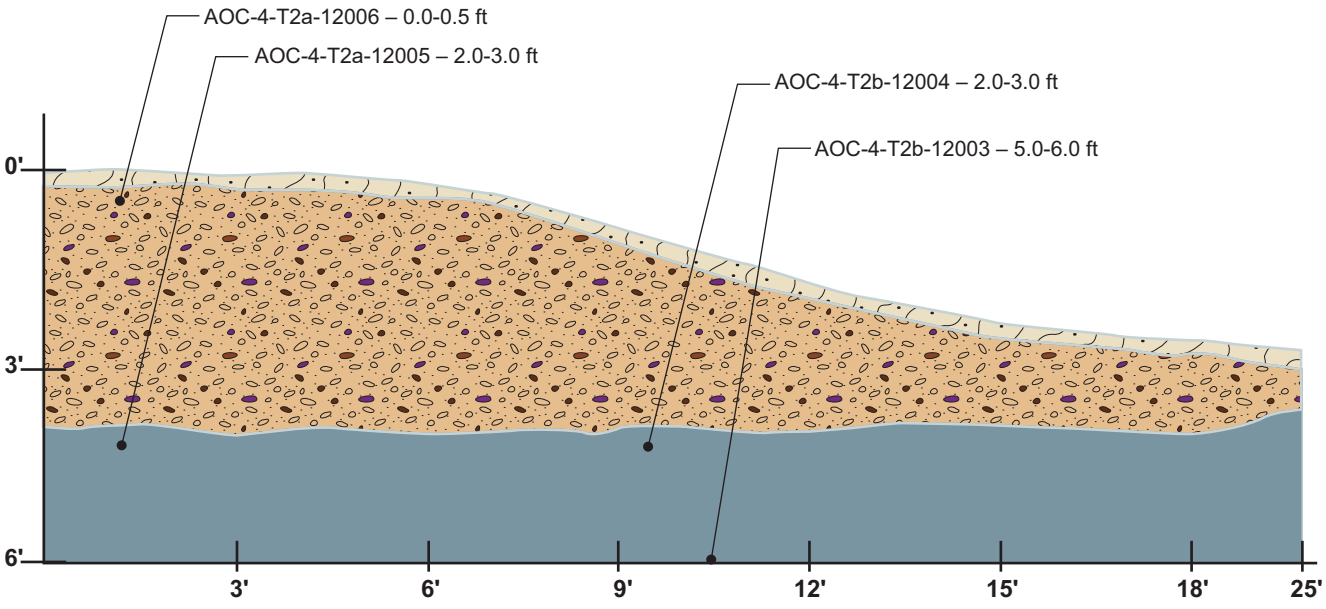




SCALE: 1" = 3'

LEGEND

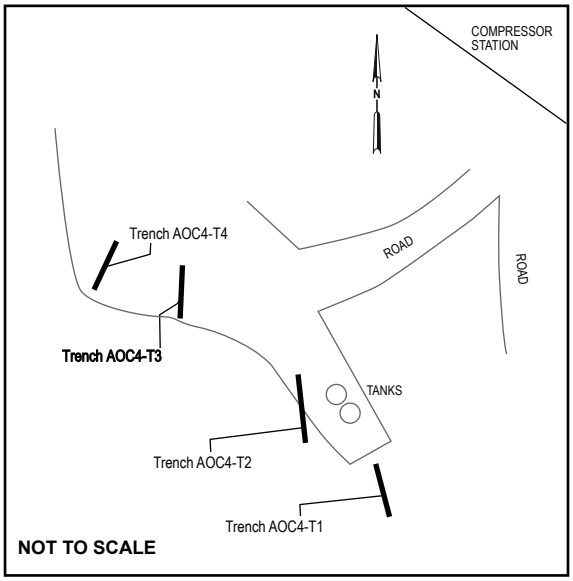
- LIGHT BROWN SANDY SILT (ML) WITH GRAVEL
- FILL MATERIAL - TRASH, INCLUDING HOUSEHOLD TRASH, BURNED TRASH, GLA SSWARE, TILES, ROPE, PLASTIC, ETC.
- BEDROCK
- SAMPLE LOCATION

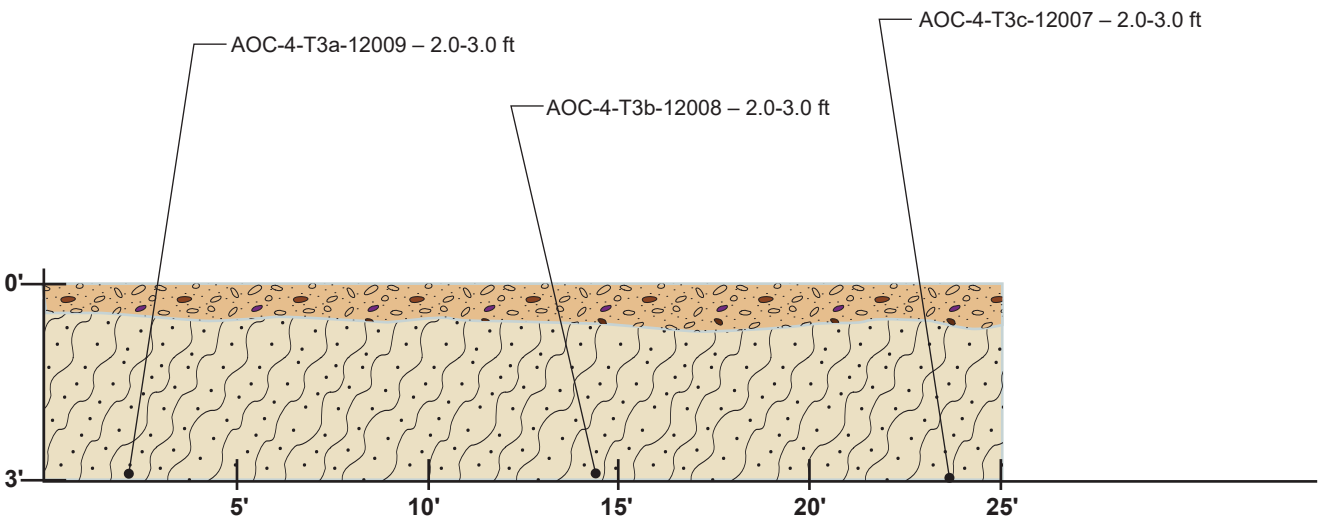
TRENCH SIDEWALL RECORD
TRENCH VIEW: LOOKING EAST DATE: 10/22/08

NOTES:
1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. NO GROUNDWATER OR ODORS ENCOUNTERED; TRENCH BACKFILLED

FIGURE B2-23
Trench AOC4-T2
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs





VERTICAL SCALE: 1" = 3'
HORIZONTAL SCALE: 1" = 5'

LEGEND

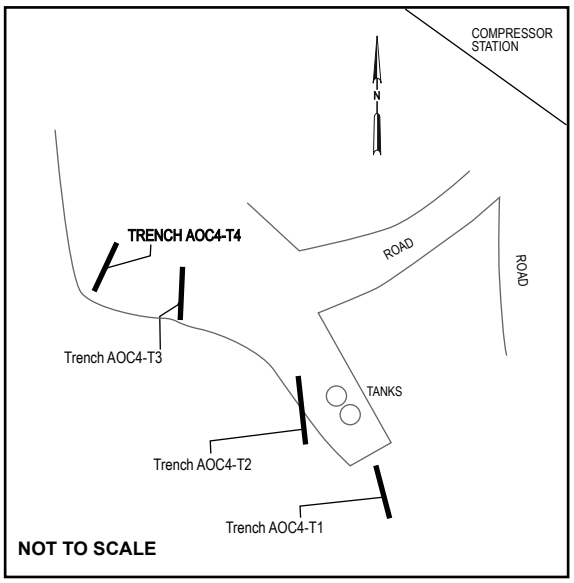
- LIGHT BROWN SANDY SILT (ML) WITH GRAVEL - FILL MATERIAL
- FILL MATERIAL - TRASH, INCLUDING HOUSEHOLD TRASH, BURNED TRASH, GLASSWARE, TILES, ROPE, PLASTIC, ETC.
- SAMPLE LOCATION

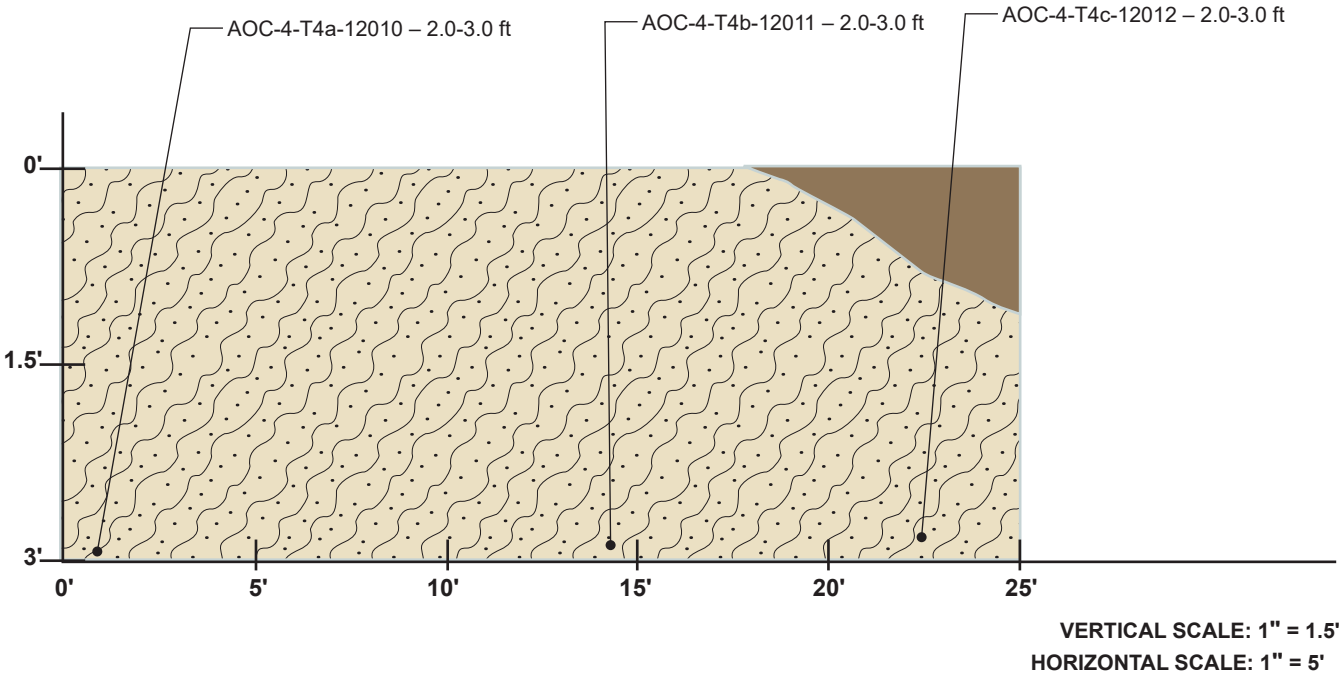
TRENCH SIDEWALL RECORD
TRENCH VIEW: LOOKING NORTH DATE: 10/24/08

NOTES:
1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. NO GROUNDWATER OR ODORS ENCOUNTERED; TRENCH BACKFILLED

FIGURE B2-24
Trench AOC4-T3
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs





VERTICAL SCALE: 1" = 1.5'
HORIZONTAL SCALE: 1" = 5'

LEGEND

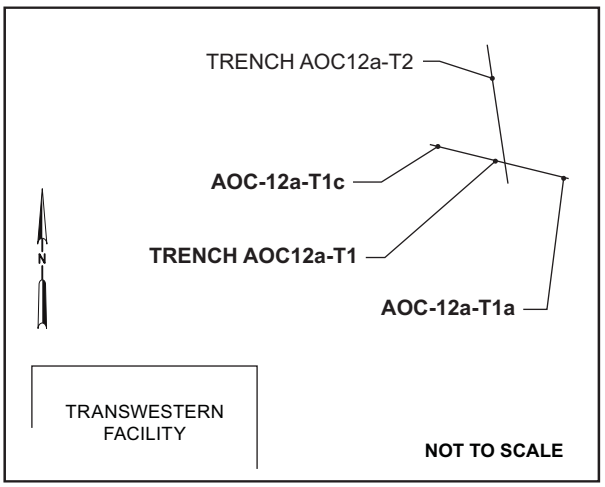
- LIGHT BROWN SANDY SILT (ML) WITH GRAVEL
- FILL MATERIAL
- SAMPLE LOCATION

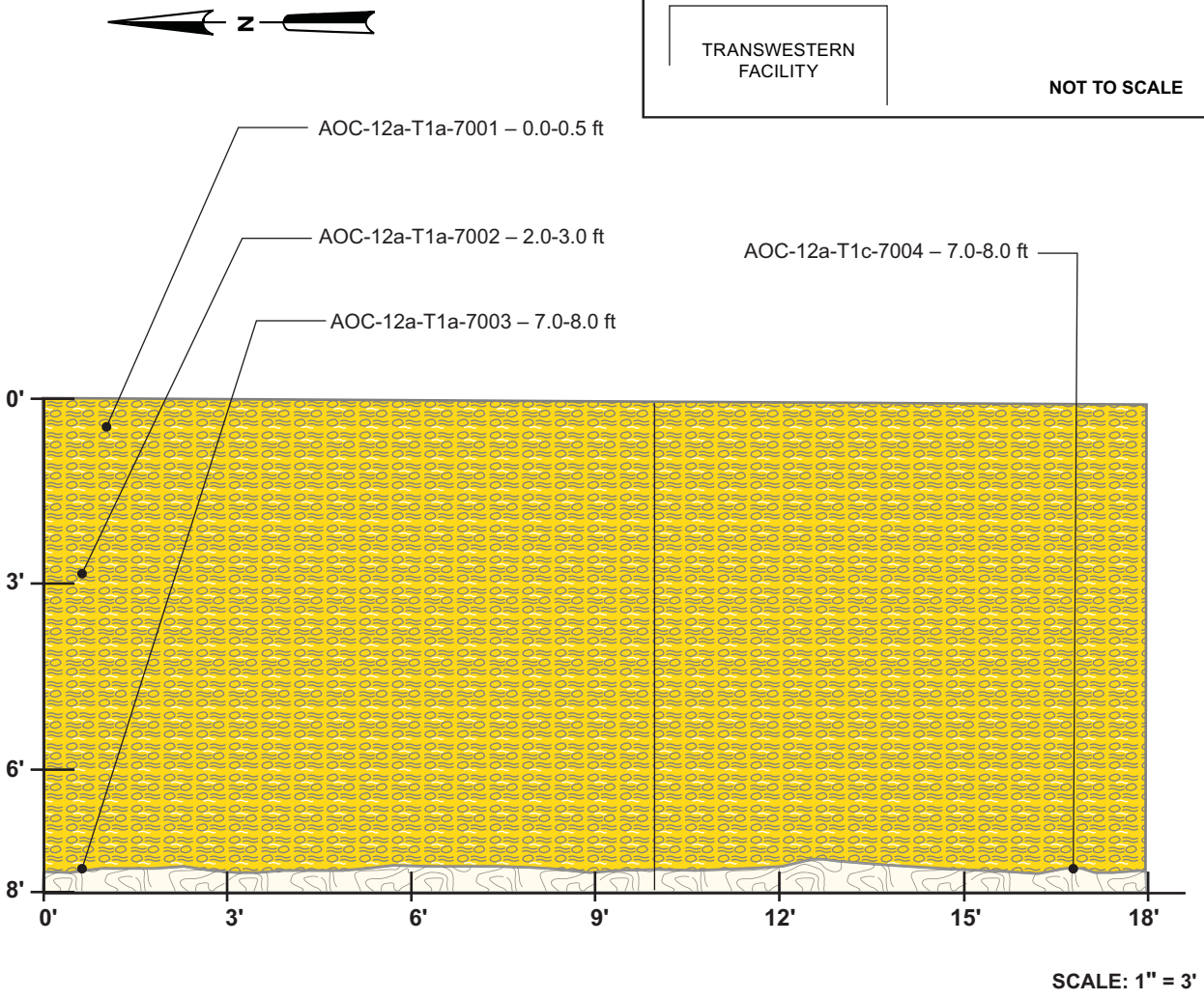
TRENCH SIDEWALL RECORD
TRENCH VIEW: LOOKING NORTH DATE: 10/24/08

NOTES:
1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. NO GROUNDWATER OR ODORS ENCOUNTERED; TRENCH BACKFILLED

FIGURE B2-25
Trench AOC4-T4
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs





SCALE: 1" = 3'

LEGEND

HARDPAN

LIGHT BROWN SAND (SP) WITH WELL ROUNDED COBBLES - LOOSE CONSISTENCY - FINES INCREASING WITH DEPTH TO ~10%

● SAMPLE LOCATION

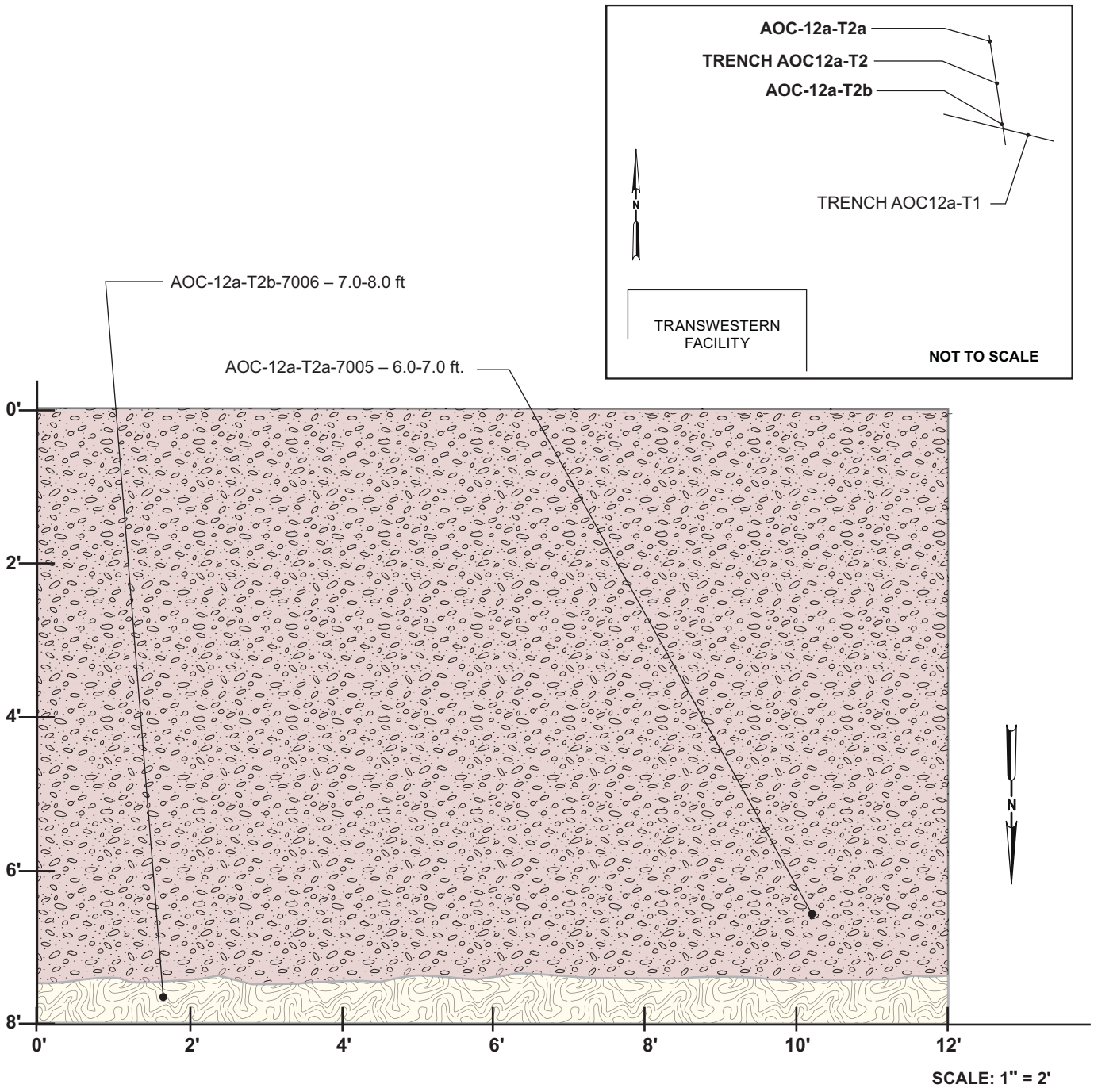
TRENCH SIDEWALL RECORD
TRENCH VIEW: LOOKING EAST DATE: 9/22/08

NOTES:
1. AOC 12 -T1 RUNS PARALLEL TO PIPELINE
2. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
3. NO GROUNDWATER OR ODORS ENCOUNTERED; TRENCH BACKFILLED

FIGURE B2-26
Trench AOC12a-T1
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs

ES022009003BAO_Trench_AOC12a-T1.ai 04-20-09 dash



LEGEND

LIGHT BROWN SAND (SP) WITH WELL-ROUNDED COBBLES
LOOSE CONSISTENCY FINES INCREASING WITH DEPTH ~10%

HARDPAN

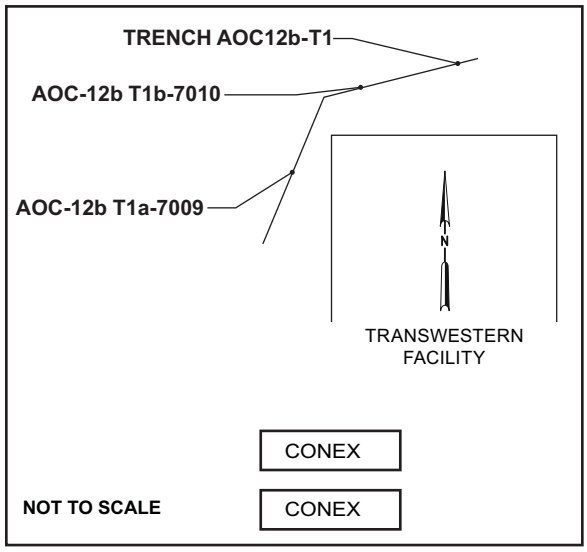
● SAMPLE LOCATION

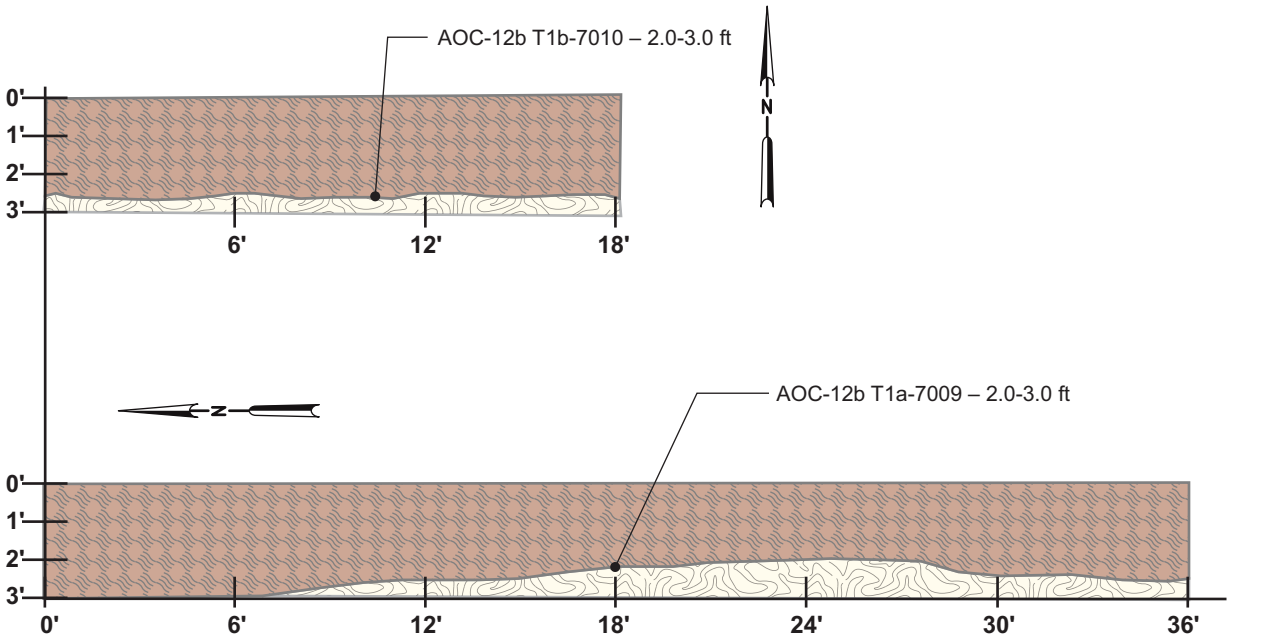
TRENCH SIDEWALL RECORD
TRENCH VIEW: LOOKING NORTH DATE: 9/22/08

NOTES:
1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. NO GROUNDWATER OR ODORS ENCOUNTERED; TRENCH BACKFILLED

FIGURE B2-27
Trench AOC12a-T2
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs





VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 6'

LEGEND

HARDPAN

LIGHT BROWN POORLY GRADED SAND (SP) WITH GRAVEL FILL MATERIAL

● SAMPLE LOCATION

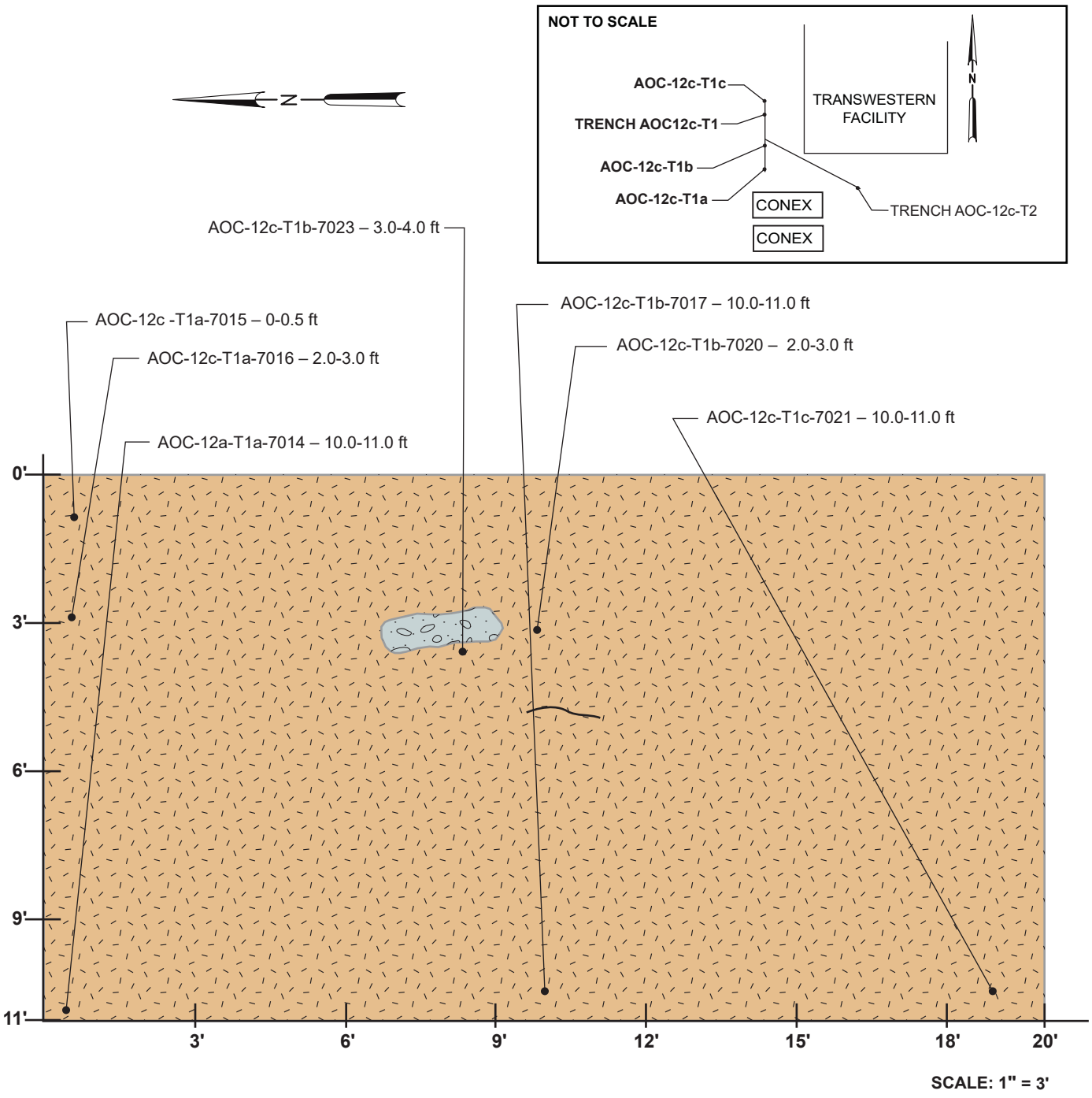
TRENCH SIDEWALL RECORD
TRENCH VIEW: LOOKING NORTH DATE: 9/20/08

NOTES:
1. AOC 12b-T1 RUNS ALONG THE NORTH SIDE OF THE GRAVEL LOT-LOOKING NORTH ALONG THE WEST SIDE OF THE GRAVEL LOT-LOOKING EAST
2. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
3. NO GROUNDWATER OR ODORS ENCOUNTERED; TRENCH BACKFILLED

FIGURE B2-28
Trench AOC12b-T1
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs

ES022009003BAO_Trench_AOC12b.ai 04-07-09 dash



LEGEND

- MEDIUM BROWN SANDY SILT (ML) WITH GRAVEL- FILL MATERIAL
- DEBRIS: BURNED SLATS OF WOOD, CONCRETE, ROCK, PLASTIC SHEETING, CAULKING TUBE, SAFETY GOGGLE CONTAINER
- SMALL GAUGE WIRE
- SAMPLE LOCATION

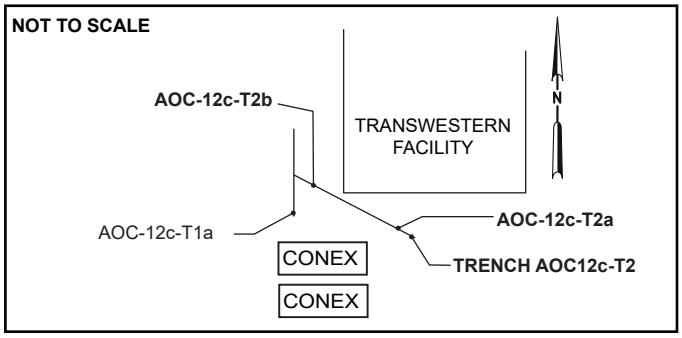
TRENCH SIDEWALL RECORD
TRENCH VIEW: LOOKING SOUTH DATE: 9/20/08

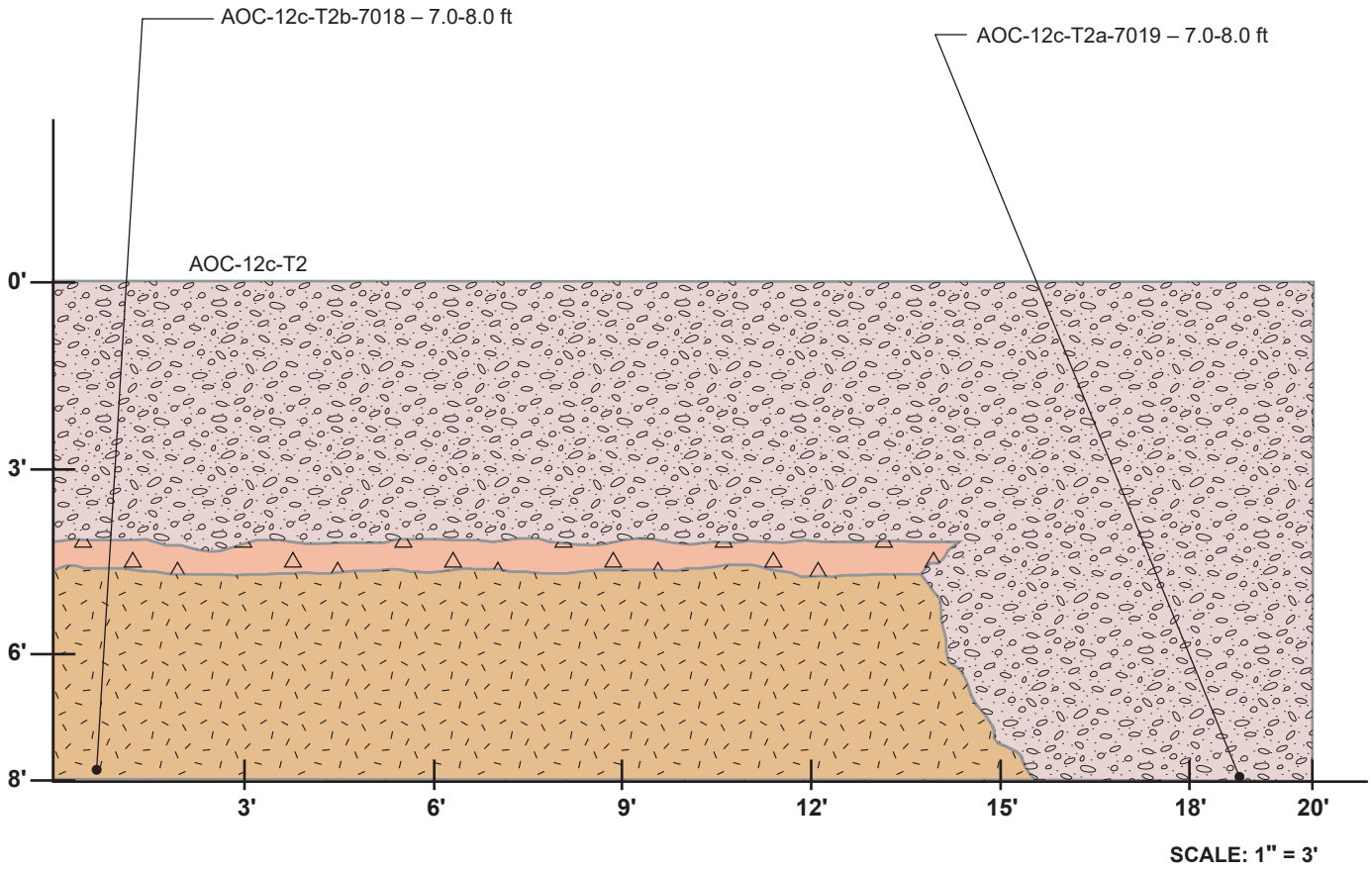
NOTES:
1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. NO GROUNDWATER OR ODORS ENCOUNTERED; TRENCH BACKFILLED

FIGURE B2-29
Trench AOC12c-T1
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs

ES022009003BAO_Trench_AOC12cT1.ai 04-20-09 dash





LEGEND

- MEDIUM BROWN COMPACTED IN THE FIELD HARDPAN AND REGULAR COBBLES
- LIGHT BROWN SANDY SILT (ML) WITH GRAVEL TO COBBLES FILL MATERIAL - SIDEWALL EXPOSURE SHOWS FILLED CHANNELS OF MEDIUM BROWN SANDY SILT (ML) WITH GRAVEL
- VERY HARD LAYER
- SAMPLE LOCATION

TRENCH SIDEWALL RECORD

TRENCH VIEW: LOOKING EAST DATE: 9/20/08

NOTES:

1. SAMPLES COLLECTED FROM EXCAVATOR BUCKET
2. NO GROUNDWATER OR ODORS ENCOUNTERED; TRENCH BACKFILLED

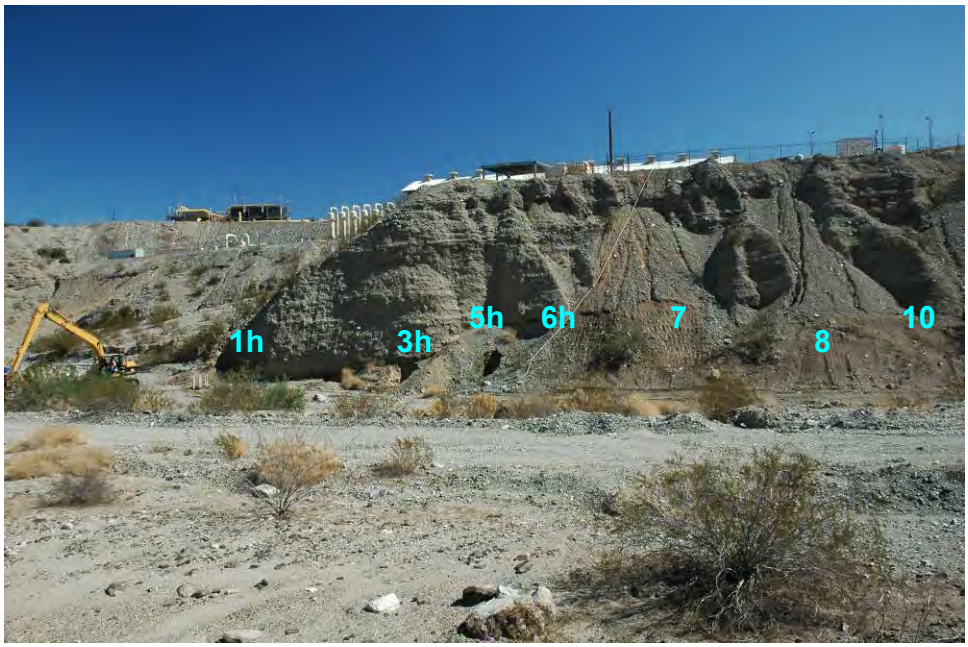
FIGURE B2-30
Trench AOC12c-T2
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Jacobs

ES022009003BAO_Trench_AOC12cT2.ai 04-07-09 dash

Attachment B3
Trenching Photograph Log

Attachment B3.1
SWMU 1 Surface Debris Mapping and Trenching Photograph Log



Photograph 1: Approximate areas of the seven trench locations.

Photograph 2: Trench SWMU-WP-1h. Note that there is no white powder visible in this trench.

Photograph 3: Trench SWMU1-WP-1h south side wall at bottom

Photograph 4: SWMU1-WP-1h trench bottom

Photograph 5: SWMU1-WP-1h trench middle

Photograph 6: SWMU1-WP-1h trench top

Photograph 7: SWMU1-WP-1h green soil

Photograph 8: SWMU1-WP-1h green soil close

Photograph 9: Trench SWMU1-WP-3h open. Note layer of white powdery material.

Photograph 10: Trench SWMU1-WP-3h North sidewall. Note white powdery material.

Photograph 11: Trench SWMU1-WP-3h south sidewall. Note white layer.

Photograph 12: Observation trench SWMU1-WP-2h to investigate extent of white layer found in Trench SWMU1-WP-3h.

Photograph 13: WP-5h open. Note white powdery material.

Photograph 14: Trench SWMU1-WP-5h trench bottom

Photograph 15: Trench SWMU1-WP-5h trench middle

Photograph 16: Trench SWMU1-WP-5h trench top

Photograph 17: Trench SWMU1-WP-6h open. Note small outcrops of white material.

Photograph 18: Trench SWMU1-WP7 center. Note consolidated layer of white chalky material.

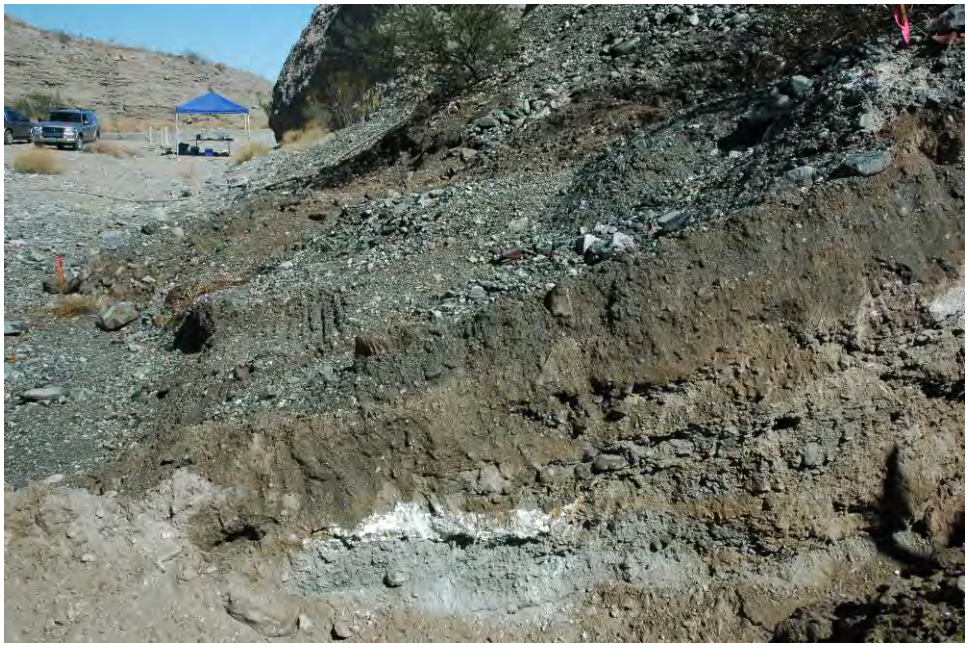
Photograph 19: Trench SWMU1-WP-7 north sidewall. Note close up of white chalky material.

Photograph 20: Trench SWMU1-WP-7 south sidewall. Note white chalky material.

Photograph 21: Trench SWMU1-WP-7h red soil

Photograph 22: Horizontal lens of white powder in small observation trench located between trenching locations SWMU1-WP-6a and SWMU1-WP-7

Photograph 23: Trench SWMU1-WP-8

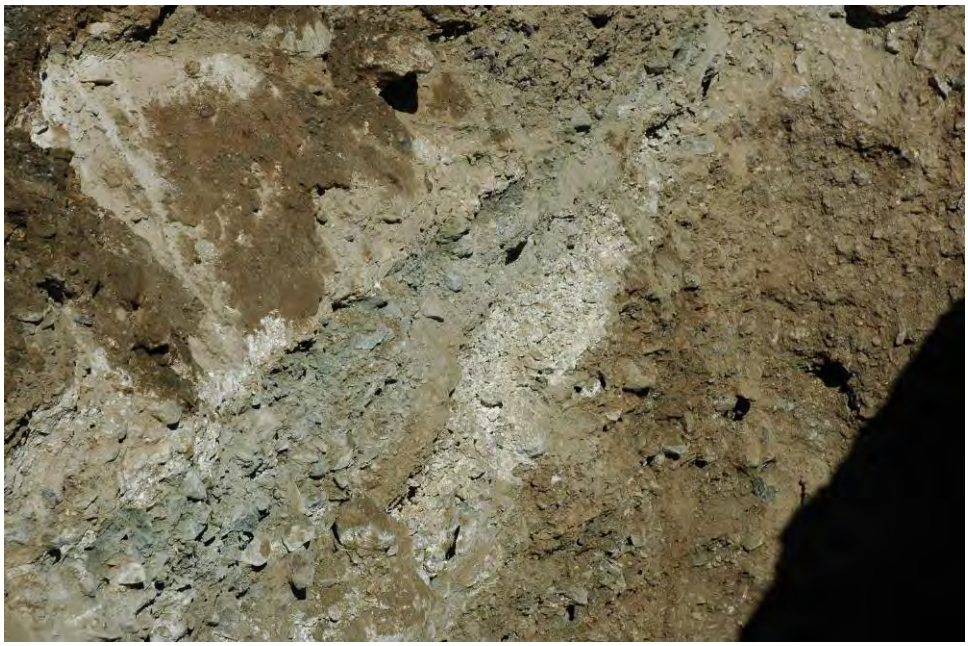


Photograph 24: Trench SWMU1-WP-8 Trench view north

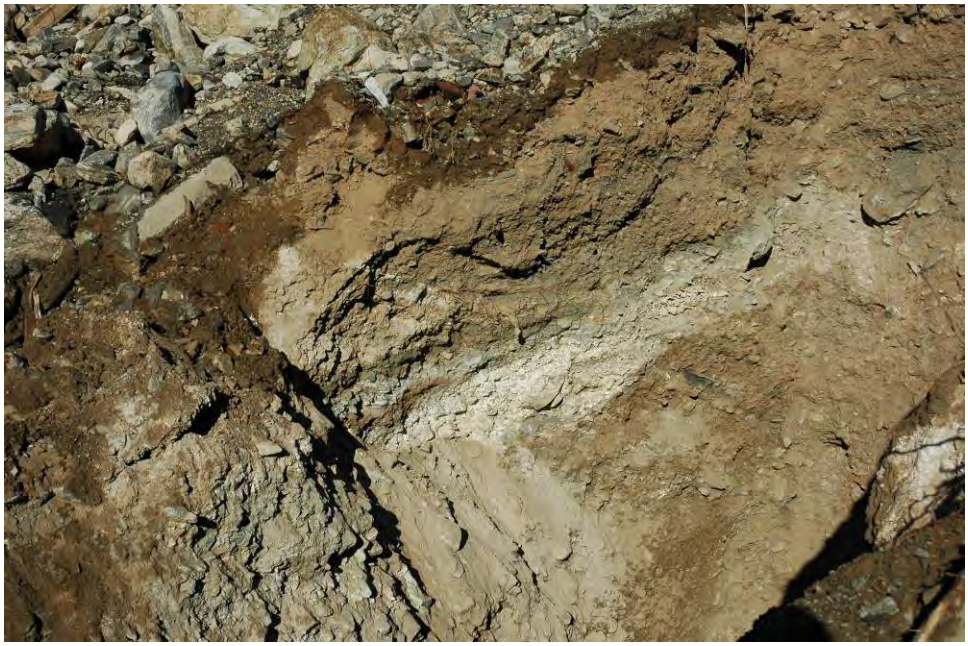
Photograph 25: SWMU1-WP-8 Trench view south

Photograph 26: SWMU1-WP-8 white with red soil south sidewall

Photograph 27: Trench SWMU1-WP-10 Trench



Photograph 28: Trench SWMU1-WP-10 North sidewall close



Photograph 29: Trench SWMU1-WP-10 Trench north sidewall

Photograph 30: Trench SWMU1-WP-10 south sidewall

Attachment B3.2
AOC12 Trenching Photograph Log

Photo 1: Digging central region of AOC12a-T1 with AOC12a-T2 in foreground

Photo 2 AOC12b-T1

Photo 3: AOC12B-T1 central view west

Photo 4: AOC12c-T1 west; east view

Photo 5: AOC12c-T2 south; south view

Photo 6: AOC12c-T2 north

Photo 7: AOC12c-T1 east part of trench concrete chunk

Photo 8: AOC12c-T1 east; wooden slat recovered from trench

Attachment B3.3
AOC14 Trenching Photograph Log

Photo 1: AOC 14-14 Debris Burn Layer

Photo 2: AOC 14-15 Debris

Photo 3: AOC14-16 Debris

Photo 4: AOC14-17 Debris

Photo 5: AOC14-20 No Debris Observed

Photo 6: AOC14-21 Debris

Photo 7: AOC14-21 Debris

Attachment B3.4
AOC27 Trenching Photograph Log

Photo 1: AOC27-1 Debris

Photo 2: AOC27-2

Photo 3: AOC27-2 Debris

Photo 4: AOC27-2 Debris

Photo 5: AOC27-2 Debris

Photo 6: AOC27-5 Debris

Photo 7: AOC27-7 Debris

Photo 8: AOC27-6/AOC27-7/AOC27-8 Debris

Photo 9: AOC27-6/AOC27-7/AOC27-8 Debris

Photo 10: AOC27-6/AOC27-7/AOC27-8 Debris

Photo 11: AOC27-6/AOC27-7/AOC27-8 Debris

Photo 12: AOC 27-9

Photo 13: AOC27-18

Photo 14: AOC 27-20

Photo 15: AOC27-24 Debris

Photo 16: AOC27-24SW Debris

Photo 17: AOC27-50

Attachment B4
Equipment Blank Analytical Results, IDW Analytical Results, and IDW Lab Reports

TABLE B4-1
Equipment Blank Analytical Results
RFI/RI Report, Volume 3 – Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Analyte	Units	AOC-EB-01-11-17 1/11/17	AOC-EB-01-12-17 1/12/2017	AOC-EB-01-17-17 1/17/2017	AOC-EB-01-18-17 1/18/2017	AOC-EB-01-19-17 1/19/2017	AOC-EB-01-20-17 1/20/2017	AOC-EB-01-21-17 1/21/2017	AOC-EB-01-22-17 1/22/2017	AOC-EB-01-23-17 1/23/2017	AOC-EB-01-24-17 1/24/2017	PA-EB-01-25-17 1/25/2017	PA-EB-01-26-17 1/26/2017	ERPW-Pipe-Blank 1/28/2016	PA-EB-01-31-17 1/31/2017	AOC-EB-01-04-17 1/4/2017	AOC-EB-01-05-17 1/5/2017	AOC-EB-01-07-17 1/7/2017	AOC-EB-01-08-17 1/8/2017	AOC-EB-01-09-17 1/9/2017	EB-2015-12-06 12/6/2015	AOC-EB-02-01-17 2/1/2017	AOC-EB-02-02-17 2/2/2017	AOC-EB-02-21-17 2/21/2017	AOC-EB-02-04-17 2/4/2017	SD-EB-02-05-17 2/5/2017
Hexavalent Chromium	µg/L	0.2 U		0.2 U	0.2 U	0.2 U	0.26	0.2 U	0.2 U	0.2 U	0.2 U			1.2 *		0.2 U	0.2 U		0.2 U	0.22	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U
Chloride	mg/L													0.5 U												
Fluoride	mg/L													0.1 U												
Nitrate as N	mg/L													0.05 U												
Sulfate	mg/L													0.5 U												
Aluminum, add	µg/L		50 U	50 U	50 U			50 U			50 U	50 U					50 U		50 U	50 U					50 U	
Boron	µg/L		100 U	100 U	100 U			100 U			100 U	100 U													100 U	
Calcium, add	µg/L		500 U	500 U	500 U			500 U			500 U	500 U					500 U		500 U	500 U					500 U	
Calcium, dissolved	µg/L													500 U												
Iron, add	µg/L		20 U	20 U	20 U			20 U			20 U	20 U					20 U		26	20 U					20 U	
Iron, dissolved	µg/L													41												
Magnesium, add	µg/L		100 U	100 U	100 U			100 U			100 U	100 U					100 U		100 U	100 U					100 U	
Magnesium, dissolved	µg/L													100 U												
Molybdenum	µg/L			5 U	5 U																					
Potassium, add	µg/L		500 U	500 U	500 U			500 U			500 U	500 U					500 U		500 U	500 U					500 U	
Potassium, dissolved	µg/L													500 U												
Sodium, add	µg/L		500 U	500 U	500 U			500 U			500 U	500 U					500 U		500 U	500 U					500 U	
Sodium, dissolved	µg/L													500 U												
Antimony	µg/L		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
Antimony, dissolved	µg/L													0.5 U												
Arsenic	µg/L		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U				0.1 U	0.1 U		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U		0.1 U	0.1 U
Arsenic, dissolved	µg/L													0.1 U												
Barium	µg/L		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U	1 U		1 U	1 U	1 U	1 U	1 U		1 U	1 U
Barium, dissolved	µg/L													2.5												
Beryllium	µg/L		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
Beryllium, dissolved	µg/L													0.5 U												
Cadmium	µg/L		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
Cadmium, dissolved	µg/L													0.5 U												
Chromium	µg/L		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U	1 U		1 U	1 U	1 U	1 U	1 U		1 U	1 U
Chromium, dissolved	µg/L													1 U												
Cobalt	µg/L		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
Cobalt, dissolved	µg/L													0.5 U												
Copper	µg/L		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U	1 U		1 U	1 U	1.3	1 U	1 U		1 U	1 U
Copper, dissolved	µg/L													1 U												
Lead	µg/L		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U	1 U		1 U	1 U	1 U	1 U	1 U		1 U	1 U
Lead, dissolved	µg/L													1 U												
Manganese, add	µg/L		0.5 U	0.5 U	0.5 U			0.5 U			0.5 U	0.5 U					0.67 *		0.64 *	1.3 *					0.5 U	
Manganese, dissolved	µg/L													2.3												
Molybdenum	µg/L		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
Molybdenum, dissolved	µg/L													0.5 U												
Nickel	µg/L		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U	1 U		1 U	1 U	1 U	1 U	1 U		1 U	1 U
Nickel, dissolved	µg/L													1 U												
Selenium	µg/L		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
Selenium, dissolved	µg/L													0.5 U												
Silver	µg/L		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.52		0.5 U	0.5 U
Silver, dissolved	µg/L													0.5 U												
Thallium	µg/L		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
Thallium, dissolved	µg/L													0.5 U												
Vanadium	µg/L		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U	1 U		1 U	1 U	1 U	1 U	1 U		1 U	1 U
Vanadium, dissolved	µg/L													1 U												
Zinc	µg/L		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				10 U	10 U		10 U	10 U	10 U	10 U	10 U		10 U	10 U
Zinc, dissolved	µg/L													710												
Mercury	µg/L		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U
Mercury, dissolved	µg/L													0.2 U												
TPH as diesel	µg/L																								53 U	53 U
TPH as motor oil	µg/L																								53 U	53 U
TPH as gasoline	µg/L																								100 U	100 U
4,4-DDD	µg/L		0.052 U	0.061 U	0.061 U			0.063 U			0.059 U	0.055 U					0.053 U		0.051 U	0.053 U					0.052 U	
4,4-DDE	µg/L		0.052 U	0.061 U	0.061 U			0.063 U			0.059 U	0.055 U					0.053 U		0.051 U	0.053 U					0.052 U	
4,4-DDT	µg/L		0.052 U	0.061 U	0.061 U			0.063 U			0.059 U	0.055 U					0.053 U		0.051 U	0.053 U					0.052 U	
Aldrin	µg/L		0.026 U	0.03 U	0.03 U			0.032 U			0.029 U	0.027 U					0.027 U		0.025 U	0.027 U					0.026 U	
alpha-BHC	µg/L		0.026 U	0.03 U	0.03 U			0.032 U			0.029 U	0.027 U					0.027 U		0.025 U	0.027 U					0.026 U	
alpha-Chlordane	µg/L		0.026 U	0.03 U	0.03 U			0.032 U			0.029 U	0.027 U					0.027 U		0.025 U	0.027 U					0.026 U	
beta-BHC	µg/L		0.026 U	0.03 U	0.03 U			0.032 U			0.029 U	0.027 U					0.027 U		0.025 U	0.027 U					0.026 U	
delta-BHC	µg/L		0.026 U	0.03 U	0.03 U			0.032 U			0.029 U	0.027 U					0.027 U		0.025 U	0.027 U					0.026 U	
Dieldrin	µg/L		0.052 U	0.061 U	0.061 U			0.063 U			0.059 U	0.055 U					0.053 U		0.051 U	0.053 U					0.052 U	
Endo sulfan I	µg/L		0.026 U	0.03 U	0.03 U			0.032 U			0.029 U	0.027 U					0.027 U		0.025 U	0.027 U					0.026 U	
Endo sulfan II	µg/L		0.052 U	0.061 U	0.061 U			0.063 U			0.059 U	0.055 U					0.053 U		0.051 U	0.053 U					0.052 U	
Endosulfan sulfate	µg/L		0.052 U	0.061 U	0.061 U			0.063 U			0.059 U	0.055 U					0.053 U		0.051 U	0.053 U					0.052 U	
Endrin	µg/L		0.052 U	0.061 U	0.061 U			0.063 U			0.059 U	0.055 U					0.053 U		0.051 U	0.053 U					0.052 U	
Endrin aldehyde	µg/L		0.052 U	0.061 U	0.061 U			0.063 U			0.059 U	0.055 U					0.053 U		0.051 U	0.053 U					0.052 U	
Endrin ketone	µg/L		0.052 U	0.061 U	0.061 U			0.063 U			0.059 U	0.055 U					0.053 U		0.051 U	0.053 U					0.052 U	
gamma-BHC	µg/L		0.026 U	0.03 U	0.03 U			0.032 U			0.029 U	0.027 U					0.027 U		0.025 U	0.027 U					0.026 U	
gamma-Chlordane	µg/L		0.026 U	0.03 U	0.03 U			0.032 U			0.029 U	0.027 U					0.027 U		0.025 U	0.027 U					0.026 U	
Heptachlor	µg/L		0.026 U	0.03 U	0.03 U			0.032 U			0.029 U	0.027 U					0.027 U		0.025 U	0.027 U					0.026 U	
Heptachlor Epoxide	µg/L		0.026 U	0.03 U	0.03 U			0.032 U			0.029 U	0.027 U					0.027 U		0.025 U	0.027 U					0.026 U	
Methoxy chlor	µg/L		0.26 U	0.3 U	0.3 U			0.32 U			0.29 U	0.27 U					0.27 U		0.25 U	0.27 U					0.26 U	
Toxaphene	µg/L		2.6 U	3 U	3 U			3.2 U			2.9 U	2.7 U					2.7 U		2.5 U	2.7 U					2.6 U	
Aroclor 1016	µg/L		0.52 U	0.61 U				0.63 U	0.61 U		0.59 U	0.55 U	0.54 U		0.26 U	0.56 U	0.53 U		0.51 U	0.53 U	0.26 U	0.27 U	0.29 U		0.26 U	0.27 U
Aroclor 1221	µg/L		1 U	1.2 U				1.3 U	1.2 U		1.2 U	1.1 U	1.1 U		0.52 U	1.1 U	1.1 U		1 U	1.1 U	0.51 U	0.55 U	0.57 U		0.52 U	0.53 U
Aroclor 1232	µg/L		0.52 U	0.61 U				0.63 U	0.61 U		0.59 U	0.55 U	0.54 U		0.26 U	0.56 U	0.53 U		0.51 U	0.53 U	0.26 U	0.27 U	0.29 U		0.26 U	0.27 U
Aroclor 1242	µg/L		0.52 U	0.61 U				0.63 U	0.61 U		0.59 U	0.55 U	0.54 U		0.26 U	0.56 U	0.53 U		0.51 U	0.53 U	0.26 U	0.27 U	0.29 U		0.26 U	0.27 U
Aroclor 1248	µg/L		0.52 U	0.61 U				0.63 U	0.61 U		0.59 U	0.55 U	0.54 U		0.26 U	0.56 U	0.53 U		0.51 U	0.53 U	0.26 U	0.27 U	0.29 U		0.26 U	0.27 U
Aroclor 1254	µg/L		0.52 U	0.61 U				0.63 U	0.61 U		0.59 U	0.55 U	0.54 U		0.26 U	0.56 U	0.53 U		0.51 U	0.53 U	0.26 U	0.27 U	0.29 U		0.26 U	0.27 U
Aroclor 1260	µg/L		0.52 U	0.61 U				0.63 U	0.61 U		0.59 U	0.55 U	0.54 U		0.26 U	0.56 U	0.53 U		0.51 U	0.53 U	0.26 U	0.27 U	0.29 U		0.26 U	0.27 U
1,1,1,2-Tetrachloroethane	µg/L		0.5 U	0.5 U	0.5 U			0.5 U				0.5 U				0.5 U	0.5 U		0.5 U	0.5 U					0.5 U	
1,1,1-Trichloroethane	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
1,1,2,2-Tetrachloroethane	µg/L		0.5 U	0.5 U	0.5 U			0.5 U				0.5 U				0.5 U	0.5 U		0.5 U	0.5 U					0.5 U	
1,1,2-Trichloroethane	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
1,1,2-Trichlorotrifluoroethane (Freon 113)	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
1,1-Dichloroethane	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
1,1-Dichloroethene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
1,1-Dichloropropene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
1,2,3-Trichlorobenzene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
1,2,3-Trichloropropane	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
1,2,4-Trichlorobenzene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
1,2,4-Trimethylbenzene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
1,2-Dibromo-3-chloropropane	µg/L		2 U	2 U	2 U			2 U				2 U				2 U	2 U		2 U	2 U					2 U	
1,2-Dibromoethane	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	

TABLE B4-1
Equipment Blank Analytical Results
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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Analyte	Units	AOC-EB-01-11-17 1/11/17	AOC-EB-01-12-17 1/12/2017	AOC-EB-01-17-17 1/17/2017	AOC-EB-01-18-17 1/18/2017	AOC-EB-01-19-17 1/19/2017	AOC-EB-01-20-17 1/20/2017	AOC-EB-01-21-17 1/21/2017	AOC-EB-01-22-17 1/22/2017	AOC-EB-01-23-17 1/23/2017	AOC-EB-01-24-17 1/24/2017	PA-EB-01-25-17 1/25/2017	PA-EB-01-26-17 1/26/2017	ERPW-Pipe-Blank 1/28/2016	PA-EB-01-31-17 1/31/2017	AOC-EB-01-04-17 1/4/2017	AOC-EB-01-05-17 1/5/2017	AOC-EB-01-07-17 1/7/2017	AOC-EB-01-08-17 1/8/2017	AOC-EB-01-09-17 1/9/2017	EB-2015-12-06 12/6/2015	AOC-EB-02-01-17 2/1/2017	AOC-EB-02-02-17 2/2/2017	AOC-EB-02-21-17 2/21/2017	AOC-EB-02-04-17 2/4/2017	SD-EB-02-05-17 2/5/2017
1,2-Dichlorobenzene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
1,2-Dichloroethane	µg/L		0.5 U	0.5 U	0.5 U			0.5 U				0.5 U				0.5 U	0.5 U		0.5 U	0.5 U					0.5 U	
1,2-Dichloropropane	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
1,3,5-Trimethylbenzene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
1,3-Dichlorobenzene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
1,3-Dichloropropane	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
1,4-Dichlorobenzene	µg/L		0.5 U	0.5 U	0.5 U			0.5 U				0.5 U				0.5 U	0.5 U		0.5 U	0.5 U					0.5 U	
2,2-Dichloropropane	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
2-Chlorotoluene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
2-Hexanone, add	µg/L		5 U	5 U	5 U			5 U				5 U				5 U	5 U		5 U	5 U					5 U	
4-Isopropyltoluene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
Acetone	µg/L		10 U	10 U	10 U			10 U				10 U				10 U	10 U		10 U	10 U					10 U	
Acrolein	µg/L		20 U	20 U	20 U			20 U				20 U				20 U	20 U		20 U	20 U					20 U	
Acrylonitrile	µg/L		20 U	20 U	20 U			20 U				20 U				20 U	20 U		20 U	20 U					20 U	
Benzene	µg/L		0.5 U	0.5 U	0.5 U			0.5 U				0.5 U				0.5 U	0.5 U		0.5 U	0.5 U					0.5 U	
Bromobenzene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
Bromochloromethane	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
Bromodichloromethane	µg/L		0.5 U	0.5 U	0.5 U			0.5 U				0.5 U				0.5 U	0.5 U		0.5 U	0.5 U					0.5 U	
Bromoform	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
Bromomethane	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
Carbon disulfide	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
Carbon tetrachloride	µg/L		0.5 U	0.5 U	0.5 U			0.5 U				0.5 U				0.5 U	0.5 U		0.5 U	0.5 U					0.5 U	
Chlorobenzene	µg/L		0.5 U	0.5 U	0.5 U			0.5 U				0.5 U				0.5 U	0.5 U		0.5 U	0.5 U					0.5 U	
Chloroethane	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
Chloroform	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
Chloromethane	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
cis-1,2-Dichloroethene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
cis-1,3-Dichloropropene	µg/L		0.5 U	0.5 U	0.5 U			0.5 U				0.5 U				0.5 U	0.5 U		0.5 U	0.5 U					0.5 U	
Cyclohexane, add	µg/L		0.5 U	0.5 U	0.5 U			0.5 U				0.5 U				2 U	2 U		2 U	2 U					0.5 U	
Dibromochloromethane	µg/L		0.5 U	0.5 U	0.5 U			0.5 U				0.5 U				0.5 U	0.5 U		0.5 U	0.5 U					0.5 U	
Dibromomethane	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
Dichlorodifluoromethane (Freon 12)	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
Ethylbenzene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
Hexachlorobutadiene	µg/L		0.5 U	0.5 U	0.5 U			0.5 U				0.5 U				0.5 U	0.5 U		0.5 U	0.5 U					0.5 U	
Isopropylbenzene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
m,p-Xylene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
Methyl acetate, add	µg/L		0.5 U	0.5 U	0.5 U			0.5 U				0.5 U				2.5 U	2.5 U		2.5 U	2.5 U					0.5 U	
Methyl ethyl ketone	µg/L		10 U	10 U	10 U			10 U				10 U				10 U	10 U		10 U	10 U					10 U	
Methyl isobutyl ketone	µg/L		10 U	10 U	10 U			10 U				10 U				10 U	10 U		10 U	10 U					10 U	
Methyl tert-butyl ether (MTBE)	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
Methylcyclohexane, add	µg/L		0.5 U	0.5 U	0.5 U			0.5 U				0.5 U				2.5 U	2.5 U		2.5 U	2.5 U					0.5 U	
Methylene chloride	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
Naphthalene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
N-Butylbenzene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
N-Propylbenzene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
o-Xylene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
p-Chlorotoluene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
sec-Butylbenzene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
Styrene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
tert-Butylbenzene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
Tetrachloroethene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
Toluene	µg/L		0.5 U	0.5 U	0.5 U			0.5 U				0.5 U				0.5 U	0.5 U		0.5 U	0.5 U					0.5 U	
trans-1,2-Dichloroethene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
trans-1,3-Dichloropropene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
Trichloroethene	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
Trichlorofluoromethane (Freon 11)	µg/L		1 U	1 U	1 U			1 U				1 U				1 U	1 U		1 U	1 U					1 U	
Vinyl chloride	µg/L		0.5 U	0.5 U	0.5 U			0.5 U				0.5 U				0.5 U	0.5 U		0.5 U	0.5 U					0.5 U	
Xylenes, total	µg/L		2 U	2 U	2 U			2 U				2 U				2 U	2 U		2 U	2 U					2 U	
1,1-Biphenyl, add	µg/kg		11 U	12 U	10 U											11 U	11 U		11 U	11 U						
1,1-Biphenyl, add	µg/L							12 U			12 U															
1,2,4,5-Tetrachlorobenzene, add	µg/kg		11 U	12 U	10 U											11 U	11 U		11 U	11 U						
1,2,4,5-Tetrachlorobenzene, add	µg/L							12 U			12 U															
1,2,4-Trichlorobenzene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
1,2-Dichlorobenzene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
1,3-Dichlorobenzene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
1,4-Dichlorobenzene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
1,4-Dioxane, add	µg/L		1.2 U	1.1 U	1.2 U			1.2 U			1.2 U					1.1 U	1 U		1.1 U	1 U						
2,3,4,6-Tetrachlorophenol, add	µg/kg		11 U	12 U	10 U											11 U	11 U		11 U	11 U						
2,3,4,6-Tetrachlorophenol, add	µg/L							12 U			12 U															
2,4,5-Trichlorophenol	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
2,4,6-Trichlorophenol	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
2,4-Dichlorophenol	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
2,4-Dimethylphenol	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
2,4-Dinitrophenol	µg/L		55 U	60 U	52 U			59 U			59 U					53 U	53 U		53 U	54 U						
2,4-Dinitrotoluene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
2,6-Dinitrotoluene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
2-Chloro naphthalene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
2-Chlorophenol	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
2-Methyl naphthalene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
2-Methylphenol (o-cresol)	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
2-Nitroaniline	µg/L		55 U	60 U	52 U			59 U			59 U					53 U	53 U		53 U	54 U						
2-Nitrophenol	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
3,3-Dichlorobenzidene	µg/L		22 U	24 U	21 U			24 U			24 U					21 U	21 U		21 U	22 U						
3/4-Methylphenol	µg/L		11 U	12 U	10 U																					
3-Nitroaniline	µg/L		55 U	60 U	52 U			59 U			59 U					53 U	53 U		53 U	54 U						
4,6-Dinitro-2-methylphenol	µg/L							59 U			59 U					53 U	53 U		53 U	54 U						
4-Bromophenyl phenyl ether	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
4-Chloro-3-methylphenol	µg/L		55 U	60 U	52 U			59 U			59 U					53 U	53 U		53 U	54 U						
4-Chloroaniline	µg/L		22 U	24 U	21 U			24 U			24 U					21 U	21 U		21 U	22 U						
4-Chlorophenyl phenyl ether	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
4-Methylphenol (p-cresol)	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
4-Nitroaniline	µg/L		22 U	24 U	21 U			24 U			24 U					21 U	21 U		21 U	22 U						
4-Nitrophenol	µg/L		55 U	60 U	52 U			59 U			59 U					53 U	53 U		53 U	54 U						
Acenaphthene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Acenaphthylene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Acetophenone, add	µg/kg		11 U	12 U	10 U											11 U	11 U		11 U	11 U						
Acetophenone, add	µg/L							12 U			12 U															
Anthracene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Atrazine, add	µg/kg		11 U	12 U	10 U											11 U	11 U		11 U	11 U						

TABLE B4-1
Equipment Blank Analytical Results
RFI/RI Report, Volume 3 – Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Analyte	Units	AOC-EB-01-11-17 1/11/17	AOC-EB-01-12-17 1/12/2017	AOC-EB-01-17-17 1/17/2017	AOC-EB-01-18-17 1/18/2017	AOC-EB-01-19-17 1/19/2017	AOC-EB-01-20-17 1/20/2017	AOC-EB-01-21-17 1/21/2017	AOC-EB-01-22-17 1/22/2017	AOC-EB-01-23-17 1/23/2017	AOC-EB-01-24-17 1/24/2017	PA-EB-01-25-17 1/25/2017	PA-EB-01-26-17 1/26/2017	ERPW-Pipe-Blank 1/28/2016	PA-EB-01-31-17 1/31/2017	AOC-EB-01-04-17 1/4/2017	AOC-EB-01-05-17 1/5/2017	AOC-EB-01-07-17 1/7/2017	AOC-EB-01-08-17 1/8/2017	AOC-EB-01-09-17 1/9/2017	EB-2015-12-06 12/6/2015	AOC-EB-02-01-17 2/1/2017	AOC-EB-02-02-17 2/2/2017	AOC-EB-02-21-17 2/21/2017	AOC-EB-02-04-17 2/4/2017	SD-EB-02-05-17 2/5/2017
Atrazine, add	µg/L							12 U			12 U															
Benzaldehyde, add	µg/kg		11 U	12 U	10 U											11 U	11 U		11 U	11 U						
Benzaldehyde, add	µg/L							12 U			12 U															
Benzo (a) anthracene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Benzo (a) pyrene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Benzo (b) fluoranthene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Benzo (ghi) perylene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Benzo (k) fluoranthene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Benzoic acid	µg/L		55 U	60 U	52 U			59 U			59 U					53 U	53 U		53 U	54 U						
Benzyl alcohol	µg/L		22 U	24 U	21 U			24 U			24 U					21 U	21 U		21 U	22 U						
Bis (2-chloroethoxy) methane	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Bis (2-chloroethyl) ether	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Bis (2-ethylhexyl) phthalate	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Bis(2-chloroisopropyl)ether	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Butyl benzyl phthalate	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Caprolactam, add	µg/kg		11 U	12 U	10 U											11 U	11 U		11 U	11 U						
Caprolactam, add	µg/L							12 U			12 U															
Carbazole, add	µg/kg		11 U	12 U	10 U											11 U	11 U		11 U	11 U						
Carbazole, add	µg/L							12 U			12 U					11 U	11 U		11 U	11 U						
Chrysene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Dibenzo (a,h) anthracene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Dibenzofuran	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Diethyl phthalate	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Dimethyl phthalate	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Di-N-butyl phthalate	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Di-N-octyl phthalate	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Fluoranthene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Fluorene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Hexachlorobenzene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Hexachlorobutadiene	µg/L		22 U	24 U	21 U			24 U			24 U					21 U	21 U		21 U	22 U						
Hexachlorocyclopentadiene, add	µg/kg		11 U	12 U	10 U											11 U	11 U		11 U	11 U						
Hexachlorocyclopentadiene, add	µg/L							12 U			12 U					11 U	11 U		11 U	11 U						
Hexachloroethane	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Indeno (1,2,3-cd) pyrene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Isophorone	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Naphthalene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Nitrobenzene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
N-Nitroso-di-n-propylamine	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
N-nitrosodiphenylamine	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Pentachloro phenol	µg/L		55 U	60 U	52 U			59 U			59 U					53 U	53 U		53 U	54 U						
Phenanthrene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Phenol	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
Pyrene	µg/L		11 U	12 U	10 U			12 U			12 U					11 U	11 U		11 U	11 U						
1-Methyl naphthalene	µg/L		0.23 U	0.22 U				0.25 U	0.25 U			0.21 U	0.21 U		0.21 U		0.21 U		0.22 U		0.2 U	0.23 U	0.21 U		0.21 U	0.23 U
2-Methyl naphthalene	µg/L		0.23 U	0.22 U				0.25 U	0.25 U			0.21 U	0.21 U		0.21 U		0.21 U		0.22 U		0.2 U	0.23 U	0.21 U		0.21 U	0.23 U
Acenaphthene	µg/L		0.23 U	0.22 U				0.25 U	0.25 U			0.21 U	0.21 U		0.21 U		0.21 U		0.22 U		0.2 U	0.23 U	0.21 U		0.21 U	0.23 U
Acenaphthylene	µg/L		0.23 U	0.22 U				0.25 U	0.25 U			0.21 U	0.21 U		0.21 U		0.21 U		0.22 U		0.2 U	0.23 U	0.21 U		0.21 U	0.23 U
Anthracene	µg/L		0.23 U	0.22 U				0.25 U	0.25 U			0.21 U	0.21 U		0.21 U		0.21 U		0.22 U		0.2 U	0.23 U	0.21 U		0.21 U	0.23 U
Benzo (a) anthracene	µg/L		0.23 U	0.22 U				0.25 U	0.25 U			0.21 U	0.21 U		0.21 U		0.21 U		0.22 U		0.2 U	0.23 U	0.21 U		0.21 U	0.23 U
Benzo (a) pyrene	µg/L		0.23 U	0.22 U				0.25 U	0.25 U			0.21 U	0.21 U		0.21 U		0.21 U		0.22 U		0.2 U	0.23 U	0.21 U		0.21 U	0.23 U
Benzo (b) fluoranthene	µg/L		0.23 U	0.22 U				0.25 U	0.25 U			0.21 U	0.21 U		0.21 U		0.21 U		0.22 U		0.2 U	0.23 U	0.21 U		0.21 U	0.23 U
Benzo (ghi) perylene	µg/L		0.23 U	0.22 U				0.25 U	0.25 U			0.21 U	0.21 U		0.21 U		0.21 U		0.22 U		0.2 U	0.23 U	0.21 U		0.21 U	0.23 U
Benzo (k) fluoranthene	µg/L		0.23 U	0.22 U				0.25 U	0.25 U			0.21 U	0.21 U		0.21 U		0.21 U		0.22 U		0.2 U	0.23 U	0.21 U		0.21 U	0.23 U
Chrysene	µg/L		0.23 U	0.22 U				0.25 U	0.25 U			0.21 U	0.21 U		0.21 U		0.21 U		0.22 U		0.2 U	0.23 U	0.21 U		0.21 U	0.23 U
Dibenzo (a,h) anthracene	µg/L		0.23 U	0.22 U				0.25 U	0.25 U			0.21 U	0.21 U		0.21 U		0.21 U		0.22 U		0.2 U	0.23 U	0.21 U		0.21 U	0.23 U
Fluoranthene	µg/L		0.23 U	0.22 U				0.25 U	0.25 U			0.21 U	0.21 U		0.21 U		0.21 U		0.22 U		0.2 U	0.23 U	0.21 U		0.21 U	0.23 U
Fluorene	µg/L		0.23 U	0.22 U				0.25 U	0.25 U			0.21 U	0.21 U		0.21 U		0.21 U		0.22 U		0.2 U	0.23 U	0.21 U		0.21 U	0.23 U
Indeno (1,2,3-cd) pyrene	µg/L		0.23 U	0.22 U				0.25 U	0.25 U			0.21 U	0.21 U		0.21 U		0.21 U		0.22 U		0.2 U	0.23 U	0.21 U		0.21 U	0.23 U
Naphthalene	µg/L		0.23 U	0.22 U				0.25 U	0.25 U			0.21 U	0.21 U		0.21 U		0.21 U		0.22 U		0.2 U	0.23 U	0.21 U		0.21 U	0.23 U
Phenanthrene	µg/L		0.23 U	0.22 U				0.25 U	0.25 U			0.21 U	0.21 U		0.21 U		0.21 U		0.22 U		0.2 U	0.23 U	0.21 U		0.21 U	0.23 U
Pyrene	µg/L		0.23 U	0.22 U				0.25 U	0.25 U			0.21 U	0.21 U		0.21 U		0.21 U		0.22 U		0.2 U	0.23 U	0.21 U		0.21 U	0.23 U
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	pg/L		18 U					12 U	7.6 U							16 U	10 U	8.6 U	19 J*	7.6 U		19 J*	13 U	13 J*	5 U	
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-DIOX	pg/L		64 U					61 J*	14 U							49 U	49 J*	41 U	82 U	52 J*		29 U	14 U	110 J*	11 U	
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	pg/L		16 U					9.7 U	5.6 U							5.3 U	5 U	11 U	11 U	5.9 U		17 J*	11 U	1.9 U	5.8 J*	
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	pg/L		2.8 U					2.6 U	2.4 U							2.3 U	1.4 U	1.8 U	3.7 U	2.1 U		1.4 U	1.7 U	2.4 U	1.1 U	
1,2,3,4,7,8-HEXACHLORODIBENZO-p-DIOXIN	pg/L		2.9 U					6.8 U	3.3 U							2.4 U	4 U	2.5 U	3.4 U	2.1 U		8.2 U	1.8 U	1.7 U	1.6 U	
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	pg/L		2.4 U					1.6 U	1.9 U							2 U	1.8 U	1.7 U	3.5 U	2.3 U		6.6 J*	3.6 U	2.3 U	2.3 U	
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	pg/L		3.4 U					1.7 U	1.9 U							2.1 U	1.3 U	2.1 U	2.9 U	1.8 U		8.3 J*	4.2 U	4.2 U	2.8 U	
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN	pg/L		11 U					3.2 U	3.4 U							8.2 J*	3.6 U	4.1 U	5.6 U	3.3 U		14 J*	4.3 U	2.7 U	5.7 U	
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	pg/L		2.5 U					6.7 U	2.6 U							4.1 U	1.3 U	12 J*	9.4 U	1.8 U		16 U	9.1 U	0.52 U	4.6 U	
1,2,3,7,8-PENTACHLORODIBENZOFURAN	pg/L		1.7 U					1.3 U	1.1 U							1.3 U	1.1 U	1.2 U	3.7 U	2.5 U		2.6 U	5.1 J*	1.3 U	0.7 U	
1,2,3,7,8-PENTACHLORODIBENZO-p-DIOXIN	pg/L		9 U					1.6 U	1.2 U							1.4 U	2.5 U	2 U	2.6 U	1.9 U		5.2 U	3.7 U	1.2 U	1.6 U	
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	pg/L		7.6 J*					1.4 U	2.1 U							8.4 U	1 U	1.8 U	2.8 U	3.8 U		9.9 U	6.6 U	37 U	6.1 U	
2,3,4,7,8-PENTACHLORODIBENZOFURAN	pg/L		1.7 U					1.3 U	1.2 U							1.4 U	1.1 U	1.4 U	3.8 U	0.92 U		5.1 U	3.9 U	1.3 U	2.7 U	
2,3,7,8-TCDD	pg/L		1.2 U					1 U	1.1 U							1 U	3.2 J*	1.1 U	1.6 U	0.69 U		3 U	2.6 U	0.6 U	0.79 U	
2,3,7,8-TETRACHLORODIBENZOFURAN	pg/L		1.7 U					1 U	1.2 U							4.2 U	1.2 U	0.95 U	2.1 U	0.9 U		0.87 U	3.7 U	0.35 U	0.61 U	
OCTACHLORODIBENZOFURAN	pg/L		15 J*					10 U	11 U							12 J*	14 J*	11 U	19 U	6.5 U		29 U	12 U	42 J*	12 U	
OCTACHLORODIBENZO-p-DIOXIN	pg/L		480 *					350 *	210 J*							240 J*	220 J*	190 J*	260 *	200 J*		120 J*	51 U	1300 *	51 J*	
TEQ	pg/L		0.46 *					0.031 *	0.0002 *							0.57 *	3.2 *	0.12 *	0.0022 *	0.026 *		1.3 *	0.051 *	0.058 *	0.023 *	
Cyanide, add	mg/L		0.01 U	0.01 U	0.01 U												0.01 U		0.01 U	0.01 U						
Cyanide, Total, add	mg/L							0.01 U			0.01 U	0.01 U													0.01 U	

Cells denoted with shading and * indicate a Detected Result
J = concentration or reporting limit estimated by laboratory or data validation
mg/L = milligrams per liter
mg/L = milligrams per liter
µg/L = micrograms per liter
pg/L = picograms per liter
U = not detected at the listed reporting limit

TABLE B4-2
Investigation Derived Waste Analytical Results
RFI/RI Report, Volume 3 – Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Analyte	Units	IDW-01-5985 12/18/2015	IDW-01-6238 3/21/2016	IDW-01-6253 3 2/6/2017	IDW-01-6582 3/21/2016	IDW-01-6590 3/21/2016	IDW-01-6657 3/21/2016	IDW-01-6666 6 2/3/2016	IDW-01-C-648 5/25/2016	TCS-IDW-1 10/19/2015	TCS-IDW-2 10/19/2015	TCS-IDW-3 10/19/2015
MOISTURE, PERCENT	%		0 U		0 U		0 U					
Antimony	mg/kg	2 U	2 UJ	2.1 U	2 U	2.6 U	2 U	2 U	2 U	2.1 UJ	2.1 U	2 U
Arsenic	mg/kg									3.1 J*		
Barium	mg/kg		170 J*							98 J*		
Beryllium	mg/kg	1 U	1 U	1 U	1 U	1.3 U	1 U	1 U	1 U	1 UJ	1 U	1 U
Cadmium	mg/kg	1 U	1 U	1 U	1 U	1.3 U	1 U	1 U		1 UJ	1 U	1 U
Chromium	mg/kg		46 J*							15 J*		
Chromium, TCLP	mg/L					0.05 U						
Copper	mg/kg									18 J*		
Lead	mg/kg									4.9 J*		
Lead, STLC	mg/L				0.25 UJ							
Lead, TCLP	mg/L				0.05 U							
Molybdenum	mg/kg		1 U		1 U		1 U		1 U	1 UJ	1 U	1 U
Nickel	mg/kg									10 J*		
Selenium	mg/kg	1 U	1 U	1 UJ	1 U	1.3 U	1 U	1 U	1 U	1 UJ	1 U	1 U
Silver	mg/kg	1 U	1 U	1 U	1 U	1.3 U	1 U	1 U	1 U	1 UJ	1 U	1 U
Thallium	mg/kg	2 U	2 U	2.1 U	2 U	2.6 U	2 U	2 U	2 U	2.1 UJ	2.1 U	2 U
Zinc	mg/kg		80 J*							25 J*		
Hexavalent Chromium	mg/kg		1.6 J*			0.26 U		2.8 J*	0.2 U	0.21 U		
Mercury	mg/kg	0.1 U	0.1 U	0.1 U	0.1 U		0.1 U	0.1 U	0.098 U	0.1 U	0.1 U	0.1 U
TPH as diesel	mg/kg		10 U				10 U		10 U			
TPH as motor oil	mg/kg								10 U			
TPH as gasoline	µg/kg			1200 U					1800 U			
4,4-DDD	µg/kg		2 U		2 U	2.6 U	2 U					
4,4-DDE	µg/kg		2 U		2 U	2.6 U	2 U					
4,4-DDT	µg/kg		2 U		2 U	2.6 U	2 U					
Aldrin	µg/kg		1 U		1 U	1.3 U	1 U					
alpha-BHC	µg/kg		1 U		1 U	1.3 U	1 U					
alpha-Chlordane	µg/kg		1 U		1 U	1.3 U	1 U					
beta-BHC	µg/kg		1 U		1 U	1.3 U	1 U					
delta-BHC	µg/kg		1 U		1 U	1.3 U	1 U					
Dieldrin	µg/kg		2 U		2 U	2.6 U	2 U					
Endo sulfan I	µg/kg		1 U		1 U	1.3 U	1 U					
Endo sulfan II	µg/kg		2 U		2 U	2.6 U	2 U					
Endosulfan sulfate	µg/kg		2 U		2 U	2.6 U	2 U					
Endrin	µg/kg		2 U		2 U	2.6 U	2 U					
Endrin aldehyde	µg/kg		2 U		2 U	2.6 U	2 U					
gamma-BHC	µg/kg		1 U		1 U	1.3 U	1 U					
gamma-Chlordane	µg/kg		1 U		1 U	1.3 U	1 U					
Heptachlor	µg/kg		1 U		1 U	1.3 U	1 U					
Heptachlor Epoxide	µg/kg		1 U		1 U	1.3 U	1 U					
Methoxy chlor	µg/kg		5 U		5 U	6.6 U	5.1 U					
Toxaphene	µg/kg		50 UJ		50 UJ	66 UJ	51 UJ					
Aroclor 1016	µg/kg	17 U	17 U	17 U	17 U	22 U	17 U	17 U	17 U	17 U	17 UJ	17 U
Aroclor 1221	µg/kg	34 U	33 U	34 U	33 U	43 U	33 U	33 U	33 U	34 U	34 U	33 U
Aroclor 1232	µg/kg	17 U	17 U	17 U	17 U	22 U	17 U	17 U	17 U	17 U	17 U	17 U
Aroclor 1242	µg/kg	17 U	17 U	17 U	17 U	22 U	17 U	17 U	17 U	17 U	17 U	17 U
Aroclor 1248	µg/kg	17 U	17 U	17 U	17 U	22 U	17 U	17 U	17 U	17 U	17 U	17 U
Aroclor 1254	µg/kg	30 J*		17 U		22 U	17 U		17 U	17 U		
Aroclor 1260	µg/kg	36 J*	17 U	17 U	17 U	22 U	17 U		17 U	17 U	39 J*	
1,1,1,2-Tetrachloroethane	µg/kg	6 U						8.3 U	5.3 U			
1,1,1-Trichloroethane	µg/kg	6 U						8.3 U	5.3 U			
1,1,2,2-Tetrachloroethane	µg/kg	6 U						8.3 U	5.3 U			
1,1,2-Trichloroethane	µg/kg	6 U						8.3 U	5.3 U			
1,1,2-Trichlorotrifluoroethane (Freon 113)	µg/kg	6 U						8.3 U	5.3 U			
1,1-Dichloroethane	µg/kg	6 U						8.3 U	5.3 U			
1,1-Dichloroethene	µg/kg	6 U						8.3 U	5.3 U			
1,1-Dichloropropene	µg/kg	6 U						8.3 U	5.3 U			
1,2,3-Trichlorobenzene	µg/kg	6 U						8.3 U	5.3 U			
1,2,3-Trichloropropane	µg/kg	6 U						8.3 U	5.3 U			
1,2,4-Trichlorobenzene	µg/kg	6 U						8.3 U	5.3 U			
1,2,4-Trimethylbenzene	µg/kg	6 U						8.3 U	5.3 U			
1,2-Dibromo-3-chloropropane	µg/kg	6 U						8.3 U	5.3 U			
1,2-Dibromoethane	µg/kg	6 U						8.3 U	5.3 U			
1,2-Dichlorobenzene	µg/kg	6 U						8.3 U	5.3 U			
1,2-Dichloroethane	µg/kg	6 U						8.3 U	5.3 U			
1,2-Dichloropropane	µg/kg	6 U						8.3 U	5.3 U			
1,3,5-Trimethylbenzene	µg/kg	6 U						8.3 U	5.3 U			
1,3-Dichlorobenzene	µg/kg	6 U						8.3 U	5.3 U			
1,3-Dichloropropane	µg/kg	6 U						8.3 U	5.3 U			
1,4-Dichlorobenzene	µg/kg	6 U						8.3 U	5.3 U			
2,2-Dichloropropane	µg/kg	6 U						8.3 U	5.3 U			
2-Chlorotoluene	µg/kg	6 U						8.3 U	5.3 U			
4-Isopropyltoluene	µg/kg	6 U						8.3 U	5.3 U			
Acetone	µg/kg	60 U						83 U	53 U			
Acrolein	µg/kg	120 U						170 U	110 U			
Acrylonitrile	µg/kg	60 U						83 U	53 U			
Benzene	µg/kg	6 U						8.3 U	5.3 U			
Bromobenzene	µg/kg	6 U						8.3 U	5.3 U			
Bromochloromethane	µg/kg	6 U						8.3 U	5.3 U			
Bromodichloromethane	µg/kg	6 U						8.3 U	5.3 U			
Bromoform	µg/kg	6 U						8.3 U	5.3 U			
Bromomethane	µg/kg	6 U						8.3 U	5.3 U			
Carbon disulfide	µg/kg	6 U						8.3 U	5.3 U			
Carbon tetrachloride	µg/kg	6 U						8.3 U	5.3 U			
Chlorobenzene	µg/kg	6 U						8.3 U	5.3 U			
Chloroethane	µg/kg	6 U						8.3 U	5.3 U			
Chloroform	µg/kg	6 U						8.3 U	5.3 U			
Chloromethane	µg/kg	6 U						8.3 U	5.3 U			
cis-1,2-Dichloroethene	µg/kg	6 UJ						8.3 U	5.3 U			
cis-1,3-Dichloropropene	µg/kg	6 U						8.3 U	5.3 U			

TABLE B4-2
Investigation Derived Waste Analytical Results
RFI/RI Report, Volume 3 – Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Analyte	Units	IDW-01-5985 12/18/2015	IDW-01-6238 3/21/2016	IDW-01-6253 3 2/6/2017	IDW-01-6582 3/21/2016	IDW-01-6590 3/21/2016	IDW-01-6657 3/21/2016	IDW-01-6666 6 2/3/2016	IDW-01-C-648 5/25/2016	TCS-IDW-1 10/19/2015	TCS-IDW-2 10/19/2015	TCS-IDW-3 10/19/2015
Dibromochloromethane	µg/kg	6 U						8.3 U	5.3 U			
Dibromomethane	µg/kg	6 U						8.3 U	5.3 U			
Dichlorodifluoromethane (Freon 12)	µg/kg	6 U						8.3 U	5.3 U			
Ethylbenzene	µg/kg	6 U						8.3 U	5.3 U			
Hexachlorobutadiene	µg/kg	6 U						8.3 U	5.3 U			
Isopropylbenzene	µg/kg	6 U						8.3 U	5.3 U			
m,p-Xylene	µg/kg	6 U						8.3 U	5.3 U			
Methyl ethyl ketone	µg/kg	60 U						83 U	53 U			
Methyl isobutyl ketone	µg/kg	60 U						83 U	53 U			
Methyl tert-butyl ether (MTBE)	µg/kg	6 U						8.3 U	5.3 U			
Methylene chloride	µg/kg	6 U						8.3 U	5.3 U			
Naphthalene	µg/kg	6 U						8.3 U	5.3 U			
N-Butylbenzene	µg/kg	6 U						8.3 U	5.3 U			
N-Propylbenzene	µg/kg	6 U						8.3 U	5.3 U			
o-Xylene	µg/kg	6 U						8.3 U	5.3 U			
p-Chlorotoluene	µg/kg	6 U						8.3 U	5.3 U			
sec-Butylbenzene	µg/kg	6 U						8.3 U	5.3 U			
Styrene	µg/kg	6 U						8.3 U	5.3 U			
tert-Butylbenzene	µg/kg	6 U						8.3 U	5.3 U			
Tetrachloroethene	µg/kg	6 U						8.3 U	5.3 U			
Toluene	µg/kg	6 U						8.3 U	5.3 U			
trans-1,2-Dichloroethene	µg/kg	6 U						8.3 U	5.3 U			
trans-1,3-Dichloropropene	µg/kg	6 U						8.3 U	5.3 U			
Trichloroethene	µg/kg	6 U						8.3 U	5.3 U			
Trichlorofluoromethane (Freon 11)	µg/kg	6 U						8.3 U	5.3 U			
Vinyl chloride	µg/kg	6 U						8.3 U	5.3 U			
Xylenes, total	µg/kg	6 U						8.3 U	5.3 U			
1,2,4-Trichlorobenzene	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
1,2-Dichlorobenzene	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
1,3-Dichlorobenzene	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
1,4-Dichlorobenzene	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
2,4,5-Trichlorophenol	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
2,4,6-Trichlorophenol	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
2,4-Dichlorophenol	µg/kg	1700 U	1600 U		1700 U	2200 U	1700 U	1700 U	1600 U	1700 U	1700 U	1700 UJ
2,4-Dimethylphenol	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
2,4-Dinitrophenol	µg/kg	1700 U	1600 UJ		1700 U	2200 U	1700 U	1700 U	1600 U	1700 UJ	1700 U	1700 UJ
2,4-Dinitrotoluene	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
2,6-Dinitrotoluene	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
2-Chloro naphthalene	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
2-Chlorophenol	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
2-Methyl naphthalene	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
2-Methylphenol (o-cresol)	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
2-Nitroaniline	µg/kg	1700 U	1600 U		1700 U	2200 U	1700 U	1700 U	1600 U	1700 U	1700 U	1700 UJ
2-Nitrophenol	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
3,3-Dichlorobenzidene	µg/kg	680 U	660 U		670 U	870 U	670 U	670 U	660 U	680 U	680 U	670 UJ
3-Nitroaniline	µg/kg	1700 U	1600 U		1700 U	2200 U	1700 U	1700 U	1600 U	1700 U	1700 U	1700 UJ
4,6-Dinitro-2-methylphenol	µg/kg	1700 UJ	1600 U		1700 U	2200 U	1700 U	1700 U	1600 U	1700 U	1700 U	1700 UJ
4-Bromophenyl phenyl ether	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
4-Chloro-3-methylphenol	µg/kg	680 U	660 U		670 U	870 U	670 U	670 U	660 U	680 U	680 U	670 UJ
4-Chloroaniline	µg/kg	680 U	660 U		670 U	870 U	670 U	670 U	660 U	680 U	680 U	670 UJ
4-Chlorophenyl phenyl ether	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
4-Methylphenol (p-cresol)	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
4-Nitroaniline	µg/kg	1700 U	1600 U		1700 U	2200 U	1700 U	1700 U	1600 U	1700 U	1700 U	1700 UJ
4-Nitrophenol	µg/kg	1700 U	1600 U		1700 U	2200 U	1700 U	1700 U	1600 U	1700 U	1700 U	1700 UJ
Acenaphthene	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
Acenaphthylene	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
Anthracene	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
Benzo (a) anthracene	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
Benzo (a) pyrene	µg/kg	3400 U	330 U		330 U	430 U	330 U	3300 U	330 U	340 U	340 U	330 UJ
Benzo (b) fluoranthene	µg/kg	3400 U	330 U		330 U	430 U	330 U	3300 U	330 U	340 U	340 U	330 UJ
Benzo (ghi) perylene	µg/kg	3400 U	330 UJ		330 U	430 U	330 U	3300 U	330 U	340 UJ	340 U	330 UJ
Benzo (k) fluoranthene	µg/kg	3400 U	330 U		330 U	430 U	330 U	3300 U	330 U	340 U	340 U	330 UJ
Benzoic acid	µg/kg	1700 U	1600 UJ		1700 U	2200 U	1700 U	1700 U	1600 U	1700 U	1700 U	1700 UJ
Benzyl alcohol	µg/kg	680 U	660 U		670 U	870 U	670 U	670 U	660 U	680 U	680 U	670 UJ
Bis (2-chloroethoxy) methane	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
Bis (2-chloroethyl) ether	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
Bis (2-ethylhexyl) phthalate	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
Bis(2-chloroisopropyl)ether	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
Butyl benzyl phthalate	µg/kg	340 U	330 U		330 U	430 U		330 U	330 U	340 U	340 U	330 UJ
Chrysene	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
Dibenzo (a,h) anthracene	µg/kg	3400 U	330 UJ		330 U	430 U	330 U	3300 U	330 U	340 UJ	340 U	330 UJ
Dibenzofuran	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
Diethyl phthalate	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
Dimethyl phthalate	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
Di-N-butyl phthalate	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
Di-N-octyl phthalate	µg/kg	3400 U	330 U		480 *	430 U	330 U	3300 U	330 U	340 U	340 U	330 UJ
Fluoranthene	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
Fluorene	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
Hexachlorobenzene	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
Hexachlorobutadiene	µg/kg	680 U	660 U		670 U	870 U	670 U	670 U	660 U	680 U	680 U	670 UJ
Hexachloroethane	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
Indeno (1,2,3-cd) pyrene	µg/kg	3400 U	330 UJ		330 U	430 U	330 U	3300 U	330 U	340 UJ	340 U	330 UJ
Isophorone	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
Naphthalene	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
Nitrobenzene	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
N-Nitroso-di-n-propylamine	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
N-nitrosodiphenylamine	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
Pentachloro phenol	µg/kg	1700 U	1600 U		1700 U	2200 U	1700 U	1700 U	1600 U	1700 U	1700 U	1700 UJ
Phenanthrene	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
Phenol	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ
Pyrene	µg/kg	340 U	330 U		330 U	430 U	330 U	330 U	330 U	340 U	340 U	330 UJ

TABLE B4-2
Investigation Derived Waste Analytical Results
RFI/RI Report, Volume 3 – Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Analyte	Units	IDW-01-5985 12/18/2015	IDW-01-6238 3/21/2016	IDW-01-6253 3 2/6/2017	IDW-01-6582 3/21/2016	IDW-01-6590 3/21/2016	IDW-01-6657 3/21/2016	IDW-01-6666 6 2/3/2016	IDW-01-C-648 5/25/2016	TCS-IDW-1 10/19/2015	TCS-IDW-2 10/19/2015	TCS-IDW-3 10/19/2015
1-Methyl naphthalene	µg/kg		5 U	5.2 U	5 U	6.5 U	33 J*					
2-Methyl naphthalene	µg/kg		5 U	5.2 U	5 U	6.5 U	41 J*					
Acenaphthene	µg/kg		5 U	5.2 U	5 U	6.5 U	5 U					
Acenaphthylene	µg/kg		5 U	5.2 U	5 U	6.5 U	5 U					
Anthracene	µg/kg		5 U	5.2 U	5 U	6.5 U	5 U					
Benzo (a) anthracene	µg/kg		5 U	5.2 U	19 J*	6.5 U	9.7 J*					
Benzo (a) pyrene	µg/kg		5 U	5.2 U	32 J*	6.5 U	20 J*					
Benzo (b) fluoranthene	µg/kg				81 J*	6.5 U	51 J*					
Benzo (ghi) perylene	µg/kg		5 U	5.2 U	12 J*	6.5 U	12 J*					
Benzo (k) fluoranthene	µg/kg			5.2 U	28 J*	6.5 U	24 J*					
Chrysene	µg/kg				38 J*	6.5 U	21 J*					
Dibenzo (a,h) anthracene	µg/kg		5 U	5.2 U	5 U	6.5 U	5 U					
Fluoranthene	µg/kg				53 J*	6.5 U	18 J*					
Fluorene	µg/kg		5 U	5.2 U	5 U	6.5 U	5 U					
Indeno (1,2,3-cd) pyrene	µg/kg		5 U	5.2 U	10 J*	6.5 U	8.7 J*					
Naphthalene	µg/kg		5 U	5.2 U	5 U	6.5 U	7.4 J*					
Phenanthrene	µg/kg		5 U	5.2 U	18 J*	6.5 U	8.4 J*					
Pyrene	µg/kg				47 J*	6.5 U	18 J*					
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	pg/g				0.47 U	45 U						
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	pg/g		7.9 J*	2.2 U	7.9 J*	53 U						
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	pg/g		0.25 U	1.8 U	7.9 J*		300 U					
1,2,3,4,7,8-HEXACHLORODIBENZO-p-DIOXIN	pg/g		3.3 J*	4 J*	5.9 J*	6.4 U						
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	pg/g		0.81 U	0.7 U	11 U	80 U	290 U					
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	pg/g			9.7 J*								
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN	pg/g		0.29 U	0.76 J*	1.1 U	2.5 U	350 U					
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	pg/g		5.1 U	0.39 U	10 J*							
1,2,3,7,8-PENTACHLORODIBENZOFURAN	pg/g		0.52 U	0.44 U	0.6 U	3.1 U						
1,2,3,7,8-PENTACHLORODIBENZO-p-DIOXIN	pg/g		1.2 U	2.4 U	2.5 U	1.7 U						
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	pg/g		130 U	61 U	160 U	970 U	11000 U					
2,3,4,7,8-PENTACHLORODIBENZOFURAN	pg/g		0.49 U	1 U	0.63 U							
2,3,7,8-TCDD	pg/g		0.24 U	0.12 U	0.42 U	0.34 U	1.8 J*					
2,3,7,8-TETRACHLORODIBENZOFURAN	pg/g		0.43 U	2.1 J*	0.84 U	0.48 U	2.5 U					

The results presented in this table include all validated analytical data for IDW sample characterization. Based on standard procedures, analytical results for IDW samples are not typically validated (as they are used for hazardous waste characterization only). Therefore, this table may not present the full extent of data collected for the purpose of IDW characterization.

Cells denoted with shading and * indicate a Detected Result
% = percent
J = concentration or reporting limit estimated by laboratory or data validation
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
µg/kg = micrograms per kilogram
pg/g = picograms per gram
U = not detected at the listed reporting limit

CH2M Hill

Project: Topock RFI

Project No.: 666665.FP.FW

ASSET Laboratories Work Order: N018099

ANALYTICAL and QC RESULTS

SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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ASSET Laboratories Work Order: N018099

January 09, 2016

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-00922

Workorder No.: N018099

RE: Topock RFI, 666665.FP.FW

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on December 18, 2015 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Glen Gesmundo
QA Manager

CLIENT: CH2M HILL
Project: Topock RFI, 666665.FP.FW
Lab Order: N018099

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Subcontracted Analyses:

Asbestos was subcontracted to AmeriSci Los Angeles-Carson,CA.

Analytical Comments for EPA 6010B:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Zinc on QC samples N018096-004A-MS and N018096-004A-MSD since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 8082:

Surrogate Decachlorobiphenyl was outside recovery limit on sample possibly due to matrix interference. The other surrogate Tetrachloro-m-xylene was recovered within control limits.

Analytical Comments for EPA 8260B:

% Recovery of cis-1,2-Dichloroethene in Laboratory Control Sample Duplicate (LCSD) is outside criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable. NELAC standard allows for three analytes in marginal exceedence based on 51-70 analytes.

RPD for Laboratory Control Sample (LCS) / Laboratory Control Sample Duplicate (LCSD) is outside criteria for cis-1,2-Dichloroethene. The associated Laboratory Control Sample (LCS) recovery was

acceptable.

Analytical Comments for EPA 8270C:

Some analytes for sample N018099-001 and QC samples N018099-001B-MS, N018099-001B-MSD were flagged A6L to indicate that concentrations reported are recovered low due to internal standard not meeting method recovery criteria possibly due to matrix interference.Samples were analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes on QC samples N018099-001B-MS and N018099-001B-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

The calculated value of Benzoic Acid on Method Blank (MB-55632) is less than the actual reporting limit of 1650 ug/Kg but LIMS rounded it off to 1600 ug/Kg.

ASSET Laboratories

Date: *09-Jan-16*

CLIENT: CH2M HILL
Project: Topock RFI, 666665.FP.FW
Lab Order: N018099
Contract No: 2015-RFISOIL-I

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N018099-001A	Soil-IDW-01-5985	Soil	12/18/2015 12:00:00 PM	12/18/2015	1/9/2016
N018099-001B	Soil-IDW-01-5985	Soil	12/18/2015 12:00:00 PM	12/18/2015	1/9/2016
N018099-001C	Soil-IDW-01-5985	Soil	12/18/2015 12:00:00 PM	12/18/2015	1/9/2016
N018099-001D	Soil-IDW-01-5985	Soil	12/18/2015 12:00:00 PM	12/18/2015	1/9/2016
N018099-001E	Soil-IDW-01-5985	Soil	12/18/2015 12:00:00 PM	12/18/2015	1/9/2016
N018099-001F	Soil-IDW-01-5985	Soil	12/18/2015 12:00:00 PM	12/18/2015	1/9/2016
N018099-001G	Soil-IDW-01-5985	Soil	12/18/2015 12:00:00 PM	12/18/2015	1/9/2016

CLIENT: CH2M HILL
Lab Order: N018099
Project: Topock RFI, 666665.FP.FW
Lab ID: N018099-001

Client Sample ID: Soil-IDW-01-5985
Collection Date: 12/18/2015 12:00:00 PM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL METALS BY ICP							
	EPA 3050B			**EPA 6010B**			
RunID: **ICP2_151230D**	QC Batch: **55529**			PrepDate	**12/28/2015**		Analyst: **CEI**
Antimony	ND	0.070	2.0		mg/Kg-dry	1	12/30/2015 10:29 PM
Arsenic	3.4	0.053	1.0		mg/Kg-dry	1	12/30/2015 10:29 PM
Barium	100	0.0079	1.0		mg/Kg-dry	1	12/30/2015 10:29 PM
Beryllium	ND	0.017	1.0		mg/Kg-dry	1	12/30/2015 10:29 PM
Cadmium	ND	0.054	1.0		mg/Kg-dry	1	12/30/2015 10:29 PM
Chromium	22	0.066	1.0		mg/Kg-dry	1	12/30/2015 10:29 PM
Cobalt	5.9	0.026	1.0		mg/Kg-dry	1	12/30/2015 10:29 PM
Copper	18	0.039	2.0		mg/Kg-dry	1	12/30/2015 10:29 PM
Lead	22	0.036	1.0		mg/Kg-dry	1	12/30/2015 10:29 PM
Molybdenum	1.3	0.018	1.0		mg/Kg-dry	1	12/30/2015 10:29 PM
Nickel	15	0.013	1.0		mg/Kg-dry	1	12/30/2015 10:29 PM
Selenium	ND	0.069	1.0		mg/Kg-dry	1	12/30/2015 10:29 PM
Silver	ND	0.015	1.0		mg/Kg-dry	1	12/30/2015 10:29 PM
Thallium	ND	0.049	2.0		mg/Kg-dry	1	12/30/2015 10:29 PM
Vanadium	25	0.078	1.0		mg/Kg-dry	1	12/30/2015 10:29 PM
Zinc	49	0.084	1.0		mg/Kg-dry	1	12/30/2015 10:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID **MB-55529**	SampType: **MBLK**	TestCode: **6010_SPGE**	Units: **mg/kg**	Prep Date: **12/28/2015**	RunNo: **104991**
Client ID: **PBS**	Batch ID: **55529**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **12/30/2015**	SeqNo: **2186382**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0									
Arsenic	ND	1.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	1.0									
Cobalt	ND	1.0									
Copper	ND	2.0									
Lead	ND	1.0									
Molybdenum	0.084	1.0									
Nickel	0.016	1.0									
Selenium	0.080	1.0									
Silver	ND	1.0									
Thallium	ND	2.0									
Vanadium	ND	1.0									
Zinc	ND	1.0									

Sample ID **LCS-55529**	SampType: **LCS**	TestCode: **6010_SPGE**	Units: **mg/kg**	Prep Date: **12/28/2015**	RunNo: **104991**
Client ID: **LCSS**	Batch ID: **55529**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **12/30/2015**	SeqNo: **2186383**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	25.500	2.0	25.00	0	102	85	115				
Arsenic	25.450	1.0	25.00	0	102	85	115				
Barium	25.723	1.0	25.00	0	103	85	115				
Beryllium	25.500	1.0	25.00	0	102	85	115				
Cadmium	25.906	1.0	25.00	0	104	85	115				
Chromium	25.707	1.0	25.00	0	103	85	115				
Cobalt	26.586	1.0	25.00	0	106	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID **LCS-55529** SampType: **LCS** TestCode: **6010_SPGE** Units: **mg/kg** Prep Date: **12/28/2015** RunNo: **104991**
Client ID: **LCSS** Batch ID: **55529** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **12/30/2015** SeqNo: **2186383**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	25.676	2.0	25.00	0	103	85	115				
Lead	25.525	1.0	25.00	0	102	85	115				
Molybdenum	25.420	1.0	25.00	0	102	85	115				
Nickel	25.628	1.0	25.00	0	103	85	115				
Selenium	25.554	1.0	25.00	0	102	85	115				
Silver	25.688	1.0	25.00	0	103	85	115				
Thallium	25.874	2.0	25.00	0	103	85	115				
Vanadium	25.814	1.0	25.00	0	103	85	115				
Zinc	26.463	1.0	25.00	0	106	85	115				

Sample ID **N018096-004A-MS** SampType: **MS** TestCode: **6010_SPGE** Units: **mg/Kg-dry** Prep Date: **12/28/2015** RunNo: **104991**
Client ID: **ZZZZZZ** Batch ID: **55529** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **12/30/2015** SeqNo: **2186390**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	19.166	2.0	25.36	0	75.6	75	125				
Arsenic	26.010	1.0	25.36	3.017	90.7	75	125				
Barium	66.956	1.0	25.36	38.61	112	75	125				
Beryllium	24.091	1.0	25.36	0	95.0	75	125				
Cadmium	22.316	1.0	25.36	0.2607	87.0	75	125				
Chromium	31.084	1.0	25.36	5.140	102	75	125				
Cobalt	27.816	1.0	25.36	2.423	100	75	125				
Copper	28.995	2.0	25.36	3.677	99.8	75	125				
Lead	26.310	1.0	25.36	3.050	91.7	75	125				
Molybdenum	23.372	1.0	25.36	0	92.2	75	125				
Nickel	31.782	1.0	25.36	4.114	109	75	125				
Selenium	19.766	1.0	25.36	0	77.9	75	125				
Silver	26.342	1.0	25.36	0	104	75	125				
Thallium	23.306	2.0	25.36	0.9923	88.0	75	125				
Vanadium	40.248	1.0	25.36	11.45	114	75	125				
Zinc	43.338	1.0	25.36	401.4	-1410	75	125				S

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID **N018096-004A-MSD** SampType: **MSD** TestCode: **6010_SPGE** Units: **mg/Kg-dry** Prep Date: **12/28/2015** RunNo: **104991**
Client ID: **ZZZZZZ** Batch ID: **55529** TestNo: **EPA 6010B EPA 3050B** Analysis Date: **12/30/2015** SeqNo: **2186391**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	19.053	2.0	25.31	0	75.3	75	125	19.17	0.595	20	
Arsenic	25.703	1.0	25.31	3.017	89.6	75	125	26.01	1.19	20	
Barium	66.488	1.0	25.31	38.61	110	75	125	66.96	0.701	20	
Beryllium	24.010	1.0	25.31	0	94.9	75	125	24.09	0.336	20	
Cadmium	22.085	1.0	25.31	0.2607	86.2	75	125	22.32	1.04	20	
Chromium	30.840	1.0	25.31	5.140	102	75	125	31.08	0.789	20	
Cobalt	27.580	1.0	25.31	2.423	99.4	75	125	27.82	0.849	20	
Copper	28.789	2.0	25.31	3.677	99.2	75	125	28.99	0.714	20	
Lead	26.046	1.0	25.31	3.050	90.8	75	125	26.31	1.01	20	
Molybdenum	23.150	1.0	25.31	0	91.5	75	125	23.37	0.956	20	
Nickel	31.513	1.0	25.31	4.114	108	75	125	31.78	0.850	20	
Selenium	19.650	1.0	25.31	0	77.6	75	125	19.77	0.584	20	
Silver	26.131	1.0	25.31	0	103	75	125	26.34	0.802	20	
Thallium	23.156	2.0	25.31	0.9923	87.6	75	125	23.31	0.645	20	
Vanadium	39.902	1.0	25.31	11.45	112	75	125	40.25	0.864	20	
Zinc	42.958	1.0	25.31	401.4	-1420	75	125	43.34	0.880	20	S

Qualifiers:

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- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Lab Order: N018099
Project: Topock RFI, 666665.FP.FW
Lab ID: N018099-001

Client Sample ID: Soil-IDW-01-5985
Collection Date: 12/18/2015 12:00:00 PM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
	EPA 3060A			**EPA 7199**			
RunID: **IC1_160103A**	QC Batch: **55635**			PrepDate	**12/31/2015**		Analyst: **RB**
Hexavalent Chromium	0.40	0.010	0.20		mg/Kg-dry	1	1/4/2016 12:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID	**MB-55635**	SampType:	**MBLK**	TestCode:	**7199_S_PGE**	Units:	**mg/Kg**	Prep Date:	**12/31/2015**	RunNo:	**105028**
Client ID:	**PBS**	Batch ID:	**55635**	TestNo:	**EPA 7199**		**EPA 3060A**	Analysis Date:	**1/3/2016**	SeqNo:	**2188774**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	**LCS-55635**	SampType:	**LCS**	TestCode:	**7199_S_PGE**	Units:	**mg/Kg**	Prep Date:	**12/31/2015**	RunNo:	**105028**
Client ID:	**LCSS**	Batch ID:	**55635**	TestNo:	**EPA 7199**		**EPA 3060A**	Analysis Date:	**1/3/2016**	SeqNo:	**2188775**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3.980	0.20	4.000	0	99.5	80	120				

Sample ID	**N018096-001AREP**	SampType:	**DUP**	TestCode:	**7199_S_PGE**	Units:	**mg/Kg-dry**	Prep Date:	**12/31/2015**	RunNo:	**105028**
Client ID:	**ZZZZZZ**	Batch ID:	**55635**	TestNo:	**EPA 7199**		**EPA 3060A**	Analysis Date:	**1/3/2016**	SeqNo:	**2188777**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.147	0.20						0.1353	0	20	

Sample ID	**N018096-001A-DUP**	SampType:	**DUP**	TestCode:	**7199_S_PGE**	Units:	**mg/Kg-dry**	Prep Date:	**12/31/2015**	RunNo:	**105028**
Client ID:	**ZZZZZZ**	Batch ID:	**55635**	TestNo:	**EPA 7199**		**EPA 3060A**	Analysis Date:	**1/3/2016**	SeqNo:	**2188778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.145	0.20						0.1353	0	20	

Sample ID	**N018096-001A-MS**	SampType:	**MS**	TestCode:	**7199_S_PGE**	Units:	**mg/Kg-dry**	Prep Date:	**12/31/2015**	RunNo:	**105028**
Client ID:	**ZZZZZZ**	Batch ID:	**55635**	TestNo:	**EPA 7199**		**EPA 3060A**	Analysis Date:	**1/3/2016**	SeqNo:	**2188779**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.164	0.20	4.087	0.1353	98.6	75	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID **N018096-001A-MSD**	SampType: **MSD**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **12/31/2015**	RunNo: **105028**
Client ID: **ZZZZZZ**	Batch ID: **55635**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **1/3/2016**	SeqNo: **2188780**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.224	0.20	4.082	0.1353	100	75	125	4.164	1.45	20	

Sample ID **N018096-001A-MS_I**	SampType: **MS**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **12/31/2015**	RunNo: **105028**
Client ID: **ZZZZZZ**	Batch ID: **55635**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **1/3/2016**	SeqNo: **2188781**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	803.866	10	694.2	0.1353	116	75	125				

Sample ID **N018094-006AREP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **12/31/2015**	RunNo: **105028**
Client ID: **ZZZZZZ**	Batch ID: **55635**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **1/3/2016**	SeqNo: **2188783**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.21						0	0	20	

Sample ID **N018094-007AREP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **12/31/2015**	RunNo: **105028**
Client ID: **ZZZZZZ**	Batch ID: **55635**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **1/3/2016**	SeqNo: **2188787**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20						0	0	20	

Sample ID **N018094-008AREP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **12/31/2015**	RunNo: **105028**
Client ID: **ZZZZZZ**	Batch ID: **55635**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **1/3/2016**	SeqNo: **2188789**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.222	0.21						0.2239	1.01	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N018094-009AREP	**DUP**	**7199_S_PGE**	**mg/Kg-dry**	**12/31/2015**	**105028**
Client ID: **ZZZZZZ**	Batch ID: **55635**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **1/3/2016**	SeqNo: **2188791**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.715	0.21						0.7011	1.94	20	

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N018094-010AREP	**DUP**	**7199_S_PGE**	**mg/Kg-dry**	**12/31/2015**	**105028**
Client ID: **ZZZZZZ**	Batch ID: **55635**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **1/3/2016**	SeqNo: **2188793**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.017	0.20						0.01954	0	20	

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N018096-002AREP	**DUP**	**7199_S_PGE**	**mg/Kg-dry**	**12/31/2015**	**105028**
Client ID: **ZZZZZZ**	Batch ID: **55635**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **1/3/2016**	SeqNo: **2188795**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.242	0.20						0.2478	2.50	20	

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N018096-003AREP	**DUP**	**7199_S_PGE**	**mg/Kg-dry**	**12/31/2015**	**105028**
Client ID: **ZZZZZZ**	Batch ID: **55635**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **1/3/2016**	SeqNo: **2188799**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.093	0.21						0.08475	0	20	

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N018096-004AREP	**DUP**	**7199_S_PGE**	**mg/Kg-dry**	**12/31/2015**	**105028**
Client ID: **ZZZZZZ**	Batch ID: **55635**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **1/3/2016**	SeqNo: **2188801**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.013	0.20						0.01398	0	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID	N018096-005AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	12/31/2015	RunNo:	105028
Client ID:	ZZZZZZ	Batch ID:	55635	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	1/3/2016	SeqNo:	2188803

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.246	0.20						0.2445	0.785	20	

Sample ID	N018096-006AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	12/31/2015	RunNo:	105028
Client ID:	ZZZZZZ	Batch ID:	55635	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	1/3/2016	SeqNo:	2188805

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.220	0.20						0.2079	5.48	20	

Sample ID	N018096-007AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	12/31/2015	RunNo:	105028
Client ID:	ZZZZZZ	Batch ID:	55635	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	1/3/2016	SeqNo:	2188807

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.108	0.21						0.09544	0	20	

Sample ID	N018096-008AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	12/31/2015	RunNo:	105028
Client ID:	ZZZZZZ	Batch ID:	55635	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	1/3/2016	SeqNo:	2188811

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.081	0.20						0.07519	0	20	

Sample ID	N018097-001AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	12/31/2015	RunNo:	105028
Client ID:	ZZZZZZ	Batch ID:	55635	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	1/3/2016	SeqNo:	2188813

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.162	0.20						0.1449	0	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID	N018097-002AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	12/31/2015	RunNo:	105028
Client ID:	ZZZZZZ	Batch ID:	55635	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	1/3/2016	SeqNo:	2188815

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.361	0.20						0.3603	0.0896	20	

Sample ID	N018097-003AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	12/31/2015	RunNo:	105028
Client ID:	ZZZZZZ	Batch ID:	55635	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	1/3/2016	SeqNo:	2188817

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.623	0.20						1.597	1.60	20	

Sample ID	N018098-001AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	12/31/2015	RunNo:	105028
Client ID:	ZZZZZZ	Batch ID:	55635	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	1/3/2016	SeqNo:	2188819

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.203	0.20						0.2156	5.82	20	

Sample ID	N018098-002AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	12/31/2015	RunNo:	105028
Client ID:	ZZZZZZ	Batch ID:	55635	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	1/4/2016	SeqNo:	2188823

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.245	0.20						0.2519	2.61	20	

Sample ID	N018099-001AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	12/31/2015	RunNo:	105028
Client ID:	ZZZZZZ	Batch ID:	55635	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	1/4/2016	SeqNo:	2188825

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.410	0.20						0.4044	1.45	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-5985
Lab Order:	N018099	**Collection Date:**	12/18/2015 12:00:00 PM
Project:	Topock RFI, 666665.FP.FW	**Matrix:**	SOIL
Lab ID:	N018099-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7471A				
RunID: **AA1_151223A**	QC Batch: **55508**			PrepDate	**12/21/2015**		Analyst: **CEI**
Mercury	ND	0.0031	0.10		mg/Kg-dry	1	12/23/2015 03:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S_PGE

Sample ID	**MB-55508**	SampType:	**MBLK**	TestCode:	**7471_S_PGE**	Units:	**mg/Kg**	Prep Date:	**12/21/2015**	RunNo:	**104989**
Client ID:	**PBS**	Batch ID:	**55508**	TestNo:	**EPA 7471A**			Analysis Date:	**12/23/2015**	SeqNo:	**2186135**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.10									

Sample ID	**LCS-55508**	SampType:	**LCS**	TestCode:	**7471_S_PGE**	Units:	**mg/Kg**	Prep Date:	**12/21/2015**	RunNo:	**104989**
Client ID:	**LCSS**	Batch ID:	**55508**	TestNo:	**EPA 7471A**			Analysis Date:	**12/23/2015**	SeqNo:	**2186136**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.430	0.10	0.4167	0	103	75	125				

Sample ID	**N018097-001A-MS**	SampType:	**MS**	TestCode:	**7471_S_PGE**	Units:	**mg/Kg-dry**	Prep Date:	**12/21/2015**	RunNo:	**104989**
Client ID:	**ZZZZZZ**	Batch ID:	**55508**	TestNo:	**EPA 7471A**			Analysis Date:	**12/23/2015**	SeqNo:	**2186141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.514	0.10	0.4202	0.03549	114	75	125				

Sample ID	**N018097-001A-MSD**	SampType:	**MSD**	TestCode:	**7471_S_PGE**	Units:	**mg/Kg-dry**	Prep Date:	**12/21/2015**	RunNo:	**104989**
Client ID:	**ZZZZZZ**	Batch ID:	**55508**	TestNo:	**EPA 7471A**			Analysis Date:	**12/23/2015**	SeqNo:	**2186142**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.537	0.10	0.4252	0.03549	118	75	125	0.5139	4.31	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Lab Order: N018099
Project: Topock RFI, 666665.FP.FW
Lab ID: N018099-001

Client Sample ID: Soil-IDW-01-5985
Collection Date: 12/18/2015 12:00:00 PM
Matrix: SOIL

PCBS BY GC/ECD

EPA 3550B **EPA 8082**

RunID: **GC7_151230A** QC Batch: **55618** PrepDate **12/30/2015** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Aroclor 1016	ND	5.1	17		ug/Kg-dry	1	12/31/2015 04:46 AM
Aroclor 1221	ND	5.5	34		ug/Kg-dry	1	12/31/2015 04:46 AM
Aroclor 1232	ND	11	17		ug/Kg-dry	1	12/31/2015 04:46 AM
Aroclor 1242	ND	8.3	17		ug/Kg-dry	1	12/31/2015 04:46 AM
Aroclor 1248	ND	2.8	17		ug/Kg-dry	1	12/31/2015 04:46 AM
Aroclor 1254	30	5.1	17		ug/Kg-dry	1	12/31/2015 04:46 AM
Aroclor 1260	36	3.3	17		ug/Kg-dry	1	12/31/2015 04:46 AM
Surr: Decachlorobiphenyl	137	0	26-125	S	%REC	1	12/31/2015 04:46 AM
Surr: Tetrachloro-m-xylene	89.2	0	48-121		%REC	1	12/31/2015 04:46 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_S_PGE

Sample ID **LCS-55618**	SampType: **LCS**	TestCode: **8082_S_PGE**	Units: **ug/Kg**	Prep Date: **12/30/2015**	RunNo: **105000**
Client ID: **LCSS**	Batch ID: **55618**	TestNo: **EPA 8082**	**EPA 3550B**	Analysis Date: **12/30/2015**	SeqNo: **2187095**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	169.428	16	166.6	0	102	41	138				
Aroclor 1260	182.681	16	166.6	0	110	61	131				
Surr: Decachlorobiphenyl	19.224		16.66		115	26	125				
Surr: Tetrachloro-m-xylene	14.748		16.66		88.5	48	121				

Sample ID **MB-55618**	SampType: **MBLK**	TestCode: **8082_S_PGE**	Units: **ug/Kg**	Prep Date: **12/30/2015**	RunNo: **105000**
Client ID: **PBS**	Batch ID: **55618**	TestNo: **EPA 8082**	**EPA 3550B**	Analysis Date: **12/30/2015**	SeqNo: **2187096**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	17									
Aroclor 1221	ND	33									
Aroclor 1232	ND	17									
Aroclor 1242	ND	17									
Aroclor 1248	ND	17									
Aroclor 1254	ND	17									
Aroclor 1260	ND	17									
Surr: Decachlorobiphenyl	18.985		16.68		114	26	125				
Surr: Tetrachloro-m-xylene	14.039		16.68		84.2	48	121				

Sample ID **N018096-001B-MS**	SampType: **MS**	TestCode: **8082_S_PGE**	Units: **ug/Kg-dry**	Prep Date: **12/30/2015**	RunNo: **105000**
Client ID: **ZZZZZZ**	Batch ID: **55618**	TestNo: **EPA 8082**	**EPA 3550B**	Analysis Date: **12/31/2015**	SeqNo: **2187111**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	170.421	17	170.4	0	100	41	138				
Aroclor 1260	178.143	17	170.4	0	105	61	131				
Surr: Decachlorobiphenyl	19.515		17.04		115	26	125				
Surr: Tetrachloro-m-xylene	14.820		17.04		87.0	48	121				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_S_PGE

Sample ID	N018096-001B-MSD	SampType:	MSD	TestCode:	8082_S_PGE	Units:	ug/Kg-dry	Prep Date:	12/30/2015	RunNo:	105000
Client ID:	ZZZZZZ	Batch ID:	55618	TestNo:	EPA 8082	EPA 3550B		Analysis Date:	12/31/2015	SeqNo:	2187112

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	167.982	17	169.8	0	98.9	41	138	170.4	1.44	20	
Aroclor 1260	173.656	17	169.8	0	102	61	131	178.1	2.55	20	
Surr: Decachlorobiphenyl	18.576		16.99		109	26	125		0		
Surr: Tetrachloro-m-xylene	14.863		16.99		87.5	48	121		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Lab Order: N018099
Project: Topock RFI, 666665.FP.FW
Lab ID: N018099-001

Client Sample ID: Soil-IDW-01-5985
Collection Date: 12/18/2015 12:00:00 PM
Matrix: SOIL

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **MS8_151221A** QC Batch: **R15VS053** PrepDate **12/21/2015** Analyst: **QBM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND	0.21	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
1,1,1-Trichloroethane	ND	0.13	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
1,1,2,2-Tetrachloroethane	ND	0.19	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
1,1,2-Trichloroethane	ND	0.29	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
1,1-Dichloroethane	ND	0.15	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
1,1-Dichloroethene	ND	0.38	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
1,1-Dichloropropene	ND	0.28	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
1,2,3-Trichlorobenzene	ND	0.069	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
1,2,3-Trichloropropane	ND	0.30	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
1,2,4-Trichlorobenzene	ND	0.16	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
1,2,4-Trimethylbenzene	ND	0.077	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
1,2-Dibromo-3-chloropropane	ND	0.56	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
1,2-Dibromoethane	ND	0.19	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
1,2-Dichlorobenzene	ND	0.14	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
1,2-Dichloroethane	ND	0.15	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
1,2-Dichloropropane	ND	0.29	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
1,3,5-Trimethylbenzene	ND	0.098	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
1,3-Dichlorobenzene	ND	0.15	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
1,3-Dichloropropane	ND	0.20	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
1,4-Dichlorobenzene	ND	0.11	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
2,2-Dichloropropane	ND	0.17	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
2-Butanone	ND	2.0	60		ug/Kg-dry	1	12/22/2015 04:59 AM
2-Chlorotoluene	ND	0.11	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
4-Chlorotoluene	ND	0.21	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
4-Isopropyltoluene	ND	0.12	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
4-Methyl-2-pentanone	ND	0.73	60		ug/Kg-dry	1	12/22/2015 04:59 AM
Acetone	ND	2.2	60		ug/Kg-dry	1	12/22/2015 04:59 AM
Acrolein	ND	5.6	120		ug/Kg-dry	1	12/22/2015 04:59 AM
Acrylonitrile	ND	2.0	60		ug/Kg-dry	1	12/22/2015 04:59 AM
Benzene	ND	0.14	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Bromobenzene	ND	0.34	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Bromochloromethane	ND	0.65	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Bromodichloromethane	ND	0.20	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Bromoform	ND	0.51	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Bromomethane	ND	0.44	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Carbon disulfide	ND	0.19	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike/Surrogate outside of limits due to matrix interference
- Results are wet unless otherwise specified
- DO Surrogate Diluted Out

CLIENT: CH2M HILL
Lab Order: N018099
Project: Topock RFI, 666665.FP.FW
Lab ID: N018099-001

Client Sample ID: Soil-IDW-01-5985
Collection Date: 12/18/2015 12:00:00 PM
Matrix: SOIL

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **MS8_151221A** QC Batch: **R15VS053** PrepDate **12/21/2015** Analyst: **QBM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Carbon tetrachloride	ND	0.20	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Chlorobenzene	ND	0.11	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Chloroethane	ND	0.60	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Chloroform	ND	0.18	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Chloromethane	ND	0.21	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
cis-1,2-Dichloroethene	ND	0.29	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
cis-1,3-Dichloropropene	ND	0.12	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Dibromochloromethane	ND	0.56	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Dibromomethane	ND	0.28	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Dichlorodifluoromethane	ND	0.22	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Ethylbenzene	ND	0.16	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Freon-113	ND	0.68	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Hexachlorobutadiene	ND	0.32	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Isopropylbenzene	ND	0.092	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
m,p-Xylene	ND	0.16	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Methylene chloride	ND	1.2	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
MTBE	ND	0.26	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
n-Butylbenzene	ND	0.12	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
n-Propylbenzene	ND	0.14	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Naphthalene	ND	0.13	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
o-Xylene	ND	0.065	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
sec-Butylbenzene	ND	0.11	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Styrene	ND	0.24	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
tert-Butylbenzene	ND	0.14	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Tetrachloroethene	ND	0.34	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Toluene	ND	0.12	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
trans-1,2-Dichloroethene	ND	0.25	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
trans-1,3-Dichloropropene	ND	0.094	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Trichloroethene	ND	0.13	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Trichlorofluoromethane	ND	0.75	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Vinyl chloride	ND	0.26	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Xylenes, Total	ND	0.16	6.0		ug/Kg-dry	1	12/22/2015 04:59 AM
Surr: 1,2-Dichloroethane-d4	120	0	52-149		%REC	1	12/22/2015 04:59 AM
Surr: 4-Bromofluorobenzene	94.0	0	65-135		%REC	1	12/22/2015 04:59 AM
Surr: Dibromofluoromethane	126	0	65-135		%REC	1	12/22/2015 04:59 AM
Surr: Toluene-d8	110	0	75-125		%REC	1	12/22/2015 04:59 AM

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike/Surrogate outside of limits due to matrix interference
- Results are wet unless otherwise specified
- DO Surrogate Diluted Out

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S_5035PGE

Sample ID **R151221LCS** SampType: **LCS** TestCode: **8260_S_5035** Units: **ug/Kg** Prep Date: RunNo: **104824**
Client ID: **LCSS** Batch ID: **R15VS053** TestNo: **EPA 8260B** Analysis Date: **12/21/2015** SeqNo: **2182633**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	39.920	5.0	40.00	0	99.8	74	125				
1,1,1-Trichloroethane	37.860	5.0	40.00	0	94.6	68	130				
1,1,2,2-Tetrachloroethane	39.270	5.0	40.00	0	98.2	59	140				
1,1,2-Trichloroethane	38.880	5.0	40.00	0	97.2	62	127				
1,1-Dichloroethane	38.170	5.0	40.00	0	95.4	73	125				
1,1-Dichloroethene	37.650	5.0	40.00	0	94.1	65	136				
1,1-Dichloropropene	40.170	5.0	40.00	0	100	70	135				
1,2,3-Trichlorobenzene	42.000	5.0	40.00	0	105	62	133				
1,2,3-Trichloropropane	41.530	5.0	40.00	0	104	63	130				
1,2,4-Trichlorobenzene	40.310	5.0	40.00	0	101	65	131				
1,2,4-Trimethylbenzene	43.460	5.0	40.00	0	109	65	135				
1,2-Dibromo-3-chloropropane	41.350	5.0	40.00	0	103	49	135				
1,2-Dibromoethane	39.490	5.0	40.00	0	98.7	70	124				
1,2-Dichlorobenzene	40.280	5.0	40.00	0	101	74	120				
1,2-Dichloroethane	38.160	5.0	40.00	0	95.4	72	137				
1,2-Dichloropropane	38.770	5.0	40.00	0	96.9	71	120				
1,3,5-Trimethylbenzene	43.630	5.0	40.00	0	109	65	133				
1,3-Dichlorobenzene	40.100	5.0	40.00	0	100	72	124				
1,3-Dichloropropane	40.110	5.0	40.00	0	100	76	123				
1,4-Dichlorobenzene	38.980	5.0	40.00	0	97.5	72	125				
2,2-Dichloropropane	36.830	5.0	40.00	0	92.1	67	134				
2-Butanone	352.300	50	400.0	0	88.1	40	135				
2-Chlorotoluene	41.710	5.0	40.00	0	104	69	128				
4-Chlorotoluene	41.540	5.0	40.00	0	104	73	126				
4-Isopropyltoluene	41.490	5.0	40.00	0	104	70	130				
4-Methyl-2-pentanone	415.180	50	400.0	0	104	65	135				
Acetone	333.660	50	400.0	0	83.4	40	141				
Acrolein	354.960	100	400.0	0	88.7	65	135				
Acrylonitrile	371.750	50	400.0	0	92.9	65	135				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S_5035PGE

Sample ID **R151221LCS**	SampType: **LCS**	TestCode: **8260_S_5035**	Units: **ug/Kg**	Prep Date:	RunNo: **104824**
Client ID: **LCSS**	Batch ID: **R15VS053**	TestNo: **EPA 8260B**		Analysis Date: **12/21/2015**	SeqNo: **2182633**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	39.370	5.0	40.00	0	98.4	73	126				
Bromobenzene	41.060	5.0	40.00	0	103	66	121				
Bromochloromethane	38.260	5.0	40.00	0	95.7	71	127				
Bromodichloromethane	38.280	5.0	40.00	0	95.7	72	128				
Bromoform	40.210	5.0	40.00	0	101	66	137				
Bromomethane	37.970	5.0	40.00	0	94.9	45	141				
Carbon disulfide	37.960	5.0	40.00	0	94.9	66	135				
Carbon tetrachloride	37.710	5.0	40.00	0	94.3	67	133				
Chlorobenzene	39.310	5.0	40.00	0	98.3	75	123				
Chloroethane	39.080	5.0	40.00	0	97.7	41	141				
Chloroform	37.780	5.0	40.00	0	94.4	72	124				
Chloromethane	37.440	5.0	40.00	0	93.6	51	129				
cis-1,2-Dichloroethene	35.120	5.0	40.00	0	87.8	67	125				
cis-1,3-Dichloropropene	39.440	5.0	40.00	0	98.6	72	126				
Dibromochloromethane	39.510	5.0	40.00	0	98.8	66	130				
Dibromomethane	38.420	5.0	40.00	0	96.0	73	128				
Dichlorodifluoromethane	37.560	5.0	40.00	0	93.9	34	136				
Ethylbenzene	40.290	5.0	40.00	0	101	74	127				
Freon-113	37.330	5.0	40.00	0	93.3	65	135				
Hexachlorobutadiene	37.670	5.0	40.00	0	94.2	53	142				
Isopropylbenzene	42.240	5.0	40.00	0	106	77	129				
m,p-Xylene	83.770	5.0	80.00	0	105	79	126				
Methylene chloride	38.550	5.0	40.00	0	96.4	63	137				
MTBE	37.910	5.0	40.00	0	94.8	50	135				
n-Butylbenzene	40.530	5.0	40.00	0	101	65	138				
n-Propylbenzene	42.180	5.0	40.00	0	105	63	135				
Naphthalene	37.170	5.0	40.00	0	92.9	51	135				
o-Xylene	42.010	5.0	40.00	0	105	77	125				
sec-Butylbenzene	42.530	5.0	40.00	0	106	63	132				
Styrene	42.150	5.0	40.00	0	105	74	128				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S_5035PGE

Sample ID **R151221LCS** SampType: **LCS** TestCode: **8260_S_5035** Units: **ug/Kg** Prep Date: RunNo: **104824**
Client ID: **LCSS** Batch ID: **R15VS053** TestNo: **EPA 8260B** Analysis Date: **12/21/2015** SeqNo: **2182633**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
tert-Butylbenzene	42.580	5.0	40.00	0	106	65	132				
Tetrachloroethene	39.390	5.0	40.00	0	98.5	67	139				
Toluene	40.110	5.0	40.00	0	100	71	127				
trans-1,2-Dichloroethene	37.500	5.0	40.00	0	93.8	66	134				
trans-1,3-Dichloropropene	39.580	5.0	40.00	0	99.0	65	127				
Trichloroethene	38.840	5.0	40.00	0	97.1	77	124				
Trichlorofluoromethane	37.430	5.0	40.00	0	93.6	49	139				
Vinyl chloride	39.130	5.0	40.00	0	97.8	58	126				
Xylenes, Total	125.780	5.0	120.0	0	105	65	125				
Surr: 1,2-Dichloroethane-d4	48.750		50.00		97.5	52	149				
Surr: 4-Bromofluorobenzene	53.840		50.00		108	65	135				
Surr: Dibromofluoromethane	49.590		50.00		99.2	65	135				
Surr: Toluene-d8	52.040		50.00		104	75	125				

Sample ID **R151221LCSD** SampType: **LCSD** TestCode: **8260_S_5035** Units: **ug/Kg** Prep Date: RunNo: **104824**
Client ID: **LCSS02** Batch ID: **R15VS053** TestNo: **EPA 8260B** Analysis Date: **12/21/2015** SeqNo: **2182634**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	40.020	5.0	40.00	0	100	74	125	39.92	0.250	30	
1,1,1-Trichloroethane	38.370	5.0	40.00	0	95.9	68	130	37.86	1.34	30	
1,1,2,2-Tetrachloroethane	39.410	5.0	40.00	0	98.5	59	140	39.27	0.356	30	
1,1,2-Trichloroethane	39.390	5.0	40.00	0	98.5	62	127	38.88	1.30	30	
1,1-Dichloroethane	38.800	5.0	40.00	0	97.0	73	125	38.17	1.64	30	
1,1-Dichloroethene	38.050	5.0	40.00	0	95.1	65	136	37.65	1.06	30	
1,1-Dichloropropene	39.440	5.0	40.00	0	98.6	70	135	40.17	1.83	30	
1,2,3-Trichlorobenzene	41.240	5.0	40.00	0	103	62	133	42.00	1.83	30	
1,2,3-Trichloropropane	38.770	5.0	40.00	0	96.9	63	130	41.53	6.87	30	
1,2,4-Trichlorobenzene	38.690	5.0	40.00	0	96.7	65	131	40.31	4.10	30	
1,2,4-Trimethylbenzene	43.210	5.0	40.00	0	108	65	135	43.46	0.577	30	
1,2-Dibromo-3-chloropropane	40.640	5.0	40.00	0	102	49	135	41.35	1.73	30	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S_5035PGE

Sample ID **R151221LCSD** SampType: **LCSD** TestCode: **8260_S_5035** Units: **ug/Kg** Prep Date: RunNo: **104824**
Client ID: **LCSS02** Batch ID: **R15VS053** TestNo: **EPA 8260B** Analysis Date: **12/21/2015** SeqNo: **2182634**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromoethane	38.860	5.0	40.00	0	97.2	70	124	39.49	1.61	30	
1,2-Dichlorobenzene	39.780	5.0	40.00	0	99.4	74	120	40.28	1.25	30	
1,2-Dichloroethane	38.490	5.0	40.00	0	96.2	72	137	38.16	0.861	30	
1,2-Dichloropropane	38.930	5.0	40.00	0	97.3	71	120	38.77	0.412	30	
1,3,5-Trimethylbenzene	43.390	5.0	40.00	0	108	65	133	43.63	0.552	30	
1,3-Dichlorobenzene	39.900	5.0	40.00	0	99.8	72	124	40.10	0.500	30	
1,3-Dichloropropane	39.940	5.0	40.00	0	99.8	76	123	40.11	0.425	30	
1,4-Dichlorobenzene	38.530	5.0	40.00	0	96.3	72	125	38.98	1.16	30	
2,2-Dichloropropane	37.060	5.0	40.00	0	92.6	67	134	36.83	0.623	30	
2-Butanone	387.250	50	400.0	0	96.8	40	135	352.3	9.45	30	
2-Chlorotoluene	41.590	5.0	40.00	0	104	69	128	41.71	0.288	30	
4-Chlorotoluene	41.270	5.0	40.00	0	103	73	126	41.54	0.652	30	
4-Isopropyltoluene	40.950	5.0	40.00	0	102	70	130	41.49	1.31	30	
4-Methyl-2-pentanone	424.250	50	400.0	0	106	65	135	415.2	2.16	30	
Acetone	390.970	50	400.0	0	97.7	40	141	333.7	15.8	30	
Acrolein	369.830	100	400.0	0	92.5	65	135	355.0	4.10	30	
Acrylonitrile	393.100	50	400.0	0	98.3	65	135	371.8	5.58	30	
Benzene	39.330	5.0	40.00	0	98.3	73	126	39.37	0.102	30	
Bromobenzene	40.950	5.0	40.00	0	102	66	121	41.06	0.268	30	
Bromochloromethane	38.670	5.0	40.00	0	96.7	71	127	38.26	1.07	30	
Bromodichloromethane	38.440	5.0	40.00	0	96.1	72	128	38.28	0.417	30	
Bromoform	40.740	5.0	40.00	0	102	66	137	40.21	1.31	30	
Bromomethane	37.210	5.0	40.00	0	93.0	45	141	37.97	2.02	30	
Carbon disulfide	38.030	5.0	40.00	0	95.1	66	135	37.96	0.184	30	
Carbon tetrachloride	37.560	5.0	40.00	0	93.9	67	133	37.71	0.399	30	
Chlorobenzene	39.570	5.0	40.00	0	98.9	75	123	39.31	0.659	30	
Chloroethane	39.520	5.0	40.00	0	98.8	41	141	39.08	1.12	30	
Chloroform	37.980	5.0	40.00	0	95.0	72	124	37.78	0.528	30	
Chloromethane	37.710	5.0	40.00	0	94.3	51	129	37.44	0.719	30	
cis-1,2-Dichloroethene	24.910	5.0	40.00	0	62.3	67	125	35.12	34.0	30	SR

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S_5035PGE

Sample ID **R151221LCSD** SampType: **LCSD** TestCode: **8260_S_5035** Units: **ug/Kg** Prep Date: RunNo: **104824**
Client ID: **LCSS02** Batch ID: **R15VS053** TestNo: **EPA 8260B** Analysis Date: **12/21/2015** SeqNo: **2182634**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
cis-1,3-Dichloropropene	38.800	5.0	40.00	0	97.0	72	126	39.44	1.64	30	
Dibromochloromethane	39.770	5.0	40.00	0	99.4	66	130	39.51	0.656	30	
Dibromomethane	38.860	5.0	40.00	0	97.2	73	128	38.42	1.14	30	
Dichlorodifluoromethane	37.210	5.0	40.00	0	93.0	34	136	37.56	0.936	30	
Ethylbenzene	40.190	5.0	40.00	0	100	74	127	40.29	0.249	30	
Freon-113	37.180	5.0	40.00	0	93.0	65	135	37.33	0.403	30	
Hexachlorobutadiene	37.300	5.0	40.00	0	93.3	53	142	37.67	0.987	30	
Isopropylbenzene	42.210	5.0	40.00	0	106	77	129	42.24	0.0710	30	
m,p-Xylene	83.350	5.0	80.00	0	104	79	126	83.77	0.503	30	
Methylene chloride	39.250	5.0	40.00	0	98.1	63	137	38.55	1.80	30	
MTBE	38.380	5.0	40.00	0	96.0	50	135	37.91	1.23	30	
n-Butylbenzene	40.020	5.0	40.00	0	100	65	138	40.53	1.27	30	
n-Propylbenzene	41.870	5.0	40.00	0	105	63	135	42.18	0.738	30	
Naphthalene	37.210	5.0	40.00	0	93.0	51	135	37.17	0.108	30	
o-Xylene	41.800	5.0	40.00	0	104	77	125	42.01	0.501	30	
sec-Butylbenzene	42.150	5.0	40.00	0	105	63	132	42.53	0.897	30	
Styrene	41.950	5.0	40.00	0	105	74	128	42.15	0.476	30	
tert-Butylbenzene	42.610	5.0	40.00	0	107	65	132	42.58	0.0704	30	
Tetrachloroethene	38.990	5.0	40.00	0	97.5	67	139	39.39	1.02	30	
Toluene	39.520	5.0	40.00	0	98.8	71	127	40.11	1.48	30	
trans-1,2-Dichloroethene	37.740	5.0	40.00	0	94.4	66	134	37.50	0.638	30	
trans-1,3-Dichloropropene	39.460	5.0	40.00	0	98.6	65	127	39.58	0.304	30	
Trichloroethene	39.480	5.0	40.00	0	98.7	77	124	38.84	1.63	30	
Trichlorofluoromethane	37.370	5.0	40.00	0	93.4	49	139	37.43	0.160	30	
Vinyl chloride	38.690	5.0	40.00	0	96.7	58	126	39.13	1.13	30	
Xylenes, Total	125.150	5.0	120.0	0	104	65	125	125.8	0.502	30	
Surr: 1,2-Dichloroethane-d4	49.160		50.00		98.3	52	149		0		
Surr: 4-Bromofluorobenzene	52.870		50.00		106	65	135		0		
Surr: Dibromofluoromethane	50.000		50.00		100	65	135		0		
Surr: Toluene-d8	51.540		50.00		103	75	125		0		

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S_5035PGE

Sample ID **R151221MB3** SampType: **MBLK** TestCode: **8260_S_5035** Units: **ug/Kg** Prep Date: RunNo: **104824**
Client ID: **PBS** Batch ID: **R15VS053** TestNo: **EPA 8260B** Analysis Date: **12/21/2015** SeqNo: **2182635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	5.0									
1,1,1-Trichloroethane	ND	5.0									
1,1,2,2-Tetrachloroethane	ND	5.0									
1,1,2-Trichloroethane	ND	5.0									
1,1-Dichloroethane	ND	5.0									
1,1-Dichloroethene	ND	5.0									
1,1-Dichloropropene	ND	5.0									
1,2,3-Trichlorobenzene	ND	5.0									
1,2,3-Trichloropropane	ND	5.0									
1,2,4-Trichlorobenzene	ND	5.0									
1,2,4-Trimethylbenzene	ND	5.0									
1,2-Dibromo-3-chloropropane	ND	5.0									
1,2-Dibromoethane	ND	5.0									
1,2-Dichlorobenzene	ND	5.0									
1,2-Dichloroethane	ND	5.0									
1,2-Dichloropropane	ND	5.0									
1,3,5-Trimethylbenzene	ND	5.0									
1,3-Dichlorobenzene	ND	5.0									
1,3-Dichloropropane	ND	5.0									
1,4-Dichlorobenzene	ND	5.0									
2,2-Dichloropropane	ND	5.0									
2-Butanone	ND	50									
2-Chlorotoluene	ND	5.0									
4-Chlorotoluene	ND	5.0									
4-Isopropyltoluene	ND	5.0									
4-Methyl-2-pentanone	ND	50									
Acetone	ND	50									
Acrolein	ND	100									
Acrylonitrile	ND	50									
Benzene	ND	5.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S_5035PGE

Sample ID **R151221MB3** SampType: **MBLK** TestCode: **8260_S_5035** Units: **ug/Kg** Prep Date: RunNo: **104824**
Client ID: **PBS** Batch ID: **R15VS053** TestNo: **EPA 8260B** Analysis Date: **12/21/2015** SeqNo: **2182635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromobenzene	ND	5.0									
Bromochloromethane	ND	5.0									
Bromodichloromethane	ND	5.0									
Bromoform	ND	5.0									
Bromomethane	0.800	5.0									
Carbon disulfide	ND	5.0									
Carbon tetrachloride	ND	5.0									
Chlorobenzene	ND	5.0									
Chloroethane	ND	5.0									
Chloroform	ND	5.0									
Chloromethane	ND	5.0									
cis-1,2-Dichloroethene	ND	5.0									
cis-1,3-Dichloropropene	ND	5.0									
Dibromochloromethane	ND	5.0									
Dibromomethane	ND	5.0									
Dichlorodifluoromethane	ND	5.0									
Ethylbenzene	ND	5.0									
Freon-113	ND	5.0									
Hexachlorobutadiene	ND	5.0									
Isopropylbenzene	ND	5.0									
m,p-Xylene	ND	5.0									
Methylene chloride	ND	5.0									
MTBE	ND	5.0									
n-Butylbenzene	ND	5.0									
n-Propylbenzene	ND	5.0									
Naphthalene	ND	5.0									
o-Xylene	ND	5.0									
sec-Butylbenzene	ND	5.0									
Styrene	ND	5.0									
tert-Butylbenzene	ND	5.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S_5035PGE

Sample ID **R151221MB3**	SampType: **MBLK**	TestCode: **8260_S_5035**	Units: **ug/Kg**	Prep Date:	RunNo: **104824**
Client ID: **PBS**	Batch ID: **R15VS053**	TestNo: **EPA 8260B**		Analysis Date: **12/21/2015**	SeqNo: **2182635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tetrachloroethene	ND	5.0									
Toluene	ND	5.0									
trans-1,2-Dichloroethene	ND	5.0									
trans-1,3-Dichloropropene	ND	5.0									
Trichloroethene	ND	5.0									
Trichlorofluoromethane	ND	5.0									
Vinyl chloride	ND	5.0									
Xylenes, Total	ND	5.0									
Surr: 1,2-Dichloroethane-d4	60.070		50.00		120	52	149				
Surr: 4-Bromofluorobenzene	48.720		50.00		97.4	65	135				
Surr: Dibromofluoromethane	60.510		50.00		121	65	135				
Surr: Toluene-d8	54.150		50.00		108	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Lab Order: N018099
Project: Topock RFI, 666665.FP.FW
Lab ID: N018099-001

Client Sample ID: Soil-IDW-01-5985
Collection Date: 12/18/2015 12:00:00 PM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **MS3_160101B** QC Batch: **55632** PrepDate **12/31/2015** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,2,4-Trichlorobenzene	ND	430	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
1,2,4-Trichlorobenzene	ND	43	340		ug/Kg-dry	1	1/1/2016 03:53 PM
1,2-Dichlorobenzene	ND	42	340		ug/Kg-dry	1	1/1/2016 03:53 PM
1,2-Dichlorobenzene	ND	420	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
1,3-Dichlorobenzene	ND	50	340		ug/Kg-dry	1	1/1/2016 03:53 PM
1,3-Dichlorobenzene	ND	500	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
1,4-Dichlorobenzene	ND	43	340		ug/Kg-dry	1	1/1/2016 03:53 PM
1,4-Dichlorobenzene	ND	430	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
2,4,5-Trichlorophenol	ND	42	340		ug/Kg-dry	1	1/1/2016 03:53 PM
2,4,5-Trichlorophenol	ND	420	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
2,4,6-Trichlorophenol	ND	40	340		ug/Kg-dry	1	1/1/2016 03:53 PM
2,4,6-Trichlorophenol	ND	400	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
2,4-Dichlorophenol	ND	41	1700		ug/Kg-dry	1	1/1/2016 03:53 PM
2,4-Dichlorophenol	ND	410	17000		ug/Kg-dry	10	1/1/2016 02:35 PM
2,4-Dimethylphenol	ND	92	340		ug/Kg-dry	1	1/1/2016 03:53 PM
2,4-Dimethylphenol	ND	920	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
2,4-Dinitrophenol	ND	27	1700		ug/Kg-dry	1	1/1/2016 03:53 PM
2,4-Dinitrophenol	ND	270	17000		ug/Kg-dry	10	1/1/2016 02:35 PM
2,4-Dinitrotoluene	ND	45	340		ug/Kg-dry	1	1/1/2016 03:53 PM
2,4-Dinitrotoluene	ND	450	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
2,6-Dinitrotoluene	ND	44	340		ug/Kg-dry	1	1/1/2016 03:53 PM
2,6-Dinitrotoluene	ND	440	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
2-Chloronaphthalene	ND	460	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
2-Chloronaphthalene	ND	46	340		ug/Kg-dry	1	1/1/2016 03:53 PM
2-Chlorophenol	ND	44	340		ug/Kg-dry	1	1/1/2016 03:53 PM
2-Chlorophenol	ND	440	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
2-Methylnaphthalene	ND	170	340		ug/Kg-dry	1	1/1/2016 03:53 PM
2-Methylnaphthalene	ND	1700	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
2-Methylphenol	ND	49	340		ug/Kg-dry	1	1/1/2016 03:53 PM
2-Methylphenol	ND	490	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
2-Nitroaniline	ND	550	17000		ug/Kg-dry	10	1/1/2016 02:35 PM
2-Nitroaniline	ND	55	1700		ug/Kg-dry	1	1/1/2016 03:53 PM
2-Nitrophenol	ND	460	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
2-Nitrophenol	ND	46	340		ug/Kg-dry	1	1/1/2016 03:53 PM
3,3´-Dichlorobenzidine	ND	25	680		ug/Kg-dry	1	1/1/2016 03:53 PM
3,3´-Dichlorobenzidine	ND	250	6800		ug/Kg-dry	10	1/1/2016 02:35 PM

Qualifiers:

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- E Value above quantitation range
- ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N018099
Project: Topock RFI, 666665.FP.FW
Lab ID: N018099-001

Client Sample ID: Soil-IDW-01-5985
Collection Date: 12/18/2015 12:00:00 PM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **MS3_160101B** QC Batch: **55632** PrepDate **12/31/2015** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
3-Nitroaniline	ND	50	1700		ug/Kg-dry	1	1/1/2016 03:53 PM
3-Nitroaniline	ND	500	17000		ug/Kg-dry	10	1/1/2016 02:35 PM
4,6-Dinitro-2-methylphenol	ND	530	17000		ug/Kg-dry	10	1/1/2016 02:35 PM
4,6-Dinitro-2-methylphenol	ND	53	1700		ug/Kg-dry	1	1/1/2016 03:53 PM
4-Bromophenyl-phenylether	ND	460	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
4-Bromophenyl-phenylether	ND	46	340		ug/Kg-dry	1	1/1/2016 03:53 PM
4-Chloro-3-methylphenol	ND	41	680		ug/Kg-dry	1	1/1/2016 03:53 PM
4-Chloro-3-methylphenol	ND	410	6800		ug/Kg-dry	10	1/1/2016 02:35 PM
4-Chloroaniline	ND	45	680		ug/Kg-dry	1	1/1/2016 03:53 PM
4-Chloroaniline	ND	450	6800		ug/Kg-dry	10	1/1/2016 02:35 PM
4-Chlorophenyl-phenylether	ND	46	340		ug/Kg-dry	1	1/1/2016 03:53 PM
4-Chlorophenyl-phenylether	ND	460	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
4-Methylphenol	ND	37	340		ug/Kg-dry	1	1/1/2016 03:53 PM
4-Methylphenol	ND	370	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
4-Nitroaniline	ND	470	17000		ug/Kg-dry	10	1/1/2016 02:35 PM
4-Nitroaniline	ND	47	1700		ug/Kg-dry	1	1/1/2016 03:53 PM
4-Nitrophenol	ND	360	17000		ug/Kg-dry	10	1/1/2016 02:35 PM
4-Nitrophenol	ND	36	1700		ug/Kg-dry	1	1/1/2016 03:53 PM
Acenaphthene	ND	420	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Acenaphthene	ND	42	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Acenaphthylene	ND	380	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Acenaphthylene	ND	38	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Anthracene	ND	660	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Anthracene	ND	66	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Benzo(a)anthracene	ND	770	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Benzo(a)anthracene	ND	77	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Benzo(a)pyrene	ND	660	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Benzo(a)pyrene	ND	66	340	A6L	ug/Kg-dry	1	1/1/2016 03:53 PM
Benzo(b)fluoranthene	ND	410	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Benzo(b)fluoranthene	ND	41	340	A6L	ug/Kg-dry	1	1/1/2016 03:53 PM
Benzo(g,h,i)perylene	ND	490	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Benzo(g,h,i)perylene	ND	49	340	A6L	ug/Kg-dry	1	1/1/2016 03:53 PM
Benzo(k)fluoranthene	ND	580	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Benzo(k)fluoranthene	ND	58	340	A6L	ug/Kg-dry	1	1/1/2016 03:53 PM
Benzoic acid	ND	120	1700		ug/Kg-dry	1	1/1/2016 03:53 PM
Benzoic acid	ND	1200	17000		ug/Kg-dry	10	1/1/2016 02:35 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N018099
Project: Topock RFI, 666665.FP.FW
Lab ID: N018099-001

Client Sample ID: Soil-IDW-01-5985
Collection Date: 12/18/2015 12:00:00 PM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **MS3_160101B** QC Batch: **55632** PrepDate **12/31/2015** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Benzyl alcohol	ND	69	680		ug/Kg-dry	1	1/1/2016 03:53 PM
Benzyl alcohol	ND	690	6800		ug/Kg-dry	10	1/1/2016 02:35 PM
Bis(2-chloroethoxy)methane	ND	650	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Bis(2-chloroethoxy)methane	ND	65	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Bis(2-chloroethyl)ether	ND	630	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Bis(2-chloroethyl)ether	ND	63	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Bis(2-chloroisopropyl)ether	ND	580	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Bis(2-chloroisopropyl)ether	ND	58	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Bis(2-ethylhexyl)phthalate	ND	820	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Bis(2-ethylhexyl)phthalate	ND	82	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Butylbenzylphthalate	ND	690	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Butylbenzylphthalate	ND	69	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Chrysene	ND	820	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Chrysene	ND	82	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Di-n-butylphthalate	ND	420	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Di-n-butylphthalate	ND	42	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Di-n-octylphthalate	ND	520	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Di-n-octylphthalate	ND	52	340	A6L	ug/Kg-dry	1	1/1/2016 03:53 PM
Dibenz(a,h)anthracene	ND	950	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Dibenz(a,h)anthracene	ND	95	340	A6L	ug/Kg-dry	1	1/1/2016 03:53 PM
Dibenzofuran	ND	410	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Dibenzofuran	ND	41	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Diethylphthalate	ND	450	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Diethylphthalate	ND	45	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Dimethylphthalate	ND	440	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Dimethylphthalate	ND	44	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Fluoranthene	ND	63	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Fluoranthene	ND	630	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Fluorene	ND	46	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Fluorene	ND	460	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Hexachlorobenzene	ND	480	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Hexachlorobenzene	ND	48	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Hexachlorobutadiene	ND	62	680		ug/Kg-dry	1	1/1/2016 03:53 PM
Hexachlorobutadiene	ND	620	6800		ug/Kg-dry	10	1/1/2016 02:35 PM
Hexachloroethane	ND	43	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Hexachloroethane	ND	430	3400		ug/Kg-dry	10	1/1/2016 02:35 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N018099
Project: Topock RFI, 666665.FP.FW
Lab ID: N018099-001

Client Sample ID: Soil-IDW-01-5985
Collection Date: 12/18/2015 12:00:00 PM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **MS3_160101B** QC Batch: **55632** PrepDate **12/31/2015** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Indeno(1,2,3-cd)pyrene	ND	400	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Indeno(1,2,3-cd)pyrene	ND	40	340	A6L	ug/Kg-dry	1	1/1/2016 03:53 PM
Isophorone	ND	600	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Isophorone	ND	60	340		ug/Kg-dry	1	1/1/2016 03:53 PM
N-Nitrosodi-n-propylamine	ND	47	340		ug/Kg-dry	1	1/1/2016 03:53 PM
N-Nitrosodi-n-propylamine	ND	470	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
N-Nitrosodiphenylamine	ND	490	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
N-Nitrosodiphenylamine	ND	49	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Naphthalene	ND	500	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Naphthalene	ND	50	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Nitrobenzene	ND	58	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Nitrobenzene	ND	580	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Pentachlorophenol	ND	350	17000		ug/Kg-dry	10	1/1/2016 02:35 PM
Pentachlorophenol	ND	35	1700		ug/Kg-dry	1	1/1/2016 03:53 PM
Phenanthrene	ND	850	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Phenanthrene	ND	85	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Phenol	ND	39	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Phenol	ND	390	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Pyrene	ND	48	340		ug/Kg-dry	1	1/1/2016 03:53 PM
Pyrene	ND	480	3400		ug/Kg-dry	10	1/1/2016 02:35 PM
Surr: 1,2-Dichlorobenzene-d4	57.3	0	25-110		%REC	10	1/1/2016 02:35 PM
Surr: 1,2-Dichlorobenzene-d4	51.9	0	25-110		%REC	1	1/1/2016 03:53 PM
Surr: 2,4,6-Tribromophenol	54.0	0	36-126		%REC	10	1/1/2016 02:35 PM
Surr: 2,4,6-Tribromophenol	62.7	0	36-126		%REC	1	1/1/2016 03:53 PM
Surr: 2-Chlorophenol-d4	67.7	0	30-100		%REC	10	1/1/2016 02:35 PM
Surr: 2-Chlorophenol-d4	64.0	0	30-100		%REC	1	1/1/2016 03:53 PM
Surr: 2-Fluorobiphenyl	56.3	0	43-125		%REC	1	1/1/2016 03:53 PM
Surr: 2-Fluorobiphenyl	54.2	0	43-125		%REC	10	1/1/2016 02:35 PM
Surr: 2-Fluorophenol	61.5	0	37-125		%REC	1	1/1/2016 03:53 PM
Surr: 2-Fluorophenol	64.8	0	37-125		%REC	10	1/1/2016 02:35 PM
Surr: 4-Terphenyl-d14	78.5	0	32-125		%REC	1	1/1/2016 03:53 PM
Surr: 4-Terphenyl-d14	73.4	0	32-125		%REC	10	1/1/2016 02:35 PM
Surr: Nitrobenzene-d5	55.1	0	37-125		%REC	10	1/1/2016 02:35 PM
Surr: Nitrobenzene-d5	54.5	0	37-125		%REC	1	1/1/2016 03:53 PM
Surr: Phenol-d5	64.4	0	40-125		%REC	10	1/1/2016 02:35 PM
Surr: Phenol-d5	64.4	0	40-125		%REC	1	1/1/2016 03:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **LCS-55632**	SampType: **LCS**	TestCode: **8270_S_PGE**	Units: **ug/Kg**	Prep Date: **12/31/2015**	RunNo: **104986**
Client ID: **LCSS**	Batch ID: **55632**	TestNo: **EPA 8270C**	**EPA 3550B**	Analysis Date: **1/1/2016**	SeqNo: **2186027**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	2019.333	330	3330	0	60.6	44	125				
1,2-Dichlorobenzene	1938.667	330	3330	0	58.2	45	125				
1,3-Dichlorobenzene	1896.667	330	3330	0	57.0	39	125				
1,4-Dichlorobenzene	1963.333	330	3330	0	59.0	35	125				
2,4,5-Trichlorophenol	2017.000	330	3330	0	60.6	49	125				
2,4,6-Trichlorophenol	2004.667	330	3330	0	60.2	43	125				
2,4-Dichlorophenol	2027.000	1600	3330	0	60.9	45	125				
2,4-Dimethylphenol	2147.333	330	3330	0	64.5	32	125				
2,4-Dinitrophenol	2108.333	1600	3330	0	63.3	25	132				
2,4-Dinitrotoluene	2849.000	330	3330	0	85.6	48	125				
2,6-Dinitrotoluene	2651.667	330	3330	0	79.6	48	125				
2-Chloronaphthalene	2108.333	330	3330	0	63.3	45	125				
2-Chlorophenol	2211.333	330	3330	0	66.4	44	125				
2-Methylnaphthalene	2067.000	330	3330	0	62.1	47	125				
2-Methylphenol	2197.333	330	3330	0	66.0	40	125				
2-Nitroaniline	2651.000	1600	3330	0	79.6	44	125				
2-Nitrophenol	2091.333	330	3330	0	62.8	42	125				
3,3´-Dichlorobenzidine	3688.000	660	6660	0	55.4	25	128				
3-Nitroaniline	2725.333	1600	3330	0	81.8	27	125				
4,6-Dinitro-2-methylphenol	2477.000	1600	3330	0	74.4	29	137				
4-Bromophenyl-phenylether	2309.667	330	3330	0	69.4	46	125				
4-Chloro-3-methylphenol	2248.667	660	3330	0	67.5	46	125				
4-Chloroaniline	1731.000	660	3330	0	52.0	10	125				
4-Chlorophenyl-phenylether	2289.000	330	3330	0	68.7	47	125				
4-Methylphenol	2195.000	330	3330	0	65.9	41	125				
4-Nitroaniline	3277.667	1600	3330	0	98.4	34	125				
4-Nitrophenol	2720.667	1600	3330	0	81.7	25	138				
Acenaphthene	2230.000	330	3330	0	67.0	46	125				
Acenaphthylene	2123.333	330	3330	0	63.8	44	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **LCS-55632**	SampType: **LCS**	TestCode: **8270_S_PGE**	Units: **ug/Kg**	Prep Date: **12/31/2015**	RunNo: **104986**
Client ID: **LCSS**	Batch ID: **55632**	TestNo: **EPA 8270C**	**EPA 3550B**	Analysis Date: **1/1/2016**	SeqNo: **2186027**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Anthracene	2511.333	330	3330	0	75.4	53	125				
Benzo(a)anthracene	2824.667	330	3330	0	84.8	52	125				
Benzo(a)pyrene	2852.333	330	3330	0	85.7	50	125				
Benzo(b)fluoranthene	3321.667	330	3330	0	99.7	45	125				
Benzo(g,h,i)perylene	3077.333	330	3330	0	92.4	38	126				
Benzo(k)fluoranthene	2884.333	330	3330	0	86.6	45	125				
Benzoic acid	2183.333	1600	3330	0	65.6	25	125				
Benzyl alcohol	2007.000	660	3330	0	60.3	25	125				
Bis(2-chloroethoxy)methane	2192.333	330	3330	0	65.8	43	125				
Bis(2-chloroethyl)ether	2339.000	330	3330	0	70.2	38	125				
Bis(2-chloroisopropyl)ether	1696.667	330	3330	0	51.0	25	125				
Bis(2-ethylhexyl)phthalate	3114.000	330	3330	0	93.5	47	127				
Butylbenzylphthalate	3121.333	330	3330	0	93.7	49	125				
Chrysene	2740.667	330	3330	0	82.3	53	125				
Di-n-butylphthalate	2899.667	330	3330	0	87.1	56	125				
Di-n-octylphthalate	3295.000	330	3330	0	98.9	41	132				
Dibenz(a,h)anthracene	3410.333	330	3330	0	102	41	125				
Dibenzofuran	2311.333	330	3330	0	69.4	51	125				
Diethylphthalate	2607.667	330	3330	0	78.3	50	125				
Dimethylphthalate	2592.333	330	3330	0	77.8	49	125				
Fluoranthene	2836.333	330	3330	0	85.2	54	125				
Fluorene	2441.000	330	3330	0	73.3	49	125				
Hexachlorobenzene	2327.333	330	3330	0	69.9	47	125				
Hexachlorobutadiene	1964.000	660	3330	0	59.0	40	125				
Hexachloroethane	2018.000	330	3330	0	60.6	34	125				
Indeno(1,2,3-cd)pyrene	3180.333	330	3330	0	95.5	38	125				
Isophorone	2292.667	330	3330	0	68.8	43	125				
N-Nitrosodi-n-propylamine	1966.000	330	3330	0	59.0	40	125				
N-Nitrosodiphenylamine	2601.333	330	3330	0	78.1	49	125				
Naphthalene	2095.667	330	3330	0	62.9	40	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **LCS-55632**	SampType: **LCS**	TestCode: **8270_S_PGE**	Units: **ug/Kg**	Prep Date: **12/31/2015**	RunNo: **104986**
Client ID: **LCSS**	Batch ID: **55632**	TestNo: **EPA 8270C**	**EPA 3550B**	Analysis Date: **1/1/2016**	SeqNo: **2186027**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrobenzene	1917.667	330	3330	0	57.6	41	125				
Pentachlorophenol	2305.000	1600	3330	0	69.2	25	125				
Phenanthrene	2892.000	330	3330	0	86.8	50	125				
Phenol	2180.000	330	3330	0	65.5	39	125				
Pyrene	2811.667	330	3330	0	84.4	46	125				
Surr: 1,2-Dichlorobenzene-d4	1843.000		3330		55.3	25	110				
Surr: 2,4,6-Tribromophenol	2148.667		3330		64.5	36	126				
Surr: 2-Chlorophenol-d4	2050.333		3330		61.6	30	100				
Surr: 2-Fluorobiphenyl	1801.667		3330		54.1	43	125				
Surr: 2-Fluorophenol	1955.667		3330		58.7	37	125				
Surr: 4-Terphenyl-d14	2580.333		3330		77.5	32	125				
Surr: Nitrobenzene-d5	1825.667		3330		54.8	37	125				
Surr: Phenol-d5	2069.333		3330		62.1	40	125				

Sample ID **MB-55632**	SampType: **MBLK**	TestCode: **8270_S_PGE**	Units: **ug/Kg**	Prep Date: **12/31/2015**	RunNo: **104986**
Client ID: **PBS**	Batch ID: **55632**	TestNo: **EPA 8270C**	**EPA 3550B**	Analysis Date: **1/1/2016**	SeqNo: **2186028**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	330									
1,2-Dichlorobenzene	ND	330									
1,3-Dichlorobenzene	ND	330									
1,4-Dichlorobenzene	ND	330									
2,4,5-Trichlorophenol	ND	330									
2,4,6-Trichlorophenol	ND	330									
2,4-Dichlorophenol	ND	1600									
2,4-Dimethylphenol	ND	330									
2,4-Dinitrophenol	ND	1600									
2,4-Dinitrotoluene	ND	330									
2,6-Dinitrotoluene	ND	330									
2-Chloronaphthalene	ND	330									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID	MB-55632	SampType:	MBLK	TestCode:	8270_S_PGE	Units:	ug/Kg	Prep Date:	12/31/2015	RunNo:	104986
Client ID:	PBS	Batch ID:	55632	TestNo:	EPA 8270C	EPA 3550B		Analysis Date:	1/1/2016	SeqNo:	2186028

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Chlorophenol	ND	330									
2-Methylnaphthalene	ND	330									
2-Methylphenol	ND	330									
2-Nitroaniline	ND	1600									
2-Nitrophenol	ND	330									
3,3´-Dichlorobenzidine	ND	660									
3-Nitroaniline	ND	1600									
4,6-Dinitro-2-methylphenol	ND	1600									
4-Bromophenyl-phenylether	ND	330									
4-Chloro-3-methylphenol	ND	660									
4-Chloroaniline	ND	660									
4-Chlorophenyl-phenylether	ND	330									
4-Methylphenol	ND	330									
4-Nitroaniline	ND	1600									
4-Nitrophenol	ND	1600									
Acenaphthene	ND	330									
Acenaphthylene	ND	330									
Anthracene	ND	330									
Benzo(a)anthracene	ND	330									
Benzo(a)pyrene	ND	330									
Benzo(b)fluoranthene	ND	330									
Benzo(g,h,i)perylene	ND	330									
Benzo(k)fluoranthene	ND	330									
Benzoic acid	1614.333	1600									
Benzyl alcohol	ND	660									
Bis(2-chloroethoxy)methane	ND	330									
Bis(2-chloroethyl)ether	ND	330									
Bis(2-chloroisopropyl)ether	ND	330									
Bis(2-ethylhexyl)phthalate	ND	330									
Butylbenzylphthalate	ND	330									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **MB-55632**	SampType: **MBLK**	TestCode: **8270_S_PGE**	Units: **ug/Kg**	Prep Date: **12/31/2015**	RunNo: **104986**
Client ID: **PBS**	Batch ID: **55632**	TestNo: **EPA 8270C**	**EPA 3550B**	Analysis Date: **1/1/2016**	SeqNo: **2186028**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chrysene	ND	330									
Di-n-butylphthalate	ND	330									
Di-n-octylphthalate	ND	330									
Dibenz(a,h)anthracene	ND	330									
Dibenzofuran	ND	330									
Diethylphthalate	ND	330									
Dimethylphthalate	ND	330									
Fluoranthene	ND	330									
Fluorene	ND	330									
Hexachlorobenzene	ND	330									
Hexachlorobutadiene	ND	660									
Hexachloroethane	ND	330									
Indeno(1,2,3-cd)pyrene	ND	330									
Isophorone	ND	330									
N-Nitrosodi-n-propylamine	ND	330									
N-Nitrosodiphenylamine	ND	330									
Naphthalene	ND	330									
Nitrobenzene	ND	330									
Pentachlorophenol	ND	1600									
Phenanthrene	ND	330									
Phenol	ND	330									
Pyrene	ND	330									
Surr: 1,2-Dichlorobenzene-d4	1887.667		3330		56.7	25	110				
Surr: 2,4,6-Tribromophenol	1853.333		3330		55.7	36	126				
Surr: 2-Chlorophenol-d4	2442.333		3330		73.3	30	100				
Surr: 2-Fluorobiphenyl	2205.667		3330		66.2	43	125				
Surr: 2-Fluorophenol	2305.000		3330		69.2	37	125				
Surr: 4-Terphenyl-d14	2735.000		3330		82.1	32	125				
Surr: Nitrobenzene-d5	2107.333		3330		63.3	37	125				
Surr: Phenol-d5	2554.667		3330		76.7	40	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID	N018099-001B-MS	SampType:	MS	TestCode:	8270_S_PGE	Units:	ug/Kg-dry	Prep Date:	12/31/2015	RunNo:	104986
Client ID:	ZZZZZZ	Batch ID:	55632	TestNo:	EPA 8270C	EPA 3550B		Analysis Date:	1/1/2016	SeqNo:	2186030

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	1947.828	3400	3420	0	57.0	44	125				
1,2-Dichlorobenzene	1745.856	3400	3420	0	51.1	45	125				
1,3-Dichlorobenzene	1728.740	3400	3420	0	50.6	39	125				
1,4-Dichlorobenzene	1797.205	3400	3420	0	52.6	35	125				
2,4,5-Trichlorophenol	2187.455	3400	3420	0	64.0	49	125				
2,4,6-Trichlorophenol	1988.906	3400	3420	0	58.2	43	125				
2,4-Dichlorophenol	2101.874	17000	3420	0	61.5	45	125				
2,4-Dimethylphenol	2095.027	3400	3420	0	61.3	32	125				
2,4-Dinitrophenol	ND	17000	3420	0	0	25	132				S
2,4-Dinitrotoluene	2249.073	3400	3420	0	65.8	48	125				
2,6-Dinitrotoluene	2327.808	3400	3420	0	68.1	48	125				
2-Chloronaphthalene	1958.097	3400	3420	0	57.3	45	125				
2-Chlorophenol	2105.297	3400	3420	0	61.6	44	125				
2-Methylnaphthalene	1995.753	3400	3420	0	58.4	47	125				
2-Methylphenol	2077.911	3400	3420	0	60.8	40	125				
2-Nitroaniline	2341.501	17000	3420	0	68.5	44	125				
2-Nitrophenol	1886.209	3400	3420	0	55.2	42	125				
3,3´-Dichlorobenzidine	3611.526	6800	6840	0	52.8	25	128				
3-Nitroaniline	2320.961	17000	3420	0	67.9	27	125				
4,6-Dinitro-2-methylphenol	ND	17000	3420	0	0	29	137				S
4-Bromophenyl-phenylether	2392.850	3400	3420	0	70.0	46	125				
4-Chloro-3-methylphenol	2478.431	6800	3420	0	72.5	46	125				
4-Chloroaniline	1807.474	6800	3420	0	52.9	10	125				
4-Chlorophenyl-phenylether	2211.418	3400	3420	0	64.7	47	125				
4-Methylphenol	2125.836	3400	3420	0	62.2	41	125				
4-Nitroaniline	2368.887	17000	3420	0	69.3	34	125				
4-Nitrophenol	1311.104	17000	3420	0	38.3	25	138				
Acenaphthene	2112.143	3400	3420	0	61.8	46	125				
Acenaphthylene	1985.483	3400	3420	0	58.1	44	125				
Anthracene	2334.654	3400	3420	0	68.3	53	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N018099-001B-MS** SampType: **MS** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **12/31/2015** RunNo: **104986**
Client ID: **ZZZZZZ** Batch ID: **55632** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **1/1/2016** SeqNo: **2186030**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)anthracene	2635.900	3400	3420	0	77.1	52	125				
Benzo(a)pyrene	2635.900	3400	3420	0	77.1	50	125				
Benzo(b)fluoranthene	3091.192	3400	3420	0	90.4	45	125				
Benzo(g,h,i)perylene	910.584	3400	3420	0	26.6	38	126				S
Benzo(k)fluoranthene	3782.688	3400	3420	0	111	45	125				
Benzoic acid	16794.450	17000	3420	0	491	25	125				S
Benzyl alcohol	1824.591	6800	3420	0	53.4	25	125				
Bis(2-chloroethoxy)methane	1982.060	3400	3420	0	58.0	43	125				
Bis(2-chloroethyl)ether	1845.130	3400	3420	0	54.0	38	125				
Bis(2-chloroisopropyl)ether	1632.889	3400	3420	0	47.7	25	125				
Bis(2-ethylhexyl)phthalate	3039.843	3400	3420	0	88.9	47	127				
Butylbenzylphthalate	2913.183	3400	3420	0	85.2	49	125				
Chrysene	2615.361	3400	3420	0	76.5	53	125				
Di-n-butylphthalate	2803.639	3400	3420	0	82.0	56	125				
Di-n-octylphthalate	5675.743	3400	3420	0	166	41	132				S
Dibenz(a,h)anthracene	1225.522	3400	3420	0	35.8	41	125				S
Dibenzofuran	2228.534	3400	3420	0	65.2	51	125				
Diethylphthalate	2276.459	3400	3420	0	66.6	50	125				
Dimethylphthalate	2317.538	3400	3420	0	67.8	49	125				
Fluoranthene	2724.905	3400	3420	0	79.7	54	125				
Fluorene	2231.957	3400	3420	0	65.3	49	125				
Hexachlorobenzene	2386.003	3400	3420	0	69.8	47	125				
Hexachlorobutadiene	1937.558	6800	3420	0	56.7	40	125				
Hexachloroethane	1810.898	3400	3420	0	53.0	34	125				
Indeno(1,2,3-cd)pyrene	1115.979	3400	3420	0	32.6	38	125				S
Isophorone	2242.227	3400	3420	0	65.6	43	125				
N-Nitrosodi-n-propylamine	1834.860	3400	3420	0	53.7	40	125				
N-Nitrosodiphenylamine	2444.198	3400	3420	0	71.5	49	125				
Naphthalene	1913.595	3400	3420	0	56.0	40	125				
Nitrobenzene	1769.819	3400	3420	0	51.8	41	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N018099-001B-MS** SampType: **MS** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **12/31/2015** RunNo: **104986**
Client ID: **ZZZZZZ** Batch ID: **55632** TestNo: **EPA 8270C** **EPA 3550B** Analysis Date: **1/1/2016** SeqNo: **2186030**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pentachlorophenol	7750.231	17000	3420	0	227	25	125				S
Phenanthrene	2731.751	3400	3420	0	79.9	50	125				
Phenol	2019.716	3400	3420	0	59.1	39	125				
Pyrene	2724.905	3400	3420	0	79.7	46	125				
Surr: 1,2-Dichlorobenzene-d4	1602.080		3420		46.8	25	110				
Surr: 2,4,6-Tribromophenol	1944.404		3420		56.9	36	126				
Surr: 2-Chlorophenol-d4	1944.404		3420		56.9	30	100				
Surr: 2-Fluorobiphenyl	1639.735		3420		47.9	43	125				
Surr: 2-Fluorophenol	1766.395		3420		51.7	37	125				
Surr: 4-Terphenyl-d14	2403.119		3420		70.3	32	125				
Surr: Nitrobenzene-d5	1718.470		3420		50.3	37	125				
Surr: Phenol-d5	1917.018		3420		56.1	40	125				

Sample ID **N018099-001B-MSD** SampType: **MSD** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **12/31/2015** RunNo: **104986**
Client ID: **ZZZZZZ** Batch ID: **55632** TestNo: **EPA 8270C** **EPA 3550B** Analysis Date: **1/1/2016** SeqNo: **2186031**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	2096.348	3400	3416	0	61.4	44	125	1948	0	30	
1,2-Dichlorobenzene	1891.159	3400	3416	0	55.4	45	125	1746	0	30	
1,3-Dichlorobenzene	1843.282	3400	3416	0	54.0	39	125	1729	0	30	
1,4-Dichlorobenzene	1962.976	3400	3416	0	57.5	35	125	1797	0	30	
2,4,5-Trichlorophenol	2428.071	3400	3416	0	71.1	49	125	2187	0	30	
2,4,6-Trichlorophenol	2284.438	3400	3416	0	66.9	43	125	1989	0	30	
2,4-Dichlorophenol	2332.316	17000	3416	0	68.3	45	125	2102	0	30	
2,4-Dimethylphenol	2304.957	3400	3416	0	67.5	32	125	2095	0	30	
2,4-Dinitrophenol	10197.897	17000	3416	0	298	25	132	0	0	30	S
2,4-Dinitrotoluene	2462.269	3400	3416	0	72.1	48	125	2249	0	30	
2,6-Dinitrotoluene	2629.840	3400	3416	0	77.0	48	125	2328	0	30	
2-Chloronaphthalene	2188.684	3400	3416	0	64.1	45	125	1958	0	30	
2-Chlorophenol	2390.453	3400	3416	0	70.0	44	125	2105	0	30	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID	N018099-001B-MSD	SampType:	MSD	TestCode:	8270_S_PGE	Units:	ug/Kg-dry	Prep Date:	12/31/2015	RunNo:	104986
Client ID:	ZZZZZZ	Batch ID:	55632	TestNo:	EPA 8270C	EPA 3550B		Analysis Date:	1/1/2016	SeqNo:	2186031

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	2192.103	3400	3416	0	64.2	47	125	1996	0	30	
2-Methylphenol	2335.736	3400	3416	0	68.4	40	125	2078	0	30	
2-Nitroaniline	2664.038	17000	3416	0	78.0	44	125	2342	0	30	
2-Nitrophenol	2065.570	3400	3416	0	60.5	42	125	1886	0	30	
3,3´-Dichlorobenzidine	4042.225	6800	6833	0	59.2	25	128	3612	0	30	
3-Nitroaniline	2643.519	17000	3416	0	77.4	27	125	2321	0	30	
4,6-Dinitro-2-methylphenol	ND	17000	3416	0	0	29	137	0	0	30	S
4-Bromophenyl-phenylether	2667.458	3400	3416	0	78.1	46	125	2393	0	30	
4-Chloro-3-methylphenol	2664.038	6800	3416	0	78.0	46	125	2478	0	30	
4-Chloroaniline	2034.792	6800	3416	0	59.6	10	125	1807	0	30	
4-Chlorophenyl-phenylether	2434.910	3400	3416	0	71.3	47	125	2211	0	30	
4-Methylphenol	2424.651	3400	3416	0	71.0	41	125	2126	0	30	
4-Nitroaniline	2629.840	17000	3416	0	77.0	34	125	2369	0	30	
4-Nitrophenol	1494.460	17000	3416	0	43.7	25	138	1311	0	30	
Acenaphthene	2383.613	3400	3416	0	69.8	46	125	2112	0	30	
Acenaphthylene	2253.660	3400	3416	0	66.0	44	125	1985	0	30	
Anthracene	2551.184	3400	3416	0	74.7	53	125	2335	0	30	
Benzo(a)anthracene	2947.883	3400	3416	0	86.3	52	125	2636	0	30	
Benzo(a)pyrene	2869.227	3400	3416	0	84.0	50	125	2636	0	30	
Benzo(b)fluoranthene	3358.261	3400	3416	0	98.3	45	125	3091	0	30	
Benzo(g,h,i)perylene	964.389	3400	3416	0	28.2	38	126	910.6	0	30	S
Benzo(k)fluoranthene	4117.461	3400	3416	0	121	45	125	3783	8.48	30	
Benzoic acid	16852.863	17000	3416	0	493	25	125	16790	0	30	S
Benzyl alcohol	1993.754	6800	3416	0	58.4	25	125	1825	0	30	
Bis(2-chloroethoxy)methane	2205.783	3400	3416	0	64.6	43	125	1982	0	30	
Bis(2-chloroethyl)ether	2031.372	3400	3416	0	59.5	38	125	1845	0	30	
Bis(2-chloroisopropyl)ether	1812.504	3400	3416	0	53.1	25	125	1633	0	30	
Bis(2-ethylhexyl)phthalate	3365.101	3400	3416	0	98.5	47	127	3040	0	30	
Butylbenzylphthalate	3224.888	3400	3416	0	94.4	49	125	2913	0	30	
Chrysene	2937.624	3400	3416	0	86.0	53	125	2615	0	30	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N018099-001B-MSD** SampType: **MSD** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **12/31/2015** RunNo: **104986**
Client ID: **ZZZZZZ** Batch ID: **55632** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **1/1/2016** SeqNo: **2186031**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Di-n-butylphthalate	3057.317	3400	3416	0	89.5	56	125	2804	0	30	
Di-n-octylphthalate	6179.611	3400	3416	0	181	41	132	5676	8.50	30	S
Dibenz(a,h)anthracene	1354.248	3400	3416	0	39.6	41	125	1226	0	30	S
Dibenzofuran	2486.208	3400	3416	0	72.8	51	125	2229	0	30	
Diethylphthalate	2499.887	3400	3416	0	73.2	50	125	2276	0	30	
Dimethylphthalate	2633.260	3400	3416	0	77.1	49	125	2318	0	30	
Fluoranthene	3006.020	3400	3416	0	88.0	54	125	2725	0	30	
Fluorene	2469.109	3400	3416	0	72.3	49	125	2232	0	30	
Hexachlorobenzene	2623.000	3400	3416	0	76.8	47	125	2386	0	30	
Hexachlorobutadiene	2089.509	6800	3416	0	61.2	40	125	1938	0	30	
Hexachloroethane	1976.655	3400	3416	0	57.9	34	125	1811	0	30	
Indeno(1,2,3-cd)pyrene	1217.455	3400	3416	0	35.6	38	125	1116	0	30	S
Isophorone	2489.627	3400	3416	0	72.9	43	125	2242	0	30	
N-Nitrosodi-n-propylamine	2079.249	3400	3416	0	60.9	40	125	1835	0	30	
N-Nitrosodiphenylamine	2657.199	3400	3416	0	77.8	49	125	2444	0	30	
Naphthalene	2058.730	3400	3416	0	60.3	40	125	1914	0	30	
Nitrobenzene	1945.876	3400	3416	0	57.0	41	125	1770	0	30	
Pentachlorophenol	7851.902	17000	3416	0	230	25	125	7750	0	30	S
Phenanthrene	3026.539	3400	3416	0	88.6	50	125	2732	0	30	
Phenol	2308.377	3400	3416	0	67.6	39	125	2020	0	30	
Pyrene	3029.959	3400	3416	0	88.7	46	125	2725	0	30	
Surr: 1,2-Dichlorobenzene-d4	1703.069		3416		49.8	25	110		0	30	
Surr: 2,4,6-Tribromophenol	2106.608		3416		61.7	36	126		0	30	
Surr: 2-Chlorophenol-d4	2188.684		3416		64.1	30	100		0	30	
Surr: 2-Fluorobiphenyl	1856.961		3416		54.4	43	125		0	30	
Surr: 2-Fluorophenol	2017.693		3416		59.1	37	125		0	30	
Surr: 4-Terphenyl-d14	2619.581		3416		76.7	32	125		0	30	
Surr: Nitrobenzene-d5	1788.565		3416		52.4	37	125		0	30	
Surr: Phenol-d5	2178.424		3416		63.8	40	125		0	30	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N018099-001B-MS** SampType: **MS** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **12/31/2015** RunNo: **104986**
Client ID: **ZZZZZZ** Batch ID: **55632** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **1/1/2016** SeqNo: **2186033**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	1812.609	340	3420	0	53.0	44	125				
1,2-Dichlorobenzene	1638.708	340	3420	0	47.9	45	125				
1,3-Dichlorobenzene	1557.577	340	3420	0	45.5	39	125				
1,4-Dichlorobenzene	1635.970	340	3420	0	47.8	35	125				
2,4,5-Trichlorophenol	2358.275	340	3420	0	69.0	49	125				
2,4,6-Trichlorophenol	2288.098	340	3420	0	66.9	43	125				
2,4-Dichlorophenol	2101.531	1700	3420	0	61.5	45	125				
2,4-Dimethylphenol	2132.683	340	3420	0	62.4	32	125				
2,4-Dinitrophenol	1292.276	1700	3420	0	37.8	25	132				
2,4-Dinitrotoluene	2421.947	340	3420	0	70.8	48	125				
2,6-Dinitrotoluene	2469.530	340	3420	0	72.2	48	125				
2-Chloronaphthalene	2100.847	340	3420	0	61.4	45	125				
2-Chlorophenol	2010.131	340	3420	0	58.8	44	125				
2-Methylnaphthalene	2002.257	340	3420	0	58.5	47	125				
2-Methylphenol	2073.803	340	3420	0	60.6	40	125				
2-Nitroaniline	2547.923	1700	3420	0	74.5	44	125				
2-Nitrophenol	1974.529	340	3420	0	57.7	42	125				
3,3´-Dichlorobenzidine	1887.578	680	6840	0	27.6	25	128				
3-Nitroaniline	2597.902	1700	3420	0	76.0	27	125				
4,6-Dinitro-2-methylphenol	918.115	1700	3420	0	26.8	29	137				S
4-Bromophenyl-phenylether	2245.992	340	3420	0	65.7	46	125				
4-Chloro-3-methylphenol	2424.001	680	3420	0	70.9	46	125				
4-Chloroaniline	1681.841	680	3420	0	49.2	10	125				
4-Chlorophenyl-phenylether	2359.302	340	3420	0	69.0	47	125				
4-Methylphenol	2061.479	340	3420	0	60.3	41	125				
4-Nitroaniline	2583.182	1700	3420	0	75.5	34	125				
4-Nitrophenol	2590.713	1700	3420	0	75.8	25	138				
Acenaphthene	2293.233	340	3420	0	67.1	46	125				
Acenaphthylene	2118.990	340	3420	0	62.0	44	125				
Anthracene	2306.241	340	3420	0	67.4	53	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N018099-001B-MS**	SampType: **MS**	TestCode: **8270_S_PGE**	Units: **ug/Kg-dry**	Prep Date: **12/31/2015**	RunNo: **104986**
Client ID: **ZZZZZZ**	Batch ID: **55632**	TestNo: **EPA 8270C** **EPA 3550B**		Analysis Date: **1/1/2016**	SeqNo: **2186033**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)anthracene	2511.294	340	3420	0	73.4	52	125				
Benzo(a)pyrene	2679.718	340	3420	0	78.4	50	125				A6L
Benzo(b)fluoranthene	3953.850	340	3420	0	116	45	125				A6L
Benzo(g,h,i)perylene	666.849	340	3420	0	19.5	38	126				SA6L
Benzo(k)fluoranthene	4529.983	340	3420	0	132	45	125				SA6L
Benzoic acid	2417.839	1700	3420	0	70.7	25	125				
Benzyl alcohol	1827.672	680	3420	0	53.4	25	125				
Bis(2-chloroethoxy)methane	1976.583	340	3420	0	57.8	43	125				
Bis(2-chloroethyl)ether	2041.624	340	3420	0	59.7	38	125				
Bis(2-chloroisopropyl)ether	1475.419	340	3420	0	43.1	25	125				
Bis(2-ethylhexyl)phthalate	3661.163	340	3420	106.7	104	47	127				
Butylbenzylphthalate	3357.521	340	3420	0	98.2	49	125				
Chrysene	2378.130	340	3420	0	69.5	53	125				
Di-n-butylphthalate	2558.192	340	3420	0	74.8	56	125				
Di-n-octylphthalate	12910.091	340	3420	0	378	41	132				SEA6L
Dibenz(a,h)anthracene	922.223	340	3420	0	27.0	41	125				SA6L
Dibenzofuran	2399.354	340	3420	0	70.2	51	125				
Diethylphthalate	2356.906	340	3420	0	68.9	50	125				
Dimethylphthalate	2353.482	340	3420	0	68.8	49	125				
Fluoranthene	2546.553	340	3420	0	74.5	54	125				
Fluorene	2483.908	340	3420	0	72.6	49	125				
Hexachlorobenzene	2189.509	340	3420	0	64.0	47	125				
Hexachlorobutadiene	1779.746	680	3420	0	52.0	40	125				
Hexachloroethane	1654.798	340	3420	0	48.4	34	125				
Indeno(1,2,3-cd)pyrene	852.731	340	3420	0	24.9	38	125				SA6L
Isophorone	2095.027	340	3420	0	61.3	43	125				
N-Nitrosodi-n-propylamine	1770.161	340	3420	0	51.8	40	125				
N-Nitrosodiphenylamine	2369.229	340	3420	0	69.3	49	125				
Naphthalene	1871.489	340	3420	0	54.7	40	125				
Nitrobenzene	1704.435	340	3420	0	49.8	41	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N018099-001B-MS** SampType: **MS** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **12/31/2015** RunNo: **104986**
Client ID: **ZZZZZZ** Batch ID: **55632** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **1/1/2016** SeqNo: **2186033**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pentachlorophenol	2641.035	1700	3420	0	77.2	25	125				
Phenanthrene	2677.321	340	3420	0	78.3	50	125				
Phenol	2001.915	340	3420	0	58.5	39	125				
Pyrene	2530.464	340	3420	0	74.0	46	125				
Surr: 1,2-Dichlorobenzene-d4	1521.291		3420		44.5	25	110				
Surr: 2,4,6-Tribromophenol	2251.470		3420		65.8	36	126				
Surr: 2-Chlorophenol-d4	1848.553		3420		54.1	30	100				
Surr: 2-Fluorobiphenyl	1762.630		3420		51.5	43	125				
Surr: 2-Fluorophenol	1715.389		3420		50.2	37	125				
Surr: 4-Terphenyl-d14	2745.444		3420		80.3	32	125				
Surr: Nitrobenzene-d5	1616.457		3420		47.3	37	125				
Surr: Phenol-d5	1879.020		3420		54.9	40	125				

Sample ID **N018099-001B-MSD** SampType: **MSD** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **12/31/2015** RunNo: **104986**
Client ID: **ZZZZZZ** Batch ID: **55632** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **1/1/2016** SeqNo: **2186034**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	1979.049	340	3416	0	57.9	44	125	1813	8.78	30	
1,2-Dichlorobenzene	1785.487	340	3416	0	52.3	45	125	1639	8.57	30	
1,3-Dichlorobenzene	1702.727	340	3416	0	49.8	39	125	1558	8.90	30	
1,4-Dichlorobenzene	1774.202	340	3416	0	51.9	35	125	1636	8.11	30	
2,4,5-Trichlorophenol	2648.991	340	3416	0	77.5	49	125	2358	11.6	30	
2,4,6-Trichlorophenol	2565.889	340	3416	0	75.1	43	125	2288	11.4	30	
2,4-Dichlorophenol	2404.474	1700	3416	0	70.4	45	125	2102	13.4	30	
2,4-Dimethylphenol	2421.573	340	3416	0	70.9	32	125	2133	12.7	30	
2,4-Dinitrophenol	1301.583	1700	3416	0	38.1	25	132	1292	0	30	
2,4-Dinitrotoluene	2695.501	340	3416	0	78.9	48	125	2422	10.7	30	
2,6-Dinitrotoluene	2732.435	340	3416	0	80.0	48	125	2470	10.1	30	
2-Chloronaphthalene	2357.281	340	3416	0	69.0	45	125	2101	11.5	30	
2-Chlorophenol	2256.054	340	3416	0	66.0	44	125	2010	11.5	30	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N018099-001B-MSD** SampType: **MSD** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **12/31/2015** RunNo: **104986**
Client ID: **ZZZZZZ** Batch ID: **55632** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **1/1/2016** SeqNo: **2186034**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	2198.259	340	3416	0	64.3	47	125	2002	9.33	30	
2-Methylphenol	2349.757	340	3416	0	68.8	40	125	2074	12.5	30	
2-Nitroaniline	2849.734	1700	3416	0	83.4	44	125	2548	11.2	30	
2-Nitrophenol	2216.042	340	3416	0	64.9	42	125	1975	11.5	30	
3,3´-Dichlorobenzidine	1970.841	680	6833	0	28.8	25	128	1888	4.32	30	
3-Nitroaniline	2934.204	1700	3416	0	85.9	27	125	2598	12.2	30	
4,6-Dinitro-2-methylphenol	993.115	1700	3416	0	29.1	29	137	918.1	0	30	
4-Bromophenyl-phenylether	2482.104	340	3416	0	72.7	46	125	2246	9.99	30	
4-Chloro-3-methylphenol	2728.331	680	3416	0	79.9	46	125	2424	11.8	30	
4-Chloroaniline	1802.928	680	3416	0	52.8	10	125	1682	6.95	30	
4-Chlorophenyl-phenylether	2585.040	340	3416	0	75.7	47	125	2359	9.13	30	
4-Methylphenol	2344.969	340	3416	0	68.6	41	125	2061	12.9	30	
4-Nitroaniline	2804.935	1700	3416	0	82.1	34	125	2583	8.23	30	
4-Nitrophenol	2884.958	1700	3416	0	84.4	25	138	2591	10.7	30	
Acenaphthene	2556.998	340	3416	0	74.8	46	125	2293	10.9	30	
Acenaphthylene	2386.349	340	3416	0	69.8	44	125	2119	11.9	30	
Anthracene	2517.670	340	3416	0	73.7	53	125	2306	8.77	30	
Benzo(a)anthracene	2751.928	340	3416	0	80.6	52	125	2511	9.14	30	
Benzo(a)pyrene	2979.345	340	3416	0	87.2	50	125	2680	10.6	30	A6L
Benzo(b)fluoranthene	4502.874	340	3416	0	132	45	125	3954	13.0	30	SA6L
Benzo(g,h,i)perylene	693.197	340	3416	0	20.3	38	126	666.8	3.87	30	SA6L
Benzo(k)fluoranthene	4952.238	340	3416	0	145	45	125	4530	8.91	30	SA6L
Benzoic acid	2423.625	1700	3416	0	70.9	25	125	2418	0.239	30	
Benzyl alcohol	2024.532	680	3416	0	59.3	25	125	1828	10.2	30	
Bis(2-chloroethoxy)methane	2198.601	340	3416	0	64.4	43	125	1977	10.6	30	
Bis(2-chloroethyl)ether	2056.679	340	3416	0	60.2	38	125	2042	0.735	30	
Bis(2-chloroisopropyl)ether	1612.102	340	3416	0	47.2	25	125	1475	8.85	30	
Bis(2-ethylhexyl)phthalate	4225.185	340	3416	106.7	121	47	127	3661	14.3	30	
Butylbenzylphthalate	3808.309	340	3416	0	111	49	125	3358	12.6	30	
Chrysene	2661.302	340	3416	0	77.9	53	125	2378	11.2	30	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID	N018099-001B-MSD	SampType:	MSD	TestCode:	8270_S_PGE	Units:	ug/Kg-dry	Prep Date:	12/31/2015	RunNo:	104986
Client ID:	ZZZZZZ	Batch ID:	55632	TestNo:	EPA 8270C	EPA 3550B		Analysis Date:	1/1/2016	SeqNo:	2186034

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Di-n-butylphthalate	2787.152	340	3416	0	81.6	56	125	2558	8.57	30	
Di-n-octylphthalate	15316.681	340	3416	0	448	41	132	12910	17.1	30	SEA6L
Dibenz(a,h)anthracene	1000.981	340	3416	0	29.3	41	125	922.2	8.19	30	SA6L
Dibenzofuran	2662.328	340	3416	0	77.9	51	125	2399	10.4	30	
Diethylphthalate	2593.248	340	3416	0	75.9	50	125	2357	9.55	30	
Dimethylphthalate	2637.022	340	3416	0	77.2	49	125	2353	11.4	30	
Fluoranthene	2851.102	340	3416	0	83.5	54	125	2547	11.3	30	
Fluorene	2754.321	340	3416	0	80.6	49	125	2484	10.3	30	
Hexachlorobenzene	2370.960	340	3416	0	69.4	47	125	2190	7.96	30	
Hexachlorobutadiene	1915.440	680	3416	0	56.1	40	125	1780	7.34	30	
Hexachloroethane	1803.270	340	3416	0	52.8	34	125	1655	8.59	30	
Indeno(1,2,3-cd)pyrene	905.226	340	3416	0	26.5	38	125	852.7	5.97	30	SA6L
Isophorone	2320.005	340	3416	0	67.9	43	125	2095	10.2	30	
N-Nitrosodi-n-propylamine	1962.976	340	3416	0	57.5	40	125	1770	10.3	30	
N-Nitrosodiphenylamine	2599.746	340	3416	0	76.1	49	125	2369	9.28	30	
Naphthalene	2077.539	340	3416	0	60.8	40	125	1871	10.4	30	
Nitrobenzene	1898.683	340	3416	0	55.6	41	125	1704	10.8	30	
Pentachlorophenol	2849.050	1700	3416	0	83.4	25	125	2641	7.58	30	
Phenanthrene	2982.423	340	3416	0	87.3	50	125	2677	10.8	30	
Phenol	2280.677	340	3416	0	66.8	39	125	2002	13.0	30	
Pyrene	2802.199	340	3416	0	82.0	46	125	2530	10.2	30	
Surr: 1,2-Dichlorobenzene-d4	1564.909		3416		45.8	25	110		0	30	
Surr: 2,4,6-Tribromophenol	2433.542		3416		71.2	36	126		0	30	
Surr: 2-Chlorophenol-d4	2033.424		3416		59.5	30	100		0	30	
Surr: 2-Fluorobiphenyl	1970.841		3416		57.7	43	125		0	30	
Surr: 2-Fluorophenol	1890.817		3416		55.3	37	125		0	30	
Surr: 4-Terphenyl-d14	3121.952		3416		91.4	32	125		0	30	
Surr: Nitrobenzene-d5	1756.419		3416		51.4	37	125		0	30	
Surr: Phenol-d5	2091.219		3416		61.2	40	125		0	30	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Lab Order: N018099
Project: Topock RFI, 666665.FP.FW
Lab ID: N018099-001

Client Sample ID: Soil-IDW-01-5985
Collection Date: 12/18/2015 12:00:00 PM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PERCENT MOISTURE							
			D2216				
RunID: **WETCHEM_151224B**	QC Batch: **R105016**			PrepDate			Analyst: **LR**
Percent Moisture	2.366	0.1000	0.1000		wt%	1	12/24/2015 08:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N018099
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: PMOIST

Sample ID **MB-R105016**	SampType: **MBLK**	TestCode: **PMOIST**	Units: **wt%**	Prep Date:	RunNo: **105016**
Client ID: **PBS**	Batch ID: **R105016**	TestNo: **D2216**		Analysis Date: **12/24/2015**	SeqNo: **2188566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	ND	0.1000									

Sample ID **N018096-001ADUP**	SampType: **DUP**	TestCode: **PMOIST**	Units: **wt%**	Prep Date:	RunNo: **105016**
Client ID: **ZZZZZZ**	Batch ID: **R105016**	TestNo: **D2216**		Analysis Date: **12/24/2015**	SeqNo: **2188568**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	2.263	0.1000						2.164	4.47	30	

Sample ID **N018117-001ADUP**	SampType: **DUP**	TestCode: **PMOIST**	Units: **wt%**	Prep Date:	RunNo: **105016**
Client ID: **ZZZZZZ**	Batch ID: **R105016**	TestNo: **D2216**		Analysis Date: **12/24/2015**	SeqNo: **2188583**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	22.263	0.1000						22.72	2.03	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SAMPLE RECEIVING ITEMS

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name Topock RFI
Location
Project Manager
QC Manager
Project Number 666665.FP.FW
Project 2015-RFISOIL-IDW
Turnaround Time 7 Days
Shipping Date: 12-8-15
COC Number: IDW

	Container	8 oz soil jar	8 oz soil jar	8 oz soil jar	8oz soil jar(s)	8oz soil jar(s)	8oz soil jar(s)	8 oz soil jar	4x40ml glass	4x40ml glass	8 oz soil jar	1 gal ziplock			
	Preservatives	4°C	4°C	4°C	4°C	4°C	4°C	4°C	H2O, -7°C	H2O, -7°C	none	none			
	Filtered	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
	Holding Time	14	180	7	14	14	14	7	14	14	NA	NA			
DATE TIME Matrix		Hexavalent Chromium (7199)	Metals (6010B/7471A) Title 22 Metals	PH (9045)	SVOCs (8270C)	PCBs (8082)	PAHs (8270Sim)	TPH-Extractable (8015B-E)	TPH-Purgable (8015B-P)	VOCs (8260B)	Asbestos (EPA600/R-93-116)	Physical Parameters (1)		Number of Containers	COMMENTS
Soil-IDW-01-5985 12-8-15 1200 Soil		X	X		X	X				X	X		ND18099-1	10	
													TOTAL NUMBER OF CONTAINERS		

	Signatures	Date/Time
Approved by		
Sampled by		12/8/15
Relinquished by		12/8/15
Received by		12/9/15 1913
Relinquished by		
Received by		

Shipping Details

Method of Shipment: FedEx
On Ice: (yes) / no 2.6°C
Airbill No: 1R42
Lab Name: Advanced Technology Laboratories
Lab Phone:

ATTN:

Sample Custody

Special Instructions:

Report Copy to

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 12/18/2015 Workorder: N018099

Rep sample Temp (Deg C): 2.6 IR Gun ID: 2

Temp Blank: ☐ Yes ☑ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: MBC For: 12/22/2015

Reviewed By: gsg 12/23/15

WORK ORDER Summary

22-Dec-15

WorkOrder: N018099

Client ID: CH2HI01

Project: Topock RFI, 666665.FP.FW **QC Level:** Level IV **Date Received:** 12/18/2015

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N018099-001A	Soil-IDW-01-5985	12/18/2015 12:00:00 PM	1/5/2016	Soil	EPA 3050B	SOPREP TOTAL METALS	☐	☐	☐	WS
			1/5/2016		EPA 3060A	Prep for Hexavalend Chromium	☐	☐	☐	WS
			1/5/2016		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WS
			1/5/2016		EPA 7199	Hexavalent Chromium by IC	☐	☐	☐	WS
			1/5/2016			MERCURY PREP	☐	☐	☐	WS
			1/5/2016		EPA 7471A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WS
			1/5/2016		D2216	PERCENT MOISTURE	☐	☐	☐	WS
N018099-001B			1/5/2016		EPA 3550B	ULTRASONIC EXTRACTION: PESTICIDES/PCB	☐	☐	☐	WS
			1/5/2016		EPA 3550B	ULTRASONIC EXTRACTION: 8270C	☐	☐	☐	WS
			1/5/2016		EPA 8082	PCBs BY GC/ECD	☐	☐	☐	WS
			1/5/2016		EPA 8270C	SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	WS
N018099-001C			1/5/2016		EPA 5035	Closed System Purge and Trap	☐	☐	☐	Freeze
			1/5/2016		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	Freeze
N018099-001D							☐	☐	☐	Freeze
N018099-001E							☐	☐	☐	Freeze
N018099-001F							☐	☐	☐	Freeze
N018099-001G			1/5/2016		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N018099-002A	FOLDER		1/5/2016		Folder	Folder	☐	☐	☐	LAB

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

AmeriSci Los Angeles
24416 South Main Street, Suite 308
Carson, CA 90745

TEL: (310) 834-4868
FAX: (310) 834-4772
Acct #:

Field Sampler: SIGNED

21-Dec-15

				Requested Tests		
Sample ID	**Matrix**	**Date Collected**	**Bottle Type**	**Asb_PLM**		
N018099-001G / Soil-IDW-01-5985	Soil	12/18/2015 12:00:00 PM	8OZG	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#:N18099A Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by:Normal TAT

Please analyze for Asbestos (EPA600/R-93-116).

		Date/Time			Date/Time
Relinquished by:		12/21/2015 1600	**Received by:**	GSO # 530352507	
Relinquished by:			**Received by:**		

CH2M HILL

Project: Topock RFI

Project No.: 666665.FP.FW

ASSET Laboratories Work Order: N018685

ANALYTICAL and QC RESULTS

SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

Table of Contents

ASSET Laboratories Work Order: N018685

March 02, 2016

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-00922

Workorder No.: N018685

RE: Topock RFI, 666665.FP.FW

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on February 05, 2016 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Glen Gesmundo
QA Manager

CLIENT: CH2M HILL
Project: Topock RFI, 666665.FP.FW
Lab Order: N018685

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Subcontracted Analyses:

Asbestos was subcontracted to AmeriSci Los Angeles-Carson,CA.

Analytical Comments for EPA 6010B:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes on QC samples N018684-001B-MS and N018684-001B-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 8082:

Matrix Spike Duplicate (MSD) is outside recovery criteria for Aroclor 1016 on QC sample N018683-007D-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 8260B:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes on QC samples N018705-001AMS and N018705-001A-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

RPD for Matrix Spike(MS) and Matrix Spike Duplicate(MSD) is outside criteria for some analytes ; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES
CALIFORNIA
11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F: 562.219.7436
NEVADA
3151 W. Post Rd., Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691

CLIENT:	CH2M HILL
Project:	Topock RFI, 666665.FP.FW
Lab Order:	N018685

CASE NARRATIVE

Analytical Comments for EPA 8270C:

Some analytes for sample N018685-001 and QC samples N0185577-005C-MS, N018577-005C-MSD were flagged A6L to indicate that concentrations reported are recovered low due to internal standard not meeting method recovery criteria possibly due to matrix interference.Samples were analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

Some surrogates and target analytes for the Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria on QC samples N018577-005C-MS and N018577-005C-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *02-Mar-16*

CLIENT: CH2M HILL
Project: Topock RFI, 666665.FP.FW
Lab Order: N018685
Contract No: 2015-RFISOIL-I

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N018685-001A	Soil-IDW-01-6666	Soil	2/3/2016 2:15:00 PM	2/5/2016	3/2/2016
N018685-001B	Soil-IDW-01-6666	Soil	2/3/2016 2:15:00 PM	2/5/2016	3/2/2016
N018685-001C	Soil-IDW-01-6666	Soil	2/3/2016 2:15:00 PM	2/5/2016	3/2/2016
N018685-001D	Soil-IDW-01-6666	Soil	2/3/2016 2:15:00 PM	2/5/2016	3/2/2016
N018685-001E	Soil-IDW-01-6666	Soil	2/3/2016 2:15:00 PM	2/5/2016	3/2/2016
N018685-001F	Soil-IDW-01-6666	Soil	2/3/2016 2:15:00 PM	2/5/2016	3/2/2016
N018685-001G	Soil-IDW-01-6666	Soil	2/3/2016 2:15:00 PM	2/5/2016	3/2/2016
N018685-001H	Soil-IDW-01-6666	Soil	2/3/2016 2:15:00 PM	2/5/2016	3/2/2016
N018685-001I	Soil-IDW-01-6666	Soil	2/3/2016 2:15:00 PM	2/5/2016	3/2/2016

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CALIFORNIA
11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F: 562.219.7436

NEVADA
3151 W. Post Rd., Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *02-Mar-16*

CLIENT: CH2M HILL
Lab Order: N018685
Project: Topock RFI, 666665.FP.FW
Lab ID: N018685-001

Client Sample ID: Soil-IDW-01-6666
Collection Date: 2/3/2016 2:15:00 PM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL METALS BY ICP							
	EPA 3050B			**EPA 6010B**			
RunID: **ICP2_160218B**	QC Batch: **56190**			PrepDate	**2/10/2016**		Analyst: **CEI**
Antimony	ND	0.069	2.0		mg/Kg-dry	1	2/18/2016 10:47 PM
Arsenic	4.1	0.052	1.0		mg/Kg-dry	1	2/18/2016 10:47 PM
Barium	150	0.0077	1.0		mg/Kg-dry	1	2/18/2016 10:47 PM
Beryllium	ND	0.016	1.0		mg/Kg-dry	1	2/18/2016 10:47 PM
Cadmium	ND	0.053	1.0		mg/Kg-dry	1	2/18/2016 10:47 PM
Chromium	30	0.065	1.0		mg/Kg-dry	1	2/18/2016 10:47 PM
Cobalt	5.2	0.026	1.0		mg/Kg-dry	1	2/18/2016 10:47 PM
Copper	13	0.038	2.0		mg/Kg-dry	1	2/18/2016 10:47 PM
Lead	7.2	0.035	1.0		mg/Kg-dry	1	2/18/2016 10:47 PM
Molybdenum	1.7	0.018	1.0		mg/Kg-dry	1	2/18/2016 10:47 PM
Nickel	9.0	0.013	1.0		mg/Kg-dry	1	2/18/2016 10:47 PM
Selenium	ND	0.068	1.0		mg/Kg-dry	1	2/18/2016 10:47 PM
Silver	ND	0.015	1.0		mg/Kg-dry	1	2/18/2016 10:47 PM
Thallium	ND	0.048	2.0		mg/Kg-dry	1	2/18/2016 10:47 PM
Vanadium	24	0.077	1.0		mg/Kg-dry	1	2/18/2016 10:47 PM
Zinc	46	0.083	1.0		mg/Kg-dry	1	2/18/2016 10:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID **MB-56190**	SampType: **MBLK**	TestCode: **6010_SPGE**	Units: **mg/Kg**	Prep Date: **2/10/2016**	RunNo: **105968**
Client ID: **PBS**	Batch ID: **56190**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **2/18/2016**	SeqNo: **2237446**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0									
Arsenic	ND	1.0									
Barium	0.068	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	1.0									
Cobalt	ND	1.0									
Copper	0.078	2.0									
Lead	ND	1.0									
Molybdenum	0.019	1.0									
Nickel	0.074	1.0									
Selenium	ND	1.0									
Silver	0.026	1.0									
Thallium	0.169	2.0									
Vanadium	ND	1.0									
Zinc	0.093	1.0									

Sample ID **LCS-56190**	SampType: **LCS**	TestCode: **6010_SPGE**	Units: **mg/Kg**	Prep Date: **2/10/2016**	RunNo: **105968**
Client ID: **LCSS**	Batch ID: **56190**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **2/18/2016**	SeqNo: **2237447**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	24.654	2.0	25.00	0	98.6	85	115				
Arsenic	24.632	1.0	25.00	0	98.5	85	115				
Barium	25.003	1.0	25.00	0	100	85	115				
Beryllium	24.915	1.0	25.00	0	99.7	85	115				
Cadmium	24.760	1.0	25.00	0	99.0	85	115				
Chromium	24.997	1.0	25.00	0	100	85	115				
Cobalt	25.677	1.0	25.00	0	103	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID **LCS-56190** SampType: **LCS** TestCode: **6010_SPGE** Units: **mg/Kg** Prep Date: **2/10/2016** RunNo: **105968**
Client ID: **LCSS** Batch ID: **56190** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **2/18/2016** SeqNo: **2237447**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	24.762	2.0	25.00	0	99.0	85	115				
Lead	24.581	1.0	25.00	0	98.3	85	115				
Molybdenum	24.538	1.0	25.00	0	98.2	85	115				
Nickel	25.920	1.0	25.00	0	104	85	115				
Selenium	24.376	1.0	25.00	0	97.5	85	115				
Silver	23.911	1.0	25.00	0	95.6	85	115				
Thallium	24.460	2.0	25.00	0	97.8	85	115				
Vanadium	24.548	1.0	25.00	0	98.2	85	115				
Zinc	25.443	1.0	25.00	0	102	85	115				

Sample ID **N018684-001B-MS** SampType: **MS** TestCode: **6010_SPGE** Units: **mg/Kg-dry** Prep Date: **2/10/2016** RunNo: **105968**
Client ID: **ZZZZZZ** Batch ID: **56190** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **2/18/2016** SeqNo: **2237451**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	13.716	2.4	30.08	0	45.6	75	125				S
Arsenic	29.783	1.2	30.08	5.547	80.6	75	125				
Barium	251.027	1.2	30.08	221.5	98.2	75	125				
Beryllium	24.670	1.2	30.08	0	82.0	75	125				
Cadmium	24.049	1.2	30.08	0.9100	76.9	75	125				
Chromium	65.556	1.2	30.08	41.82	78.9	75	125				
Cobalt	32.658	1.2	30.08	7.316	84.2	75	125				
Copper	45.674	2.4	30.08	17.70	93.0	75	125				
Lead	39.744	1.2	30.08	16.67	76.7	75	125				
Molybdenum	22.420	1.2	30.08	0	74.5	75	125				S
Nickel	39.164	1.2	30.08	13.91	84.0	75	125				
Selenium	16.864	1.2	30.08	0	56.1	75	125				S
Silver	24.174	1.2	30.08	0	80.4	75	125				
Thallium	19.877	2.4	30.08	0	66.1	75	125				S
Vanadium	58.828	1.2	30.08	28.14	102	75	125				
Zinc	86.801	1.2	30.08	60.64	87.0	75	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID **N018684-001B-MSD** SampType: **MSD** TestCode: **6010_SPGE** Units: **mg/Kg-dry** Prep Date: **2/10/2016** RunNo: **105968**
Client ID: **ZZZZZZ** Batch ID: **56190** TestNo: **EPA 6010B EPA 3050B** Analysis Date: **2/18/2016** SeqNo: **2237452**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	12.536	2.4	29.90	0	41.9	75	125	13.72	8.99	20	S
Arsenic	29.416	1.2	29.90	5.547	79.8	75	125	29.78	1.24	20	
Barium	245.056	1.2	29.90	221.5	78.8	75	125	251.0	2.41	20	
Beryllium	24.475	1.2	29.90	0	81.9	75	125	24.67	0.795	20	
Cadmium	23.962	1.2	29.90	0.9100	77.1	75	125	24.05	0.362	20	
Chromium	69.340	1.2	29.90	41.82	92.0	75	125	65.56	5.61	20	
Cobalt	32.462	1.2	29.90	7.316	84.1	75	125	32.66	0.602	20	
Copper	45.033	2.4	29.90	17.70	91.4	75	125	45.67	1.41	20	
Lead	38.631	1.2	29.90	16.67	73.5	75	125	39.74	2.84	20	S
Molybdenum	22.445	1.2	29.90	0	75.1	75	125	22.42	0.111	20	
Nickel	38.816	1.2	29.90	13.91	83.3	75	125	39.16	0.892	20	
Selenium	16.124	1.2	29.90	0	53.9	75	125	16.86	4.49	20	S
Silver	24.141	1.2	29.90	0	80.7	75	125	24.17	0.137	20	
Thallium	19.933	2.4	29.90	0	66.7	75	125	19.88	0.278	20	S
Vanadium	58.549	1.2	29.90	28.14	102	75	125	58.83	0.476	20	
Zinc	84.957	1.2	29.90	60.64	81.3	75	125	86.80	2.15	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6666
Lab Order:	N018685	**Collection Date:**	2/3/2016 2:15:00 PM
Project:	Topock RFI, 666665.FP.FW	**Matrix:**	SOIL
Lab ID:	N018685-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 3060A			**EPA 7199**				
RunID: **IC1_160223C**	QC Batch: **56328**			PrepDate	**2/20/2016**		Analyst: **RB**
Hexavalent Chromium	2.8	0.010	0.20		mg/Kg-dry	1	2/24/2016 04:27 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID	**MB-56328**	SampType:	**MBLK**	TestCode:	**7199_S_PGE**	Units:	**mg/Kg**	Prep Date:	**2/20/2016**	RunNo:	**106049**
Client ID:	**PBS**	Batch ID:	**56328**	TestNo:	**EPA 7199**		**EPA 3060A**	Analysis Date:	**2/24/2016**	SeqNo:	**2241918**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	**LCS-56328**	SampType:	**LCS**	TestCode:	**7199_S_PGE**	Units:	**mg/Kg**	Prep Date:	**2/20/2016**	RunNo:	**106049**
Client ID:	**LCSS**	Batch ID:	**56328**	TestNo:	**EPA 7199**		**EPA 3060A**	Analysis Date:	**2/24/2016**	SeqNo:	**2241919**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3.376	0.20	4.000	0	84.4	80	120				

Sample ID	**N018684-012AREP**	SampType:	**DUP**	TestCode:	**7199_S_PGE**	Units:	**mg/Kg-dry**	Prep Date:	**2/20/2016**	RunNo:	**106049**
Client ID:	**ZZZZZZ**	Batch ID:	**56328**	TestNo:	**EPA 7199**		**EPA 3060A**	Analysis Date:	**2/24/2016**	SeqNo:	**2241921**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.084	0.24						0.08605	0	20	

Sample ID	**N018684-012A-DUP**	SampType:	**DUP**	TestCode:	**7199_S_PGE**	Units:	**mg/Kg-dry**	Prep Date:	**2/20/2016**	RunNo:	**106049**
Client ID:	**ZZZZZZ**	Batch ID:	**56328**	TestNo:	**EPA 7199**		**EPA 3060A**	Analysis Date:	**2/24/2016**	SeqNo:	**2241924**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.223	0.24						0.08605	0	20	

Sample ID	**N018684-012A-MS**	SampType:	**MS**	TestCode:	**7199_S_PGE**	Units:	**mg/Kg-dry**	Prep Date:	**2/20/2016**	RunNo:	**106049**
Client ID:	**ZZZZZZ**	Batch ID:	**56328**	TestNo:	**EPA 7199**		**EPA 3060A**	Analysis Date:	**2/24/2016**	SeqNo:	**2241925**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3.990	0.24	4.891	0.08605	79.8	75	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID **N018684-012A-MSD**	SampType: **MSD**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/20/2016**	RunNo: **106049**
Client ID: **ZZZZZZ**	Batch ID: **56328**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/24/2016**	SeqNo: **2241926**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.335	0.24	4.887	0.08605	86.9	75	125	3.990	8.29	20	

Sample ID **N018684-012A-MS_I**	SampType: **MS**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/20/2016**	RunNo: **106049**
Client ID: **ZZZZZZ**	Batch ID: **56328**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/24/2016**	SeqNo: **2241927**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	666.888	12	802.5	0.08605	83.1	75	125				

Sample ID **N018685-001AREP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/20/2016**	RunNo: **106049**
Client ID: **ZZZZZZ**	Batch ID: **56328**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/24/2016**	SeqNo: **2241929**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.899	0.20						2.829	2.43	20	

Sample ID **N018686-001AREP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/20/2016**	RunNo: **106078**
Client ID: **ZZZZZZ**	Batch ID: **56328**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/24/2016**	SeqNo: **2243818**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.674	0.21						0.6710	0.368	20	

Sample ID **N018686-002AREP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/20/2016**	RunNo: **106078**
Client ID: **ZZZZZZ**	Batch ID: **56328**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/24/2016**	SeqNo: **2243820**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.114	0.21						0.1202	0	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID	N018686-003AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	2/20/2016	RunNo:	106078
Client ID:	ZZZZZZ	Batch ID:	56328	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	2/24/2016	SeqNo:	2243822

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.109	0.20						0.1149	0	20	

Sample ID	N018686-004AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	2/20/2016	RunNo:	106078
Client ID:	ZZZZZZ	Batch ID:	56328	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	2/24/2016	SeqNo:	2243824

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.237	0.25						0.2304	0	20	

Sample ID	N018686-005AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	2/20/2016	RunNo:	106078
Client ID:	ZZZZZZ	Batch ID:	56328	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	2/24/2016	SeqNo:	2243826

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.104	0.21						0.1138	0	20	

Sample ID	N018686-006AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	2/20/2016	RunNo:	106078
Client ID:	ZZZZZZ	Batch ID:	56328	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	2/24/2016	SeqNo:	2243830

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.062	0.21						0.06578	0	20	

Sample ID	N018686-007AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	2/20/2016	RunNo:	106078
Client ID:	ZZZZZZ	Batch ID:	56328	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	2/24/2016	SeqNo:	2243832

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.017	0.20						0.01820	0	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID **N018697-001AREP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/20/2016**	RunNo: **106078**
Client ID: **ZZZZZZ**	Batch ID: **56328**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/24/2016**	SeqNo: **2243834**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.132	0.20						0.1241	0	20	

Sample ID **N018697-002AREP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/20/2016**	RunNo: **106078**
Client ID: **ZZZZZZ**	Batch ID: **56328**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/24/2016**	SeqNo: **2243836**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.318	0.21						0.3205	0.870	20	

Sample ID **N018697-003AREP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/20/2016**	RunNo: **106078**
Client ID: **ZZZZZZ**	Batch ID: **56328**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/24/2016**	SeqNo: **2243838**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.235	0.21						0.2360	0.286	20	

Sample ID **N018697-004AREP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/20/2016**	RunNo: **106078**
Client ID: **ZZZZZZ**	Batch ID: **56328**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/24/2016**	SeqNo: **2243842**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.035	0.21						0.03628	0	20	

Sample ID **N018697-005AREP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/20/2016**	RunNo: **106078**
Client ID: **ZZZZZZ**	Batch ID: **56328**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/24/2016**	SeqNo: **2243844**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.036	0.21						0.03172	0	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID	N018697-006AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	2/20/2016	RunNo:	106078
Client ID:	ZZZZZZ	Batch ID:	56328	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	2/24/2016	SeqNo:	2243846

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.014	0.21						0.01412	0	20	

Sample ID	N018697-007AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	2/20/2016	RunNo:	106078
Client ID:	ZZZZZZ	Batch ID:	56328	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	2/24/2016	SeqNo:	2243848

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.014	0.20						0.01365	0	20	

Sample ID	N018697-008AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	2/20/2016	RunNo:	106078
Client ID:	ZZZZZZ	Batch ID:	56328	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	2/24/2016	SeqNo:	2243850

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.182	0.20						0.1265	0	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6666
Lab Order:	N018685	**Collection Date:**	2/3/2016 2:15:00 PM
Project:	Topock RFI, 666665.FP.FW	**Matrix:**	SOIL
Lab ID:	N018685-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7471A				
RunID: **AA1_160215B**	QC Batch: **56231**			PrepDate	**2/12/2016**		Analyst: **AM**
Mercury	ND	0.0032	0.10		mg/Kg-dry	1	2/15/2016 11:54 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S_PGE

Sample ID	**MB-56231**	SampType: **MBLK**	TestCode: **7471_S_PGE**	Units: **mg/Kg**	Prep Date: **2/12/2016**	RunNo: **105862**
Client ID:	**PBS**	Batch ID: **56231**	TestNo: **EPA 7471A**		Analysis Date: **2/15/2016**	SeqNo: **2231528**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.10									

Sample ID	**LCS-56231**	SampType: **LCS**	TestCode: **7471_S_PGE**	Units: **mg/Kg**	Prep Date: **2/12/2016**	RunNo: **105862**
Client ID:	**LCSS**	Batch ID: **56231**	TestNo: **EPA 7471A**		Analysis Date: **2/15/2016**	SeqNo: **2231529**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.426	0.10	0.4167	0	102	75	125				

Sample ID	**N018685-001B-MS**	SampType: **MS**	TestCode: **7471_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/12/2016**	RunNo: **105862**
Client ID:	**ZZZZZZ**	Batch ID: **56231**	TestNo: **EPA 7471A**		Analysis Date: **2/15/2016**	SeqNo: **2231531**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.440	0.10	0.4193	0.004432	104	75	125				

Sample ID	**N018685-001B-MSD**	SampType: **MSD**	TestCode: **7471_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/12/2016**	RunNo: **105862**
Client ID:	**ZZZZZZ**	Batch ID: **56231**	TestNo: **EPA 7471A**		Analysis Date: **2/15/2016**	SeqNo: **2231532**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.431	0.10	0.4186	0.004432	102	75	125	0.4403	2.17	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Lab Order: N018685
Project: Topock RFI, 666665.FP.FW
Lab ID: N018685-001

Client Sample ID: Soil-IDW-01-6666
Collection Date: 2/3/2016 2:15:00 PM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PCBS BY GC/ECD							
	EPA 3550B			**EPA 8082**			
RunID: **GC7_160212A**	QC Batch: **56205**			PrepDate	**2/11/2016**		Analyst: **MDM**
Aroclor 1016	ND	5.0	17		ug/Kg-dry	1	2/12/2016 07:20 PM
Aroclor 1221	ND	5.4	33		ug/Kg-dry	1	2/12/2016 07:20 PM
Aroclor 1232	ND	11	17		ug/Kg-dry	1	2/12/2016 07:20 PM
Aroclor 1242	ND	8.2	17		ug/Kg-dry	1	2/12/2016 07:20 PM
Aroclor 1248	ND	2.8	17		ug/Kg-dry	1	2/12/2016 07:20 PM
Aroclor 1254	130	5.0	17		ug/Kg-dry	1	2/12/2016 07:20 PM
Aroclor 1260	100	3.2	17		ug/Kg-dry	1	2/12/2016 07:20 PM
Surr: Decachlorobiphenyl	125	0	26-125		%REC	1	2/12/2016 07:20 PM
Surr: Tetrachloro-m-xylene	82.7	0	48-121		%REC	1	2/12/2016 07:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_S_PGE

Sample ID **LCS-56205_PCB**	SampType: **LCS**	TestCode: **8082_S_PGE**	Units: **ug/Kg**	Prep Date: **2/11/2016**	RunNo: **105931**
Client ID: **LCSS**	Batch ID: **56205**	TestNo: **EPA 8082**	**EPA 3550B**	Analysis Date: **2/12/2016**	SeqNo: **2235858**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	149.606	16	166.7	0	89.8	41	138				
Aroclor 1260	164.788	16	166.7	0	98.9	61	131				
Surr: Decachlorobiphenyl	16.562		16.67		99.4	26	125				
Surr: Tetrachloro-m-xylene	12.586		16.67		75.5	48	121				

Sample ID **MB-56205**	SampType: **MBLK**	TestCode: **8082_S_PGE**	Units: **ug/Kg**	Prep Date: **2/11/2016**	RunNo: **105931**
Client ID: **PBS**	Batch ID: **56205**	TestNo: **EPA 8082**	**EPA 3550B**	Analysis Date: **2/12/2016**	SeqNo: **2235859**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	16									
Aroclor 1221	ND	33									
Aroclor 1232	ND	16									
Aroclor 1242	ND	16									
Aroclor 1248	ND	16									
Aroclor 1254	ND	16									
Aroclor 1260	ND	16									
Surr: Decachlorobiphenyl	15.570		16.67		93.4	26	125				
Surr: Tetrachloro-m-xylene	12.756		16.67		76.5	48	121				

Sample ID **N018683-007D-MS**	SampType: **MS**	TestCode: **8082_S_PGE**	Units: **ug/Kg-dry**	Prep Date: **2/11/2016**	RunNo: **105931**
Client ID: **ZZZZZZ**	Batch ID: **56205**	TestNo: **EPA 8082**	**EPA 3550B**	Analysis Date: **2/12/2016**	SeqNo: **2235866**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	249.534	18	181.9	0	137	41	138				
Aroclor 1260	169.133	18	181.9	0	93.0	61	131				
Surr: Decachlorobiphenyl	18.083		18.19		99.4	26	125				
Surr: Tetrachloro-m-xylene	15.528		18.19		85.4	48	121				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_S_PGE

Sample ID	N018683-007D-MSD	SampType:	MSD	TestCode:	8082_S_PGE	Units:	ug/Kg-dry	Prep Date:	2/11/2016	RunNo:	105931
Client ID:	ZZZZZZ	Batch ID:	56205	TestNo:	EPA 8082	EPA 3550B		Analysis Date:	2/12/2016	SeqNo:	2235867

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	263.474	18	181.7	0	145	41	138	249.5	5.43	20	S
Aroclor 1260	142.089	18	181.7	0	78.2	61	131	169.1	17.4	20	
Surr: Decachlorobiphenyl	15.122		18.18		83.2	26	125		0		
Surr: Tetrachloro-m-xylene	14.978		18.18		82.4	48	121		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Lab Order: N018685
Project: Topock RFI, 666665.FP.FW
Lab ID: N018685-001

Client Sample ID: Soil-IDW-01-6666
Collection Date: 2/3/2016 2:15:00 PM
Matrix: SOIL

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **MS8_160211A** QC Batch: **R16VS025** PrepDate **2/11/2016** Analyst: **QBM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND	0.29	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
1,1,1-Trichloroethane	ND	0.18	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
1,1,2,2-Tetrachloroethane	ND	0.26	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
1,1,2-Trichloroethane	ND	0.39	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
1,1-Dichloroethane	ND	0.20	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
1,1-Dichloroethene	ND	0.52	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
1,1-Dichloropropene	ND	0.39	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
1,2,3-Trichlorobenzene	ND	0.095	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
1,2,3-Trichloropropane	ND	0.41	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
1,2,4-Trichlorobenzene	ND	0.22	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
1,2,4-Trimethylbenzene	ND	0.11	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
1,2-Dibromo-3-chloropropane	ND	0.77	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
1,2-Dibromoethane	ND	0.26	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
1,2-Dichlorobenzene	ND	0.19	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
1,2-Dichloroethane	ND	0.21	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
1,2-Dichloropropane	ND	0.40	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
1,3,5-Trimethylbenzene	ND	0.13	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
1,3-Dichlorobenzene	ND	0.21	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
1,3-Dichloropropane	ND	0.28	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
1,4-Dichlorobenzene	ND	0.16	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
2,2-Dichloropropane	ND	0.23	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
2-Butanone	ND	2.8	83		ug/Kg-dry	1	2/12/2016 12:34 AM
2-Chlorotoluene	ND	0.16	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
4-Chlorotoluene	ND	0.30	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
4-Isopropyltoluene	ND	0.16	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
4-Methyl-2-pentanone	ND	1.0	83		ug/Kg-dry	1	2/12/2016 12:34 AM
Acetone	ND	3.1	83		ug/Kg-dry	1	2/12/2016 12:34 AM
Acrolein	ND	7.7	170		ug/Kg-dry	1	2/12/2016 12:34 AM
Acrylonitrile	ND	2.7	83		ug/Kg-dry	1	2/12/2016 12:34 AM
Benzene	ND	0.19	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Bromobenzene	ND	0.46	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Bromochloromethane	ND	0.90	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Bromodichloromethane	ND	0.27	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Bromoform	ND	0.70	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Bromomethane	ND	0.60	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Carbon disulfide	ND	0.27	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike/Surrogate outside of limits due to matrix interference
- Results are wet unless otherwise specified
- DO Surrogate Diluted Out

CLIENT: CH2M HILL
Lab Order: N018685
Project: Topock RFI, 666665.FP.FW
Lab ID: N018685-001

Client Sample ID: Soil-IDW-01-6666
Collection Date: 2/3/2016 2:15:00 PM
Matrix: SOIL

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **MS8_160211A** QC Batch: **R16VS025** PrepDate **2/11/2016** Analyst: **QBM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Carbon tetrachloride	ND	0.28	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Chlorobenzene	ND	0.15	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Chloroethane	ND	0.82	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Chloroform	ND	0.24	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Chloromethane	ND	0.29	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
cis-1,2-Dichloroethene	ND	0.40	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
cis-1,3-Dichloropropene	ND	0.17	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Dibromochloromethane	ND	0.76	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Dibromomethane	ND	0.38	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Dichlorodifluoromethane	ND	0.31	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Ethylbenzene	ND	0.23	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Freon-113	ND	0.94	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Hexachlorobutadiene	ND	0.45	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Isopropylbenzene	ND	0.13	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
m,p-Xylene	ND	0.23	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Methylene chloride	ND	1.7	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
MTBE	ND	0.36	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
n-Butylbenzene	ND	0.16	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
n-Propylbenzene	ND	0.19	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Naphthalene	ND	0.18	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
o-Xylene	ND	0.090	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
sec-Butylbenzene	ND	0.15	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Styrene	ND	0.33	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
tert-Butylbenzene	ND	0.20	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Tetrachloroethene	ND	0.46	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Toluene	ND	0.16	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
trans-1,2-Dichloroethene	ND	0.35	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
trans-1,3-Dichloropropene	ND	0.13	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Trichloroethene	ND	0.18	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Trichlorofluoromethane	ND	1.0	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Vinyl chloride	ND	0.35	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Xylenes, Total	ND	0.23	8.3		ug/Kg-dry	1	2/12/2016 12:34 AM
Surr: 1,2-Dichloroethane-d4	120	0	52-149		%REC	1	2/12/2016 12:34 AM
Surr: 4-Bromofluorobenzene	93.7	0	65-135		%REC	1	2/12/2016 12:34 AM
Surr: Dibromofluoromethane	120	0	65-135		%REC	1	2/12/2016 12:34 AM
Surr: Toluene-d8	109	0	75-125		%REC	1	2/12/2016 12:34 AM

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike/Surrogate outside of limits due to matrix interference
- Results are wet unless otherwise specified
- DO Surrogate Diluted Out

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S_5035PGE

Sample ID **R160211LCS** SampType: **LCS** TestCode: **8260_S_5035** Units: **ug/Kg** Prep Date: RunNo: **105851**
Client ID: **LCSS** Batch ID: **R16VS025** TestNo: **EPA 8260B** Analysis Date: **2/11/2016** SeqNo: **2231040**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	40.700	5.0	40.00	0	102	74	125				
1,1,1-Trichloroethane	37.910	5.0	40.00	0	94.8	68	130				
1,1,2,2-Tetrachloroethane	39.810	5.0	40.00	0	99.5	59	140				
1,1,2-Trichloroethane	39.060	5.0	40.00	0	97.6	62	127				
1,1-Dichloroethane	37.700	5.0	40.00	0	94.3	73	125				
1,1-Dichloroethene	36.750	5.0	40.00	0	91.9	65	136				
1,1-Dichloropropene	39.510	5.0	40.00	0	98.8	70	135				
1,2,3-Trichlorobenzene	38.580	5.0	40.00	0	96.5	62	133				
1,2,3-Trichloropropane	39.290	5.0	40.00	0	98.2	63	130				
1,2,4-Trichlorobenzene	36.820	5.0	40.00	0	92.0	65	131				
1,2,4-Trimethylbenzene	41.930	5.0	40.00	0	105	65	135				
1,2-Dibromo-3-chloropropane	41.370	5.0	40.00	0	103	49	135				
1,2-Dibromoethane	39.910	5.0	40.00	0	99.8	70	124				
1,2-Dichlorobenzene	40.600	5.0	40.00	0	102	74	120				
1,2-Dichloroethane	38.350	5.0	40.00	0	95.9	72	137				
1,2-Dichloropropane	38.340	5.0	40.00	0	95.9	71	120				
1,3,5-Trimethylbenzene	42.010	5.0	40.00	0	105	65	133				
1,3-Dichlorobenzene	40.050	5.0	40.00	0	100	72	124				
1,3-Dichloropropane	40.890	5.0	40.00	0	102	76	123				
1,4-Dichlorobenzene	38.770	5.0	40.00	0	96.9	72	125				
2,2-Dichloropropane	36.130	5.0	40.00	0	90.3	67	134				
2-Butanone	373.090	50	400.0	0	93.3	40	135				
2-Chlorotoluene	41.840	5.0	40.00	0	105	69	128				
4-Chlorotoluene	41.690	5.0	40.00	0	104	73	126				
4-Isopropyltoluene	38.370	5.0	40.00	0	95.9	70	130				
4-Methyl-2-pentanone	428.420	50	400.0	0	107	65	135				
Acetone	354.870	50	400.0	0	88.7	40	141				
Acrolein	362.390	100	400.0	0	90.6	65	135				
Acrylonitrile	381.910	50	400.0	0	95.5	65	135				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S_5035PGE

Sample ID **R160211LCS**	SampType: **LCS**	TestCode: **8260_S_5035**	Units: **ug/Kg**	Prep Date:	RunNo: **105851**
Client ID: **LCSS**	Batch ID: **R16VS025**	TestNo: **EPA 8260B**		Analysis Date: **2/11/2016**	SeqNo: **2231040**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	38.900	5.0	40.00	0	97.3	73	126				
Bromobenzene	40.490	5.0	40.00	0	101	66	121				
Bromochloromethane	39.130	5.0	40.00	0	97.8	71	127				
Bromodichloromethane	38.100	5.0	40.00	0	95.2	72	128				
Bromoform	42.030	5.0	40.00	0	105	66	137				
Bromomethane	38.410	5.0	40.00	0	96.0	45	141				
Carbon disulfide	37.810	5.0	40.00	0	94.5	66	135				
Carbon tetrachloride	37.020	5.0	40.00	0	92.6	67	133				
Chlorobenzene	39.970	5.0	40.00	0	99.9	75	123				
Chloroethane	37.330	5.0	40.00	0	93.3	41	141				
Chloroform	37.170	5.0	40.00	0	92.9	72	124				
Chloromethane	38.030	5.0	40.00	0	95.1	51	129				
cis-1,2-Dichloroethene	37.930	5.0	40.00	0	94.8	67	125				
cis-1,3-Dichloropropene	37.800	5.0	40.00	0	94.5	72	126				
Dibromochloromethane	40.820	5.0	40.00	0	102	66	130				
Dibromomethane	39.220	5.0	40.00	0	98.0	73	128				
Dichlorodifluoromethane	38.780	5.0	40.00	0	97.0	34	136				
Ethylbenzene	40.080	5.0	40.00	0	100	74	127				
Freon-113	37.810	5.0	40.00	0	94.5	65	135				
Hexachlorobutadiene	37.000	5.0	40.00	0	92.5	53	142				
Isopropylbenzene	41.020	5.0	40.00	0	103	77	129				
m,p-Xylene	85.250	5.0	80.00	0	107	79	126				
Methylene chloride	39.040	5.0	40.00	0	97.6	63	137				
MTBE	38.380	5.0	40.00	0	96.0	50	135				
n-Butylbenzene	40.200	5.0	40.00	0	101	65	138				
n-Propylbenzene	41.700	5.0	40.00	0	104	63	135				
Naphthalene	36.560	5.0	40.00	0	91.4	51	135				
o-Xylene	37.310	5.0	40.00	0	93.3	77	125				
sec-Butylbenzene	41.710	5.0	40.00	0	104	63	132				
Styrene	39.470	5.0	40.00	0	98.7	74	128				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S_5035PGE

Sample ID **R160211LCS** SampType: **LCS** TestCode: **8260_S_5035** Units: **ug/Kg** Prep Date: RunNo: **105851**
Client ID: **LCSS** Batch ID: **R16VS025** TestNo: **EPA 8260B** Analysis Date: **2/11/2016** SeqNo: **2231040**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
tert-Butylbenzene	40.630	5.0	40.00	0	102	65	132				
Tetrachloroethene	40.470	5.0	40.00	0	101	67	139				
Toluene	39.660	5.0	40.00	0	99.2	71	127				
trans-1,2-Dichloroethene	37.130	5.0	40.00	0	92.8	66	134				
trans-1,3-Dichloropropene	40.080	5.0	40.00	0	100	65	127				
Trichloroethene	39.120	5.0	40.00	0	97.8	77	124				
Trichlorofluoromethane	37.390	5.0	40.00	0	93.5	49	139				
Vinyl chloride	37.680	5.0	40.00	0	94.2	58	126				
Xylenes, Total	122.560	5.0	120.0	0	102	65	125				
Surr: 1,2-Dichloroethane-d4	48.530		50.00		97.1	52	149				
Surr: 4-Bromofluorobenzene	53.250		50.00		106	65	135				
Surr: Dibromofluoromethane	48.440		50.00		96.9	65	135				
Surr: Toluene-d8	50.970		50.00		102	75	125				

Sample ID **R160211LCSD** SampType: **LCSD** TestCode: **8260_S_5035** Units: **ug/Kg** Prep Date: RunNo: **105851**
Client ID: **LCSS02** Batch ID: **R16VS025** TestNo: **EPA 8260B** Analysis Date: **2/11/2016** SeqNo: **2231041**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	41.820	5.0	40.00	0	105	74	125	40.70	2.71	30	
1,1,1-Trichloroethane	40.830	5.0	40.00	0	102	68	130	37.91	7.42	30	
1,1,2,2-Tetrachloroethane	41.360	5.0	40.00	0	103	59	140	39.81	3.82	30	
1,1,2-Trichloroethane	42.320	5.0	40.00	0	106	62	127	39.06	8.01	30	
1,1-Dichloroethane	41.950	5.0	40.00	0	105	73	125	37.70	10.7	30	
1,1-Dichloroethene	40.380	5.0	40.00	0	101	65	136	36.75	9.41	30	
1,1-Dichloropropene	41.800	5.0	40.00	0	104	70	135	39.51	5.63	30	
1,2,3-Trichlorobenzene	39.890	5.0	40.00	0	99.7	62	133	38.58	3.34	30	
1,2,3-Trichloropropane	44.110	5.0	40.00	0	110	63	130	39.29	11.6	30	
1,2,4-Trichlorobenzene	38.420	5.0	40.00	0	96.0	65	131	36.82	4.25	30	
1,2,4-Trimethylbenzene	43.230	5.0	40.00	0	108	65	135	41.93	3.05	30	
1,2-Dibromo-3-chloropropane	42.710	5.0	40.00	0	107	49	135	41.37	3.19	30	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S_5035PGE

Sample ID **R160211LCSD** SampType: **LCSD** TestCode: **8260_S_5035** Units: **ug/Kg** Prep Date: RunNo: **105851**
Client ID: **LCSS02** Batch ID: **R16VS025** TestNo: **EPA 8260B** Analysis Date: **2/11/2016** SeqNo: **2231041**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromoethane	42.340	5.0	40.00	0	106	70	124	39.91	5.91	30	
1,2-Dichlorobenzene	42.110	5.0	40.00	0	105	74	120	40.60	3.65	30	
1,2-Dichloroethane	40.940	5.0	40.00	0	102	72	137	38.35	6.53	30	
1,2-Dichloropropane	40.700	5.0	40.00	0	102	71	120	38.34	5.97	30	
1,3,5-Trimethylbenzene	43.100	5.0	40.00	0	108	65	133	42.01	2.56	30	
1,3-Dichlorobenzene	41.190	5.0	40.00	0	103	72	124	40.05	2.81	30	
1,3-Dichloropropane	42.650	5.0	40.00	0	107	76	123	40.89	4.21	30	
1,4-Dichlorobenzene	40.130	5.0	40.00	0	100	72	125	38.77	3.45	30	
2,2-Dichloropropane	39.250	5.0	40.00	0	98.1	67	134	36.13	8.28	30	
2-Butanone	435.210	50	400.0	0	109	40	135	373.1	15.4	30	
2-Chlorotoluene	43.060	5.0	40.00	0	108	69	128	41.84	2.87	30	
4-Chlorotoluene	43.190	5.0	40.00	0	108	73	126	41.69	3.53	30	
4-Isopropyltoluene	39.630	5.0	40.00	0	99.1	70	130	38.37	3.23	30	
4-Methyl-2-pentanone	461.730	50	400.0	0	115	65	135	428.4	7.48	30	
Acetone	418.070	50	400.0	0	105	40	141	354.9	16.4	30	
Acrolein	398.840	100	400.0	0	99.7	65	135	362.4	9.58	30	
Acrylonitrile	429.530	50	400.0	0	107	65	135	381.9	11.7	30	
Benzene	41.250	5.0	40.00	0	103	73	126	38.90	5.86	30	
Bromobenzene	42.070	5.0	40.00	0	105	66	121	40.49	3.83	30	
Bromochloromethane	42.640	5.0	40.00	0	107	71	127	39.13	8.59	30	
Bromodichloromethane	40.260	5.0	40.00	0	101	72	128	38.10	5.51	30	
Bromoform	42.720	5.0	40.00	0	107	66	137	42.03	1.63	30	
Bromomethane	41.480	5.0	40.00	0	104	45	141	38.41	7.69	30	
Carbon disulfide	41.480	5.0	40.00	0	104	66	135	37.81	9.26	30	
Carbon tetrachloride	39.230	5.0	40.00	0	98.1	67	133	37.02	5.80	30	
Chlorobenzene	40.770	5.0	40.00	0	102	75	123	39.97	1.98	30	
Chloroethane	43.090	5.0	40.00	0	108	41	141	37.33	14.3	30	
Chloroform	40.550	5.0	40.00	0	101	72	124	37.17	8.70	30	
Chloromethane	40.770	5.0	40.00	0	102	51	129	38.03	6.95	30	
cis-1,2-Dichloroethene	42.590	5.0	40.00	0	106	67	125	37.93	11.6	30	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S_5035PGE

Sample ID **R160211LCSD**	SampType: **LCSD**	TestCode: **8260_S_5035**	Units: **ug/Kg**	Prep Date:	RunNo: **105851**
Client ID: **LCSS02**	Batch ID: **R16VS025**	TestNo: **EPA 8260B**		Analysis Date: **2/11/2016**	SeqNo: **2231041**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
cis-1,3-Dichloropropene	40.670	5.0	40.00	0	102	72	126	37.80	7.31	30	
Dibromochloromethane	41.890	5.0	40.00	0	105	66	130	40.82	2.59	30	
Dibromomethane	41.540	5.0	40.00	0	104	73	128	39.22	5.75	30	
Dichlorodifluoromethane	41.330	5.0	40.00	0	103	34	136	38.78	6.37	30	
Ethylbenzene	40.980	5.0	40.00	0	102	74	127	40.08	2.22	30	
Freon-113	41.380	5.0	40.00	0	103	65	135	37.81	9.02	30	
Hexachlorobutadiene	38.230	5.0	40.00	0	95.6	53	142	37.00	3.27	30	
Isopropylbenzene	42.150	5.0	40.00	0	105	77	129	41.02	2.72	30	
m,p-Xylene	85.820	5.0	80.00	0	107	79	126	85.25	0.666	30	
Methylene chloride	43.130	5.0	40.00	0	108	63	137	39.04	9.95	30	
MTBE	42.540	5.0	40.00	0	106	50	135	38.38	10.3	30	
n-Butylbenzene	41.730	5.0	40.00	0	104	65	138	40.20	3.73	30	
n-Propylbenzene	42.910	5.0	40.00	0	107	63	135	41.70	2.86	30	
Naphthalene	38.260	5.0	40.00	0	95.7	51	135	36.56	4.54	30	
o-Xylene	37.980	5.0	40.00	0	95.0	77	125	37.31	1.78	30	
sec-Butylbenzene	43.300	5.0	40.00	0	108	63	132	41.71	3.74	30	
Styrene	39.970	5.0	40.00	0	99.9	74	128	39.47	1.26	30	
tert-Butylbenzene	42.170	5.0	40.00	0	105	65	132	40.63	3.72	30	
Tetrachloroethene	41.100	5.0	40.00	0	103	67	139	40.47	1.54	30	
Toluene	41.520	5.0	40.00	0	104	71	127	39.66	4.58	30	
trans-1,2-Dichloroethene	40.330	5.0	40.00	0	101	66	134	37.13	8.26	30	
trans-1,3-Dichloropropene	42.380	5.0	40.00	0	106	65	127	40.08	5.58	30	
Trichloroethene	41.750	5.0	40.00	0	104	77	124	39.12	6.50	30	
Trichlorofluoromethane	40.750	5.0	40.00	0	102	49	139	37.39	8.60	30	
Vinyl chloride	42.360	5.0	40.00	0	106	58	126	37.68	11.7	30	
Xylenes, Total	123.800	5.0	120.0	0	103	65	125	122.6	1.01	30	
Surr: 1,2-Dichloroethane-d4	53.810		50.00		108	52	149		0		
Surr: 4-Bromofluorobenzene	55.330		50.00		111	65	135		0		
Surr: Dibromofluoromethane	53.830		50.00		108	65	135		0		
Surr: Toluene-d8	54.110		50.00		108	75	125		0		

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S_5035PGE

Sample ID **R160211MB3**	SampType: **MBLK**	TestCode: **8260_S_5035**	Units: **ug/Kg**	Prep Date:	RunNo: **105851**
Client ID: **PBS**	Batch ID: **R16VS025**	TestNo: **EPA 8260B**		Analysis Date: **2/12/2016**	SeqNo: **2231042**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	5.0									
1,1,1-Trichloroethane	ND	5.0									
1,1,2,2-Tetrachloroethane	ND	5.0									
1,1,2-Trichloroethane	ND	5.0									
1,1-Dichloroethane	ND	5.0									
1,1-Dichloroethene	ND	5.0									
1,1-Dichloropropene	ND	5.0									
1,2,3-Trichlorobenzene	ND	5.0									
1,2,3-Trichloropropane	ND	5.0									
1,2,4-Trichlorobenzene	ND	5.0									
1,2,4-Trimethylbenzene	ND	5.0									
1,2-Dibromo-3-chloropropane	ND	5.0									
1,2-Dibromoethane	ND	5.0									
1,2-Dichlorobenzene	ND	5.0									
1,2-Dichloroethane	ND	5.0									
1,2-Dichloropropane	ND	5.0									
1,3,5-Trimethylbenzene	ND	5.0									
1,3-Dichlorobenzene	ND	5.0									
1,3-Dichloropropane	ND	5.0									
1,4-Dichlorobenzene	ND	5.0									
2,2-Dichloropropane	ND	5.0									
2-Butanone	ND	50									
2-Chlorotoluene	ND	5.0									
4-Chlorotoluene	ND	5.0									
4-Isopropyltoluene	ND	5.0									
4-Methyl-2-pentanone	ND	50									
Acetone	2.170	50									
Acrolein	ND	100									
Acrylonitrile	ND	50									
Benzene	ND	5.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S_5035PGE

Sample ID **R160211MB3** SampType: **MBLK** TestCode: **8260_S_5035** Units: **ug/Kg** Prep Date: RunNo: **105851**
Client ID: **PBS** Batch ID: **R16VS025** TestNo: **EPA 8260B** Analysis Date: **2/12/2016** SeqNo: **2231042**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromobenzene	ND	5.0									
Bromochloromethane	ND	5.0									
Bromodichloromethane	ND	5.0									
Bromoform	ND	5.0									
Bromomethane	0.690	5.0									
Carbon disulfide	ND	5.0									
Carbon tetrachloride	ND	5.0									
Chlorobenzene	ND	5.0									
Chloroethane	ND	5.0									
Chloroform	ND	5.0									
Chloromethane	ND	5.0									
cis-1,2-Dichloroethene	ND	5.0									
cis-1,3-Dichloropropene	ND	5.0									
Dibromochloromethane	ND	5.0									
Dibromomethane	ND	5.0									
Dichlorodifluoromethane	ND	5.0									
Ethylbenzene	ND	5.0									
Freon-113	ND	5.0									
Hexachlorobutadiene	ND	5.0									
Isopropylbenzene	ND	5.0									
m,p-Xylene	ND	5.0									
Methylene chloride	ND	5.0									
MTBE	ND	5.0									
n-Butylbenzene	ND	5.0									
n-Propylbenzene	ND	5.0									
Naphthalene	ND	5.0									
o-Xylene	ND	5.0									
sec-Butylbenzene	ND	5.0									
Styrene	ND	5.0									
tert-Butylbenzene	ND	5.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S_5035PGE

Sample ID **R160211MB3** SampType: **MBLK** TestCode: **8260_S_5035** Units: **ug/Kg** Prep Date: RunNo: **105851**
Client ID: **PBS** Batch ID: **R16VS025** TestNo: **EPA 8260B** Analysis Date: **2/12/2016** SeqNo: **2231042**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tetrachloroethene	ND	5.0									
Toluene	ND	5.0									
trans-1,2-Dichloroethene	ND	5.0									
trans-1,3-Dichloropropene	ND	5.0									
Trichloroethene	ND	5.0									
Trichlorofluoromethane	ND	5.0									
Vinyl chloride	ND	5.0									
Xylenes, Total	ND	5.0									
Surr: 1,2-Dichloroethane-d4	59.350		50.00		119	52	149				
Surr: 4-Bromofluorobenzene	47.170		50.00		94.3	65	135				
Surr: Dibromofluoromethane	60.500		50.00		121	65	135				
Surr: Toluene-d8	55.240		50.00		110	75	125				

Sample ID **N018705-001AMS** SampType: **MS** TestCode: **8260_S_5035** Units: **ug/Kg** Prep Date: RunNo: **105851**
Client ID: **ZZZZZZ** Batch ID: **R16VS025** TestNo: **EPA 8260B** Analysis Date: **2/12/2016** SeqNo: **2231054**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	16.650	5.0	40.00	0	41.6	74	125				S
1,1,1-Trichloroethane	22.310	5.0	40.00	0	55.8	68	130				S
1,1,2,2-Tetrachloroethane	21.270	5.0	40.00	0	53.2	59	140				S
1,1,2-Trichloroethane	21.290	5.0	40.00	0	53.2	62	127				S
1,1-Dichloroethane	26.600	5.0	40.00	0	66.5	73	125				S
1,1-Dichloroethene	26.260	5.0	40.00	0	65.6	65	136				
1,1-Dichloropropene	19.050	5.0	40.00	0	47.6	70	135				S
1,2,3-Trichlorobenzene	8.320	5.0	40.00	0	20.8	62	133				S
1,2,3-Trichloropropane	22.860	5.0	40.00	0	57.2	63	130				S
1,2,4-Trichlorobenzene	9.320	5.0	40.00	0	23.3	65	131				S
1,2,4-Trimethylbenzene	7.800	5.0	40.00	0	19.5	65	135				S
1,2-Dibromo-3-chloropropane	19.890	5.0	40.00	0	49.7	49	135				
1,2-Dibromoethane	19.850	5.0	40.00	0	49.6	70	124				S

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S_5035PGE

Sample ID **N018705-001AMS** SampType: **MS** TestCode: **8260_S_5035** Units: **ug/Kg** Prep Date: RunNo: **105851**
Client ID: **ZZZZZZ** Batch ID: **R16VS025** TestNo: **EPA 8260B** Analysis Date: **2/12/2016** SeqNo: **2231054**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichlorobenzene	10.030	5.0	40.00	0	25.1	74	120				S
1,2-Dichloroethane	25.650	5.0	40.00	0	64.1	72	137				S
1,2-Dichloropropane	22.140	5.0	40.00	0	55.4	71	120				S
1,3,5-Trimethylbenzene	7.840	5.0	40.00	0	19.6	65	133				S
1,3-Dichlorobenzene	9.730	5.0	40.00	0	24.3	72	124				S
1,3-Dichloropropane	22.570	5.0	40.00	0	56.4	76	123				S
1,4-Dichlorobenzene	9.770	5.0	40.00	0	24.4	72	125				S
2,2-Dichloropropane	22.370	5.0	40.00	0	55.9	67	134				S
2-Butanone	136.030	50	400.0	2.160	33.5	40	135				S
2-Chlorotoluene	11.120	5.0	40.00	0	27.8	69	128				S
4-Chlorotoluene	11.340	5.0	40.00	0	28.4	73	126				S
4-Isopropyltoluene	8.630	5.0	40.00	0	21.6	70	130				S
4-Methyl-2-pentanone	276.130	50	400.0	0	69.0	65	135				
Acetone	141.480	50	400.0	9.220	33.1	40	141				S
Acrolein	ND	100	400.0	0	0	65	135				S
Acrylonitrile	302.390	50	400.0	0	75.6	65	135				
Benzene	22.930	5.0	40.00	0	57.3	73	126				S
Bromobenzene	14.510	5.0	40.00	0	36.3	66	121				S
Bromochloromethane	26.550	5.0	40.00	0	66.4	71	127				S
Bromodichloromethane	21.420	5.0	40.00	0	53.6	72	128				S
Bromoform	17.370	5.0	40.00	0	43.4	66	137				S
Bromomethane	29.950	5.0	40.00	0.8600	72.7	45	141				
Carbon disulfide	24.830	5.0	40.00	0	62.1	66	135				S
Carbon tetrachloride	18.880	5.0	40.00	0	47.2	67	133				S
Chlorobenzene	15.430	5.0	40.00	0	38.6	75	123				S
Chloroethane	32.620	5.0	40.00	0	81.6	41	141				
Chloroform	25.110	5.0	40.00	0	62.8	72	124				S
Chloromethane	30.280	5.0	40.00	0	75.7	51	129				
cis-1,2-Dichloroethene	25.220	5.0	40.00	0	63.0	67	125				S
cis-1,3-Dichloropropene	18.640	5.0	40.00	0	46.6	72	126				S

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S_5035PGE

Sample ID **N018705-001AMS** SampType: **MS** TestCode: **8260_S_5035** Units: **ug/Kg** Prep Date: RunNo: **105851**
Client ID: **ZZZZZZ** Batch ID: **R16VS025** TestNo: **EPA 8260B** Analysis Date: **2/12/2016** SeqNo: **2231054**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibromochloromethane	20.090	5.0	40.00	0	50.2	66	130				S
Dibromomethane	24.070	5.0	40.00	0	60.2	73	128				S
Dichlorodifluoromethane	29.080	5.0	40.00	0	72.7	34	136				
Ethylbenzene	12.860	5.0	40.00	0	32.2	74	127				S
Freon-113	18.130	5.0	40.00	0	45.3	65	135				S
Hexachlorobutadiene	3.140	5.0	40.00	0	7.85	53	142				S
Isopropylbenzene	10.170	5.0	40.00	0	25.4	77	129				S
m,p-Xylene	24.990	5.0	80.00	0.8000	30.2	79	126				S
Methylene chloride	31.440	5.0	40.00	2.220	73.0	63	137				
MTBE	28.750	5.0	40.00	0	71.9	50	135				
n-Butylbenzene	5.280	5.0	40.00	0	13.2	65	138				S
n-Propylbenzene	9.760	5.0	40.00	0	24.4	63	135				S
Naphthalene	13.830	5.0	40.00	0	34.6	51	135				S
o-Xylene	13.050	5.0	40.00	3.880	22.9	77	125				S
sec-Butylbenzene	6.400	5.0	40.00	0	16.0	63	132				S
Styrene	12.700	5.0	40.00	3.110	24.0	74	128				S
tert-Butylbenzene	7.330	5.0	40.00	0	18.3	65	132				S
Tetrachloroethene	14.210	5.0	40.00	0	35.5	67	139				S
Toluene	18.080	5.0	40.00	1.280	42.0	71	127				S
trans-1,2-Dichloroethene	26.140	5.0	40.00	0	65.4	66	134				S
trans-1,3-Dichloropropene	19.720	5.0	40.00	0	49.3	65	127				S
Trichloroethene	18.990	5.0	40.00	0	47.5	77	124				S
Trichlorofluoromethane	24.230	5.0	40.00	0	60.6	49	139				
Vinyl chloride	31.650	5.0	40.00	0	79.1	58	126				
Xylenes, Total	38.040	5.0	120.0	4.680	27.8	65	125				S
Surr: 1,2-Dichloroethane-d4	56.560		50.00		113	52	149				
Surr: 4-Bromofluorobenzene	49.830		50.00		99.7	65	135				
Surr: Dibromofluoromethane	56.910		50.00		114	65	135				
Surr: Toluene-d8	49.220		50.00		98.4	75	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S_5035PGE

Sample ID **N018705-001AMSD** SampType: **MSD** TestCode: **8260_S_5035** Units: **ug/Kg** Prep Date: RunNo: **105851**
Client ID: **ZZZZZZ** Batch ID: **R16VS025** TestNo: **EPA 8260B** Analysis Date: **2/12/2016** SeqNo: **2231055**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	18.680	5.0	40.00	0	46.7	74	125	16.65	11.5	30	S
1,1,1-Trichloroethane	25.140	5.0	40.00	0	62.9	68	130	22.31	11.9	30	S
1,1,2,2-Tetrachloroethane	21.180	5.0	40.00	0	53.0	59	140	21.27	0.424	30	S
1,1,2-Trichloroethane	21.840	5.0	40.00	0	54.6	62	127	21.29	2.55	30	S
1,1-Dichloroethane	27.020	5.0	40.00	0	67.6	73	125	26.60	1.57	30	S
1,1-Dichloroethene	28.050	5.0	40.00	0	70.1	65	136	26.26	6.59	30	
1,1-Dichloropropene	22.600	5.0	40.00	0	56.5	70	135	19.05	17.0	30	S
1,2,3-Trichlorobenzene	9.780	5.0	40.00	0	24.4	62	133	8.320	16.1	30	S
1,2,3-Trichloropropane	23.590	5.0	40.00	0	59.0	63	130	22.86	3.14	30	S
1,2,4-Trichlorobenzene	10.730	5.0	40.00	0	26.8	65	131	9.320	14.1	30	S
1,2,4-Trimethylbenzene	10.990	5.0	40.00	0	27.5	65	135	7.800	34.0	30	SR
1,2-Dibromo-3-chloropropane	22.230	5.0	40.00	0	55.6	49	135	19.89	11.1	30	
1,2-Dibromoethane	19.980	5.0	40.00	0	50.0	70	124	19.85	0.653	30	S
1,2-Dichlorobenzene	12.070	5.0	40.00	0	30.2	74	120	10.03	18.5	30	S
1,2-Dichloroethane	25.690	5.0	40.00	0	64.2	72	137	25.65	0.156	30	S
1,2-Dichloropropane	22.750	5.0	40.00	0	56.9	71	120	22.14	2.72	30	S
1,3,5-Trimethylbenzene	11.300	5.0	40.00	0	28.3	65	133	7.840	36.2	30	SR
1,3-Dichlorobenzene	12.520	5.0	40.00	0	31.3	72	124	9.730	25.1	30	S
1,3-Dichloropropane	22.440	5.0	40.00	0	56.1	76	123	22.57	0.578	30	S
1,4-Dichlorobenzene	12.440	5.0	40.00	0	31.1	72	125	9.770	24.0	30	S
2,2-Dichloropropane	24.510	5.0	40.00	0	61.3	67	134	22.37	9.13	30	S
2-Butanone	131.120	50	400.0	2.160	32.2	40	135	136.0	3.68	30	S
2-Chlorotoluene	14.440	5.0	40.00	0	36.1	69	128	11.12	26.0	30	S
4-Chlorotoluene	14.720	5.0	40.00	0	36.8	73	126	11.34	25.9	30	S
4-Isopropyltoluene	10.920	5.0	40.00	0	27.3	70	130	8.630	23.4	30	S
4-Methyl-2-pentanone	275.420	50	400.0	0	68.9	65	135	276.1	0.257	30	
Acetone	140.920	50	400.0	9.220	32.9	40	141	141.5	0.397	30	S
Acrolein	ND	100	400.0	0	0	65	135	0	0	30	S
Acrylonitrile	308.030	50	400.0	0	77.0	65	135	302.4	1.85	30	
Benzene	24.420	5.0	40.00	0	61.0	73	126	22.93	6.29	30	S

Qualifiers:

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- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S_5035PGE

Sample ID **N018705-001AMSD** SampType: **MSD** TestCode: **8260_S_5035** Units: **ug/Kg** Prep Date: RunNo: **105851**
Client ID: **ZZZZZZ** Batch ID: **R16VS025** TestNo: **EPA 8260B** Analysis Date: **2/12/2016** SeqNo: **2231055**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromobenzene	16.810	5.0	40.00	0	42.0	66	121	14.51	14.7	30	S
Bromochloromethane	26.080	5.0	40.00	0	65.2	71	127	26.55	1.79	30	S
Bromodichloromethane	21.490	5.0	40.00	0	53.7	72	128	21.42	0.326	30	S
Bromoform	17.920	5.0	40.00	0	44.8	66	137	17.37	3.12	30	S
Bromomethane	28.460	5.0	40.00	0.8600	69.0	45	141	29.95	5.10	30	
Carbon disulfide	26.620	5.0	40.00	0	66.6	66	135	24.83	6.96	30	
Carbon tetrachloride	23.330	5.0	40.00	0	58.3	67	133	18.88	21.1	30	S
Chlorobenzene	17.630	5.0	40.00	0	44.1	75	123	15.43	13.3	30	S
Chloroethane	32.320	5.0	40.00	0	80.8	41	141	32.62	0.924	30	
Chloroform	25.660	5.0	40.00	0	64.2	72	124	25.11	2.17	30	S
Chloromethane	29.790	5.0	40.00	0	74.5	51	129	30.28	1.63	30	
cis-1,2-Dichloroethene	26.030	5.0	40.00	0	65.1	67	125	25.22	3.16	30	S
cis-1,3-Dichloropropene	19.980	5.0	40.00	0	50.0	72	126	18.64	6.94	30	S
Dibromochloromethane	20.220	5.0	40.00	0	50.6	66	130	20.09	0.645	30	S
Dibromomethane	23.780	5.0	40.00	0	59.4	73	128	24.07	1.21	30	S
Dichlorodifluoromethane	30.160	5.0	40.00	0	75.4	34	136	29.08	3.65	30	
Ethylbenzene	16.580	5.0	40.00	0	41.5	74	127	12.86	25.3	30	S
Freon-113	24.580	5.0	40.00	0	61.4	65	135	18.13	30.2	30	SR
Hexachlorobutadiene	4.960	5.0	40.00	0	12.4	53	142	3.140	0	30	S
Isopropylbenzene	14.230	5.0	40.00	0	35.6	77	129	10.17	33.3	30	SR
m,p-Xylene	33.250	5.0	80.00	0.8000	40.6	79	126	24.99	28.4	30	S
Methylene chloride	31.200	5.0	40.00	2.220	72.4	63	137	31.44	0.766	30	
MTBE	29.560	5.0	40.00	0	73.9	50	135	28.75	2.78	30	
n-Butylbenzene	7.760	5.0	40.00	0	19.4	65	138	5.280	38.0	30	SR
n-Propylbenzene	13.350	5.0	40.00	0	33.4	63	135	9.760	31.1	30	SR
Naphthalene	15.510	5.0	40.00	0	38.8	51	135	13.83	11.5	30	S
o-Xylene	15.690	5.0	40.00	3.880	29.5	77	125	13.05	18.4	30	S
sec-Butylbenzene	9.740	5.0	40.00	0	24.4	63	132	6.400	41.4	30	SR
Styrene	15.180	5.0	40.00	3.110	30.2	74	128	12.70	17.8	30	S
tert-Butylbenzene	10.530	5.0	40.00	0	26.3	65	132	7.330	35.8	30	SR

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S_5035PGE

Sample ID **N018705-001AMSD** SampType: **MSD** TestCode: **8260_S_5035** Units: **ug/Kg** Prep Date: RunNo: **105851**
Client ID: **ZZZZZZ** Batch ID: **R16VS025** TestNo: **EPA 8260B** Analysis Date: **2/12/2016** SeqNo: **2231055**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tetrachloroethene	18.980	5.0	40.00	0	47.4	67	139	14.21	28.7	30	S
Toluene	20.900	5.0	40.00	1.280	49.0	71	127	18.08	14.5	30	S
trans-1,2-Dichloroethene	27.390	5.0	40.00	0	68.5	66	134	26.14	4.67	30	
trans-1,3-Dichloropropene	20.030	5.0	40.00	0	50.1	65	127	19.72	1.56	30	S
Trichloroethene	21.680	5.0	40.00	0	54.2	77	124	18.99	13.2	30	S
Trichlorofluoromethane	27.120	5.0	40.00	0	67.8	49	139	24.23	11.3	30	
Vinyl chloride	32.200	5.0	40.00	0	80.5	58	126	31.65	1.72	30	
Xylenes, Total	48.940	5.0	120.0	4.680	36.9	65	125	38.04	25.1	30	S
Surr: 1,2-Dichloroethane-d4	55.870		50.00		112	52	149		0		
Surr: 4-Bromofluorobenzene	51.570		50.00		103	65	135		0		
Surr: Dibromofluoromethane	56.420		50.00		113	65	135		0		
Surr: Toluene-d8	50.740		50.00		101	75	125		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Lab Order: N018685
Project: Topock RFI, 666665.FP.FW
Lab ID: N018685-001

Client Sample ID: Soil-IDW-01-6666
Collection Date: 2/3/2016 2:15:00 PM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **MS3_160211C** QC Batch: **56158** PrepDate **2/8/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,2,4-Trichlorobenzene	ND	430	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
1,2,4-Trichlorobenzene	ND	43	330		ug/Kg-dry	1	2/9/2016 02:35 PM
1,2-Dichlorobenzene	ND	42	330		ug/Kg-dry	1	2/9/2016 02:35 PM
1,2-Dichlorobenzene	ND	420	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
1,3-Dichlorobenzene	ND	50	330		ug/Kg-dry	1	2/9/2016 02:35 PM
1,3-Dichlorobenzene	ND	500	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
1,4-Dichlorobenzene	ND	42	330		ug/Kg-dry	1	2/9/2016 02:35 PM
1,4-Dichlorobenzene	ND	420	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
2,4,5-Trichlorophenol	ND	410	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
2,4,5-Trichlorophenol	ND	41	330		ug/Kg-dry	1	2/9/2016 02:35 PM
2,4,6-Trichlorophenol	ND	400	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
2,4,6-Trichlorophenol	ND	40	330		ug/Kg-dry	1	2/9/2016 02:35 PM
2,4-Dichlorophenol	ND	410	17000		ug/Kg-dry	10	2/11/2016 05:00 PM
2,4-Dichlorophenol	ND	41	1700		ug/Kg-dry	1	2/9/2016 02:35 PM
2,4-Dimethylphenol	ND	91	330		ug/Kg-dry	1	2/9/2016 02:35 PM
2,4-Dimethylphenol	ND	910	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
2,4-Dinitrophenol	ND	270	17000		ug/Kg-dry	10	2/11/2016 05:00 PM
2,4-Dinitrophenol	ND	27	1700		ug/Kg-dry	1	2/9/2016 02:35 PM
2,4-Dinitrotoluene	ND	450	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
2,4-Dinitrotoluene	ND	45	330		ug/Kg-dry	1	2/9/2016 02:35 PM
2,6-Dinitrotoluene	ND	44	330		ug/Kg-dry	1	2/9/2016 02:35 PM
2,6-Dinitrotoluene	ND	440	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
2-Chloronaphthalene	ND	45	330		ug/Kg-dry	1	2/9/2016 02:35 PM
2-Chloronaphthalene	ND	450	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
2-Chlorophenol	ND	43	330		ug/Kg-dry	1	2/9/2016 02:35 PM
2-Chlorophenol	ND	430	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
2-Methylnaphthalene	ND	170	330		ug/Kg-dry	1	2/9/2016 02:35 PM
2-Methylnaphthalene	ND	1700	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
2-Methylphenol	ND	490	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
2-Methylphenol	ND	49	330		ug/Kg-dry	1	2/9/2016 02:35 PM
2-Nitroaniline	ND	54	1700		ug/Kg-dry	1	2/9/2016 02:35 PM
2-Nitroaniline	ND	540	17000		ug/Kg-dry	10	2/11/2016 05:00 PM
2-Nitrophenol	ND	45	330		ug/Kg-dry	1	2/9/2016 02:35 PM
2-Nitrophenol	ND	450	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
3,3´-Dichlorobenzidine	ND	250	6700		ug/Kg-dry	10	2/11/2016 05:00 PM
3,3´-Dichlorobenzidine	ND	25	670		ug/Kg-dry	1	2/9/2016 02:35 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N018685
Project: Topock RFI, 666665.FP.FW
Lab ID: N018685-001

Client Sample ID: Soil-IDW-01-6666
Collection Date: 2/3/2016 2:15:00 PM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **MS3_160211C** QC Batch: **56158** PrepDate **2/8/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
3-Nitroaniline	ND	490	17000		ug/Kg-dry	10	2/11/2016 05:00 PM
3-Nitroaniline	ND	49	1700		ug/Kg-dry	1	2/9/2016 02:35 PM
4,6-Dinitro-2-methylphenol	ND	530	17000		ug/Kg-dry	10	2/11/2016 05:00 PM
4,6-Dinitro-2-methylphenol	ND	53	1700		ug/Kg-dry	1	2/9/2016 02:35 PM
4-Bromophenyl-phenylether	ND	45	330		ug/Kg-dry	1	2/9/2016 02:35 PM
4-Bromophenyl-phenylether	ND	450	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
4-Chloro-3-methylphenol	ND	41	670		ug/Kg-dry	1	2/9/2016 02:35 PM
4-Chloro-3-methylphenol	ND	410	6700		ug/Kg-dry	10	2/11/2016 05:00 PM
4-Chloroaniline	ND	44	670		ug/Kg-dry	1	2/9/2016 02:35 PM
4-Chloroaniline	ND	440	6700		ug/Kg-dry	10	2/11/2016 05:00 PM
4-Chlorophenyl-phenylether	ND	46	330		ug/Kg-dry	1	2/9/2016 02:35 PM
4-Chlorophenyl-phenylether	ND	460	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
4-Methylphenol	ND	36	330		ug/Kg-dry	1	2/9/2016 02:35 PM
4-Methylphenol	ND	360	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
4-Nitroaniline	ND	470	17000		ug/Kg-dry	10	2/11/2016 05:00 PM
4-Nitroaniline	ND	47	1700		ug/Kg-dry	1	2/9/2016 02:35 PM
4-Nitrophenol	ND	360	17000		ug/Kg-dry	10	2/11/2016 05:00 PM
4-Nitrophenol	ND	36	1700		ug/Kg-dry	1	2/9/2016 02:35 PM
Acenaphthene	ND	410	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Acenaphthene	ND	41	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Acenaphthylene	ND	380	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Acenaphthylene	ND	38	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Anthracene	ND	650	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Anthracene	ND	65	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Benzo(a)anthracene	ND	760	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Benzo(a)anthracene	ND	76	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Benzo(a)pyrene	ND	65	330	A6L	ug/Kg-dry	1	2/9/2016 02:35 PM
Benzo(a)pyrene	ND	650	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Benzo(b)fluoranthene	ND	41	330	A6L	ug/Kg-dry	1	2/9/2016 02:35 PM
Benzo(b)fluoranthene	ND	410	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Benzo(g,h,i)perylene	ND	48	330	A6L	ug/Kg-dry	1	2/9/2016 02:35 PM
Benzo(g,h,i)perylene	ND	480	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Benzo(k)fluoranthene	ND	57	330	A6L	ug/Kg-dry	1	2/9/2016 02:35 PM
Benzo(k)fluoranthene	ND	570	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Benzoic acid	ND	1200	17000		ug/Kg-dry	10	2/11/2016 05:00 PM
Benzoic acid	ND	120	1700		ug/Kg-dry	1	2/9/2016 02:35 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N018685
Project: Topock RFI, 666665.FP.FW
Lab ID: N018685-001

Client Sample ID: Soil-IDW-01-6666
Collection Date: 2/3/2016 2:15:00 PM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **MS3_160211C** QC Batch: **56158** PrepDate **2/8/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Benzyl alcohol	ND	690	6700		ug/Kg-dry	10	2/11/2016 05:00 PM
Benzyl alcohol	ND	69	670		ug/Kg-dry	1	2/9/2016 02:35 PM
Bis(2-chloroethoxy)methane	ND	65	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Bis(2-chloroethoxy)methane	ND	650	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Bis(2-chloroethyl)ether	ND	63	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Bis(2-chloroethyl)ether	ND	630	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Bis(2-chloroisopropyl)ether	ND	57	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Bis(2-chloroisopropyl)ether	ND	570	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Bis(2-ethylhexyl)phthalate	ND	81	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Bis(2-ethylhexyl)phthalate	ND	810	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Butylbenzylphthalate	ND	68	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Butylbenzylphthalate	ND	680	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Chrysene	ND	81	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Chrysene	ND	810	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Di-n-butylphthalate	ND	41	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Di-n-butylphthalate	ND	410	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Di-n-octylphthalate	ND	52	330	A6L	ug/Kg-dry	1	2/9/2016 02:35 PM
Di-n-octylphthalate	ND	520	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Dibenz(a,h)anthracene	ND	940	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Dibenz(a,h)anthracene	ND	94	330	A6L	ug/Kg-dry	1	2/9/2016 02:35 PM
Dibenzofuran	ND	40	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Dibenzofuran	ND	400	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Diethylphthalate	ND	45	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Diethylphthalate	ND	450	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Dimethylphthalate	ND	430	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Dimethylphthalate	ND	43	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Fluoranthene	ND	620	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Fluoranthene	ND	62	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Fluorene	ND	460	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Fluorene	ND	46	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Hexachlorobenzene	ND	48	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Hexachlorobenzene	ND	480	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Hexachlorobutadiene	ND	61	670		ug/Kg-dry	1	2/9/2016 02:35 PM
Hexachlorobutadiene	ND	610	6700		ug/Kg-dry	10	2/11/2016 05:00 PM
Hexachloroethane	ND	42	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Hexachloroethane	ND	420	3300		ug/Kg-dry	10	2/11/2016 05:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N018685
Project: Topock RFI, 666665.FP.FW
Lab ID: N018685-001

Client Sample ID: Soil-IDW-01-6666
Collection Date: 2/3/2016 2:15:00 PM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **MS3_160211C** QC Batch: **56158** PrepDate **2/8/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Indeno(1,2,3-cd)pyrene	ND	40	330	A6L	ug/Kg-dry	1	2/9/2016 02:35 PM
Indeno(1,2,3-cd)pyrene	ND	400	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Isophorone	ND	590	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Isophorone	ND	59	330		ug/Kg-dry	1	2/9/2016 02:35 PM
N-Nitrosodi-n-propylamine	ND	47	330		ug/Kg-dry	1	2/9/2016 02:35 PM
N-Nitrosodi-n-propylamine	ND	470	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
N-Nitrosodiphenylamine	ND	48	330		ug/Kg-dry	1	2/9/2016 02:35 PM
N-Nitrosodiphenylamine	ND	480	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Naphthalene	ND	49	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Naphthalene	ND	490	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Nitrobenzene	ND	57	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Nitrobenzene	ND	570	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Pentachlorophenol	ND	35	1700		ug/Kg-dry	1	2/9/2016 02:35 PM
Pentachlorophenol	ND	350	17000		ug/Kg-dry	10	2/11/2016 05:00 PM
Phenanthrene	ND	84	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Phenanthrene	ND	840	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Phenol	ND	38	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Phenol	ND	380	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Pyrene	ND	470	3300		ug/Kg-dry	10	2/11/2016 05:00 PM
Pyrene	ND	47	330		ug/Kg-dry	1	2/9/2016 02:35 PM
Surr: 1,2-Dichlorobenzene-d4	65.6	0	25-110		%REC	10	2/11/2016 05:00 PM
Surr: 1,2-Dichlorobenzene-d4	69.1	0	25-110		%REC	1	2/9/2016 02:35 PM
Surr: 2,4,6-Tribromophenol	88.1	0	36-126		%REC	1	2/9/2016 02:35 PM
Surr: 2,4,6-Tribromophenol	63.5	0	36-126		%REC	10	2/11/2016 05:00 PM
Surr: 2-Chlorophenol-d4	74.1	0	30-100		%REC	1	2/9/2016 02:35 PM
Surr: 2-Chlorophenol-d4	67.6	0	30-100		%REC	10	2/11/2016 05:00 PM
Surr: 2-Fluorobiphenyl	78.3	0	43-125		%REC	1	2/9/2016 02:35 PM
Surr: 2-Fluorobiphenyl	79.8	0	43-125		%REC	10	2/11/2016 05:00 PM
Surr: 2-Fluorophenol	61.4	0	37-125		%REC	10	2/11/2016 05:00 PM
Surr: 2-Fluorophenol	71.7	0	37-125		%REC	1	2/9/2016 02:35 PM
Surr: 4-Terphenyl-d14	95.7	0	32-125		%REC	1	2/9/2016 02:35 PM
Surr: 4-Terphenyl-d14	91.4	0	32-125		%REC	10	2/11/2016 05:00 PM
Surr: Nitrobenzene-d5	74.1	0	37-125		%REC	1	2/9/2016 02:35 PM
Surr: Nitrobenzene-d5	60.9	0	37-125		%REC	10	2/11/2016 05:00 PM
Surr: Phenol-d5	62.8	0	40-125		%REC	10	2/11/2016 05:00 PM
Surr: Phenol-d5	75.3	0	40-125		%REC	1	2/9/2016 02:35 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **LCS-56158**	SampType: **LCS**	TestCode: **8270_S_PGE**	Units: **ug/Kg**	Prep Date: **2/8/2016**	RunNo: **105803**
Client ID: **LCSS**	Batch ID: **56158**	TestNo: **EPA 8270C**	**EPA 3550B**	Analysis Date: **2/9/2016**	SeqNo: **2229614**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	2431.333	330	3330	0	73.0	44	125				
1,2-Dichlorobenzene	2502.667	330	3330	0	75.2	45	125				
1,3-Dichlorobenzene	2377.333	330	3330	0	71.4	39	125				
1,4-Dichlorobenzene	2441.000	330	3330	0	73.3	35	125				
2,4,5-Trichlorophenol	2913.000	330	3330	0	87.5	49	125				
2,4,6-Trichlorophenol	2664.667	330	3330	0	80.0	43	125				
2,4-Dichlorophenol	2619.333	1600	3330	0	78.7	45	125				
2,4-Dimethylphenol	2751.000	330	3330	0	82.6	32	125				
2,4-Dinitrophenol	2059.000	1600	3330	0	61.8	25	132				
2,4-Dinitrotoluene	2922.000	330	3330	0	87.7	48	125				
2,6-Dinitrotoluene	2858.000	330	3330	0	85.8	48	125				
2-Chloronaphthalene	2466.000	330	3330	0	74.1	45	125				
2-Chlorophenol	2709.667	330	3330	0	81.4	44	125				
2-Methylnaphthalene	2503.667	330	3330	0	75.2	47	125				
2-Methylphenol	2845.333	330	3330	0	85.4	40	125				
2-Nitroaniline	2918.333	1600	3330	0	87.6	44	125				
2-Nitrophenol	2749.333	330	3330	0	82.6	42	125				
3,3´-Dichlorobenzidine	4586.000	660	6660	0	68.9	25	128				
3-Nitroaniline	2995.667	1600	3330	0	90.0	27	125				
4,6-Dinitro-2-methylphenol	2723.667	1600	3330	0	81.8	29	137				
4-Bromophenyl-phenylether	2885.667	330	3330	0	86.7	46	125				
4-Chloro-3-methylphenol	2922.667	660	3330	0	87.8	46	125				
4-Chloroaniline	2076.667	660	3330	0	62.4	10	125				
4-Chlorophenyl-phenylether	2700.667	330	3330	0	81.1	47	125				
4-Methylphenol	2768.333	330	3330	0	83.1	41	125				
4-Nitroaniline	3325.333	1600	3330	0	99.9	34	125				
4-Nitrophenol	2788.000	1600	3330	0	83.7	25	138				
Acenaphthene	2638.000	330	3330	0	79.2	46	125				
Acenaphthylene	2570.000	330	3330	0	77.2	44	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID	LCS-56158	SampType:	LCS	TestCode:	8270_S_PGE	Units:	ug/Kg	Prep Date:	2/8/2016	RunNo:	105803
Client ID:	LCSS	Batch ID:	56158	TestNo:	EPA 8270C	EPA 3550B		Analysis Date:	2/9/2016	SeqNo:	2229614

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Anthracene	2532.333	330	3330	0	76.0	53	125				
Benzo(a)anthracene	2993.000	330	3330	0	89.9	52	125				
Benzo(a)pyrene	2947.000	330	3330	0	88.5	50	125				
Benzo(b)fluoranthene	3338.000	330	3330	0	100	45	125				
Benzo(g,h,i)perylene	3157.000	330	3330	0	94.8	38	126				
Benzo(k)fluoranthene	2454.333	330	3330	0	73.7	45	125				
Benzoic acid	2155.667	1600	3330	0	64.7	25	125				
Benzyl alcohol	2610.000	660	3330	0	78.4	25	125				
Bis(2-chloroethoxy)methane	2657.000	330	3330	0	79.8	43	125				
Bis(2-chloroethyl)ether	2874.333	330	3330	0	86.3	38	125				
Bis(2-chloroisopropyl)ether	2644.333	330	3330	0	79.4	25	125				
Bis(2-ethylhexyl)phthalate	3123.333	330	3330	0	93.8	47	127				
Butylbenzylphthalate	3047.333	330	3330	0	91.5	49	125				
Chrysene	2851.667	330	3330	0	85.6	53	125				
Di-n-butylphthalate	2872.333	330	3330	0	86.3	56	125				
Di-n-octylphthalate	3051.667	330	3330	0	91.6	41	132				
Dibenz(a,h)anthracene	3376.333	330	3330	0	101	41	125				
Dibenzofuran	2612.667	330	3330	0	78.5	51	125				
Diethylphthalate	2878.333	330	3330	0	86.4	50	125				
Dimethylphthalate	2771.000	330	3330	0	83.2	49	125				
Fluoranthene	2858.333	330	3330	0	85.8	54	125				
Fluorene	2785.667	330	3330	0	83.7	49	125				
Hexachlorobenzene	2926.000	330	3330	0	87.9	47	125				
Hexachlorobutadiene	2648.000	660	3330	0	79.5	40	125				
Hexachloroethane	2407.000	330	3330	0	72.3	34	125				
Indeno(1,2,3-cd)pyrene	3012.000	330	3330	0	90.5	38	125				
Isophorone	3004.667	330	3330	0	90.2	43	125				
N-Nitrosodi-n-propylamine	2757.667	330	3330	0	82.8	40	125				
N-Nitrosodiphenylamine	2882.333	330	3330	0	86.6	49	125				
Naphthalene	2636.333	330	3330	0	79.2	40	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **LCS-56158**	SampType: **LCS**	TestCode: **8270_S_PGE**	Units: **ug/Kg**	Prep Date: **2/8/2016**	RunNo: **105803**
Client ID: **LCSS**	Batch ID: **56158**	TestNo: **EPA 8270C**	**EPA 3550B**	Analysis Date: **2/9/2016**	SeqNo: **2229614**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrobenzene	2554.333	330	3330	0	76.7	41	125				
Pentachlorophenol	2610.333	1600	3330	0	78.4	25	125				
Phenanthrene	2916.667	330	3330	0	87.6	50	125				
Phenol	2685.333	330	3330	0	80.6	39	125				
Pyrene	2832.333	330	3330	0	85.1	46	125				
Surr: 1,2-Dichlorobenzene-d4	2388.333		3330		71.7	25	110				
Surr: 2,4,6-Tribromophenol	2630.333		3330		79.0	36	126				
Surr: 2-Chlorophenol-d4	2529.333		3330		76.0	30	100				
Surr: 2-Fluorobiphenyl	2550.667		3330		76.6	43	125				
Surr: 2-Fluorophenol	2546.333		3330		76.5	37	125				
Surr: 4-Terphenyl-d14	2975.667		3330		89.4	32	125				
Surr: Nitrobenzene-d5	2610.000		3330		78.4	37	125				
Surr: Phenol-d5	2587.333		3330		77.7	40	125				

Sample ID **MB-56158**	SampType: **MBLK**	TestCode: **8270_S_PGE**	Units: **ug/Kg**	Prep Date: **2/8/2016**	RunNo: **105803**
Client ID: **PBS**	Batch ID: **56158**	TestNo: **EPA 8270C**	**EPA 3550B**	Analysis Date: **2/9/2016**	SeqNo: **2229615**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	330									
1,2-Dichlorobenzene	ND	330									
1,3-Dichlorobenzene	ND	330									
1,4-Dichlorobenzene	ND	330									
2,4,5-Trichlorophenol	ND	330									
2,4,6-Trichlorophenol	ND	330									
2,4-Dichlorophenol	ND	1600									
2,4-Dimethylphenol	ND	330									
2,4-Dinitrophenol	ND	1600									
2,4-Dinitrotoluene	ND	330									
2,6-Dinitrotoluene	ND	330									
2-Chloronaphthalene	ND	330									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **MB-56158**	SampType: **MBLK**	TestCode: **8270_S_PGE**	Units: **ug/Kg**	Prep Date: **2/8/2016**	RunNo: **105803**
Client ID: **PBS**	Batch ID: **56158**	TestNo: **EPA 8270C** **EPA 3550B**		Analysis Date: **2/9/2016**	SeqNo: **2229615**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Chlorophenol	ND	330									
2-Methylnaphthalene	ND	330									
2-Methylphenol	ND	330									
2-Nitroaniline	ND	1600									
2-Nitrophenol	ND	330									
3,3´-Dichlorobenzidine	ND	660									
3-Nitroaniline	ND	1600									
4,6-Dinitro-2-methylphenol	ND	1600									
4-Bromophenyl-phenylether	ND	330									
4-Chloro-3-methylphenol	ND	660									
4-Chloroaniline	ND	660									
4-Chlorophenyl-phenylether	ND	330									
4-Methylphenol	ND	330									
4-Nitroaniline	ND	1600									
4-Nitrophenol	ND	1600									
Acenaphthene	ND	330									
Acenaphthylene	ND	330									
Anthracene	ND	330									
Benzo(a)anthracene	ND	330									
Benzo(a)pyrene	ND	330									
Benzo(b)fluoranthene	ND	330									
Benzo(g,h,i)perylene	ND	330									
Benzo(k)fluoranthene	ND	330									
Benzoic acid	ND	1600									
Benzyl alcohol	ND	660									
Bis(2-chloroethoxy)methane	ND	330									
Bis(2-chloroethyl)ether	ND	330									
Bis(2-chloroisopropyl)ether	ND	330									
Bis(2-ethylhexyl)phthalate	ND	330									
Butylbenzylphthalate	ND	330									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **MB-56158**	SampType: **MBLK**	TestCode: **8270_S_PGE**	Units: **ug/Kg**	Prep Date: **2/8/2016**	RunNo: **105803**
Client ID: **PBS**	Batch ID: **56158**	TestNo: **EPA 8270C**	**EPA 3550B**	Analysis Date: **2/9/2016**	SeqNo: **2229615**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chrysene	ND	330									
Di-n-butylphthalate	ND	330									
Di-n-octylphthalate	ND	330									
Dibenz(a,h)anthracene	ND	330									
Dibenzofuran	ND	330									
Diethylphthalate	ND	330									
Dimethylphthalate	ND	330									
Fluoranthene	ND	330									
Fluorene	ND	330									
Hexachlorobenzene	ND	330									
Hexachlorobutadiene	ND	660									
Hexachloroethane	ND	330									
Indeno(1,2,3-cd)pyrene	ND	330									
Isophorone	ND	330									
N-Nitrosodi-n-propylamine	ND	330									
N-Nitrosodiphenylamine	ND	330									
Naphthalene	ND	330									
Nitrobenzene	ND	330									
Pentachlorophenol	ND	1600									
Phenanthrene	ND	330									
Phenol	ND	330									
Pyrene	ND	330									
Surr: 1,2-Dichlorobenzene-d4	2336.333		3330		70.2	25	110				
Surr: 2,4,6-Tribromophenol	2051.667		3330		61.6	36	126				
Surr: 2-Chlorophenol-d4	2411.333		3330		72.4	30	100				
Surr: 2-Fluorobiphenyl	2406.333		3330		72.3	43	125				
Surr: 2-Fluorophenol	2395.000		3330		71.9	37	125				
Surr: 4-Terphenyl-d14	2866.667		3330		86.1	32	125				
Surr: Nitrobenzene-d5	2485.667		3330		74.6	37	125				
Surr: Phenol-d5	2454.667		3330		73.7	40	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID	N018577-005C-MS	SampType:	MS	TestCode:	8270_S_PGE	Units:	ug/Kg-dry	Prep Date:	2/8/2016	RunNo:	105803
Client ID:	ZZZZZZ	Batch ID:	56158	TestNo:	EPA 8270C	EPA 3550B		Analysis Date:	2/9/2016	SeqNo:	2229631

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	2079.410	340	3443	0	60.4	44	125				
1,2-Dichlorobenzene	2045.632	340	3443	0	59.4	45	125				
1,3-Dichlorobenzene	1911.210	340	3443	0	55.5	39	125				
1,4-Dichlorobenzene	1969.804	340	3443	0	57.2	35	125				
2,4,5-Trichlorophenol	3286.453	340	3443	0	95.4	49	125				
2,4,6-Trichlorophenol	2932.475	340	3443	0	85.2	43	125				
2,4-Dichlorophenol	2594.006	1700	3443	0	75.3	45	125				
2,4-Dimethylphenol	2676.038	340	3443	0	77.7	32	125				
2,4-Dinitrophenol	1369.040	1700	3443	0	39.8	25	132				
2,4-Dinitrotoluene	2657.771	340	3443	0	77.2	48	125				
2,6-Dinitrotoluene	2675.694	340	3443	0	77.7	48	125				
2-Chloronaphthalene	2335.846	340	3443	0	67.8	45	125				
2-Chlorophenol	2323.093	340	3443	0	67.5	44	125				
2-Methylnaphthalene	2285.179	340	3443	0	66.4	47	125				
2-Methylphenol	2588.836	340	3443	0	75.2	40	125				
2-Nitroaniline	2828.383	1700	3443	0	82.1	44	125				
2-Nitrophenol	2225.896	340	3443	0	64.6	42	125				
3,3´-Dichlorobenzidine	2280.699	680	6887	0	33.1	25	128				A6L
3-Nitroaniline	2993.137	1700	3443	0	86.9	27	125				
4,6-Dinitro-2-methylphenol	434.287	1700	3443	0	12.6	29	137				S
4-Bromophenyl-phenylether	2899.731	340	3443	0	84.2	46	125				
4-Chloro-3-methylphenol	3082.752	680	3443	0	89.5	46	125				
4-Chloroaniline	1390.065	680	3443	0	40.4	10	125				
4-Chlorophenyl-phenylether	2757.381	340	3443	0	80.1	47	125				
4-Methylphenol	2527.484	340	3443	0	73.4	41	125				
4-Nitroaniline	2667.077	1700	3443	0	77.5	34	125				
4-Nitrophenol	2777.027	1700	3443	0	80.7	25	138				
Acenaphthene	2648.120	340	3443	0	76.9	46	125				
Acenaphthylene	2536.446	340	3443	0	73.7	44	125				
Anthracene	2543.339	340	3443	0	73.9	53	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N018577-005C-MS** SampType: **MS** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **2/8/2016** RunNo: **105803**
Client ID: **ZZZZZZ** Batch ID: **56158** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **2/9/2016** SeqNo: **2229631**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)anthracene	3098.607	340	3443	0	90.0	52	125				A6L
Benzo(a)pyrene	3275.424	340	3443	0	95.1	50	125				A6L
Benzo(b)fluoranthene	4652.391	340	3443	0	135	45	125				SA6L
Benzo(g,h,i)perylene	768.275	340	3443	0	22.3	38	126				SA6L
Benzo(k)fluoranthene	5360.693	340	3443	156.2	151	45	125				SA6L
Benzoic acid	3090.335	1700	3443	0	89.7	25	125				
Benzyl alcohol	2233.823	680	3443	0	64.9	25	125				
Bis(2-chloroethoxy)methane	2197.633	340	3443	0	63.8	43	125				
Bis(2-chloroethyl)ether	2254.848	340	3443	0	65.5	38	125				
Bis(2-chloroisopropyl)ether	2110.775	340	3443	0	61.3	25	125				
Bis(2-ethylhexyl)phthalate	7820.622	340	3443	0	227	47	127				SEA6L
Butylbenzylphthalate	7542.471	340	3443	0	219	49	125				SEA6L
Chrysene	2937.300	340	3443	0	85.3	53	125				A6L
Di-n-butylphthalate	2761.862	340	3443	0	80.2	56	125				
Di-n-octylphthalate	26664.563	340	3443	0	774	41	132				SEA6L
Dibenz(a,h)anthracene	1057.456	340	3443	0	30.7	41	125				SA6L
Dibenzofuran	2651.566	340	3443	0	77.0	51	125				
Diethylphthalate	2699.476	340	3443	0	78.4	50	125				
Dimethylphthalate	2570.568	340	3443	0	74.7	49	125				
Fluoranthene	2067.691	340	3443	0	60.1	54	125				
Fluorene	2878.706	340	3443	0	83.6	49	125				
Hexachlorobenzene	2996.928	340	3443	0	87.0	47	125				
Hexachlorobutadiene	2342.050	680	3443	0	68.0	40	125				
Hexachloroethane	1409.022	340	3443	0	40.9	34	125				
Indeno(1,2,3-cd)pyrene	899.596	340	3443	0	26.1	38	125				SA6L
Isophorone	2689.825	340	3443	0	78.1	43	125				
N-Nitrosodi-n-propylamine	2241.061	340	3443	0	65.1	40	125				
N-Nitrosodiphenylamine	2770.823	340	3443	0	80.5	49	125				
Naphthalene	2296.209	340	3443	0	66.7	40	125				
Nitrobenzene	2125.596	340	3443	0	61.7	41	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N018577-005C-MS** SampType: **MS** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **2/8/2016** RunNo: **105803**
Client ID: **ZZZZZZ** Batch ID: **56158** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **2/9/2016** SeqNo: **2229631**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pentachlorophenol	3303.342	1700	3443	0	95.9	25	125				
Phenanthrene	2940.057	340	3443	0	85.4	50	125				
Phenol	2351.701	340	3443	0	68.3	39	125				
Pyrene	1785.404	340	3443	0	51.9	46	125				
Surr: 1,2-Dichlorobenzene-d4	1958.085		3443		56.9	25	110				
Surr: 2,4,6-Tribromophenol	3128.593		3443		90.9	36	126				
Surr: 2-Chlorophenol-d4	2211.764		3443		64.2	30	100				
Surr: 2-Fluorobiphenyl	2391.683		3443		69.5	43	125				
Surr: 2-Fluorophenol	2167.646		3443		63.0	37	125				
Surr: 4-Terphenyl-d14	8623.019		3443		250	32	125				SEA6L
Surr: Nitrobenzene-d5	2180.054		3443		63.3	37	125				
Surr: Phenol-d5	2278.975		3443		66.2	40	125				

Sample ID **N018577-005C-MSD** SampType: **MSD** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **2/8/2016** RunNo: **105803**
Client ID: **ZZZZZZ** Batch ID: **56158** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **2/9/2016** SeqNo: **2229632**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	2208.569	340	3441	0	64.2	44	125	2079	6.02	30	
1,2-Dichlorobenzene	2228.203	340	3441	0	64.8	45	125	2046	8.54	30	
1,3-Dichlorobenzene	2107.648	340	3441	0	61.3	39	125	1911	9.78	30	
1,4-Dichlorobenzene	2156.558	340	3441	0	62.7	35	125	1970	9.05	30	
2,4,5-Trichlorophenol	3089.311	340	3441	0	89.8	49	125	3286	6.18	30	
2,4,6-Trichlorophenol	2799.634	340	3441	0	81.4	43	125	2932	4.63	30	
2,4-Dichlorophenol	2545.090	1700	3441	0	74.0	45	125	2594	1.90	30	
2,4-Dimethylphenol	2630.512	340	3441	0	76.4	32	125	2676	1.72	30	
2,4-Dinitrophenol	1359.862	1700	3441	0	39.5	25	132	1369	0	30	
2,4-Dinitrotoluene	2558.179	340	3441	0	74.3	48	125	2658	3.82	30	
2,6-Dinitrotoluene	2536.479	340	3441	0	73.7	48	125	2676	5.34	30	
2-Chloronaphthalene	2298.469	340	3441	0	66.8	45	125	2336	1.61	30	
2-Chlorophenol	2409.035	340	3441	0	70.0	44	125	2323	3.63	30	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N018577-005C-MSD** SampType: **MSD** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **2/8/2016** RunNo: **105803**
Client ID: **ZZZZZZ** Batch ID: **56158** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **2/9/2016** SeqNo: **2229632**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	2338.080	340	3441	0	67.9	47	125	2285	2.29	30	
2-Methylphenol	2607.435	340	3441	0	75.8	40	125	2589	0.716	30	
2-Nitroaniline	2730.745	1700	3441	0	79.4	44	125	2828	3.51	30	
2-Nitrophenol	2350.824	340	3441	0	68.3	42	125	2226	5.46	30	
3,3´-Dichlorobenzidine	2725.923	680	6882	0	39.6	25	128	2281	17.8	30	A6L
3-Nitroaniline	2916.744	1700	3441	0	84.8	27	125	2993	2.59	30	
4,6-Dinitro-2-methylphenol	396.454	1700	3441	0	11.5	29	137	434.3	0	30	S
4-Bromophenyl-phenylether	2734.879	340	3441	0	79.5	46	125	2900	5.85	30	
4-Chloro-3-methylphenol	2949.811	680	3441	0	85.7	46	125	3083	4.41	30	
4-Chloroaniline	1506.939	680	3441	0	43.8	10	125	1390	8.07	30	
4-Chlorophenyl-phenylether	2625.001	340	3441	0	76.3	47	125	2757	4.92	30	
4-Methylphenol	2513.057	340	3441	0	73.0	41	125	2527	0.572	30	
4-Nitroaniline	2669.434	1700	3441	0	77.6	34	125	2667	0.0884	30	
4-Nitrophenol	2615.012	1700	3441	0	76.0	25	138	2777	6.01	30	
Acenaphthene	2553.701	340	3441	0	74.2	46	125	2648	3.63	30	
Acenaphthylene	2462.768	340	3441	0	71.6	44	125	2536	2.95	30	
Anthracene	2382.513	340	3441	0	69.2	53	125	2543	6.53	30	
Benzo(a)anthracene	2883.334	340	3441	0	83.8	52	125	3099	7.20	30	A6L
Benzo(a)pyrene	3062.444	340	3441	0	89.0	50	125	3275	6.72	30	A6L
Benzo(b)fluoranthene	4323.795	340	3441	0	126	45	125	4652	7.32	30	SA6L
Benzo(g,h,i)perylene	787.053	340	3441	0	22.9	38	126	768.3	2.41	30	SA6L
Benzo(k)fluoranthene	5180.425	340	3441	156.2	146	45	125	5361	3.42	30	SA6L
Benzoic acid	3191.266	1700	3441	0	92.7	25	125	3090	3.21	30	
Benzyl alcohol	2308.113	680	3441	0	67.1	25	125	2234	3.27	30	
Bis(2-chloroethoxy)methane	2297.780	340	3441	0	66.8	43	125	2198	4.46	30	
Bis(2-chloroethyl)ether	2391.469	340	3441	0	69.5	38	125	2255	5.88	30	
Bis(2-chloroisopropyl)ether	2227.169	340	3441	0	64.7	25	125	2111	5.37	30	
Bis(2-ethylhexyl)phthalate	7663.515	340	3441	0	223	47	127	7821	2.03	30	SEA6L
Butylbenzylphthalate	7347.317	340	3441	0	214	49	125	7542	2.62	30	SEA6L
Chrysene	2751.412	340	3441	0	80.0	53	125	2937	6.54	30	A6L

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID	N018577-005C-MSD	SampType:	MSD	TestCode:	8270_S_PGE	Units:	ug/Kg-dry	Prep Date:	2/8/2016	RunNo:	105803
Client ID:	ZZZZZZ	Batch ID:	56158	TestNo:	EPA 8270C	EPA 3550B		Analysis Date:	2/9/2016	SeqNo:	2229632

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Di-n-butylphthalate	2690.445	340	3441	0	78.2	56	125	2762	2.62	30	
Di-n-octylphthalate	26998.831	340	3441	0	785	41	132	26660	1.25	30	SEA6L
Dibenz(a,h)anthracene	1026.096	340	3441	0	29.8	41	125	1057	3.01	30	SA6L
Dibenzofuran	2563.001	340	3441	0	74.5	51	125	2652	3.40	30	
Diethylphthalate	2594.001	340	3441	0	75.4	50	125	2699	3.99	30	
Dimethylphthalate	2488.602	340	3441	0	72.3	49	125	2571	3.24	30	
Fluoranthene	1986.404	340	3441	0	57.7	54	125	2068	4.01	30	
Fluorene	2750.034	340	3441	0	79.9	49	125	2879	4.57	30	
Hexachlorobenzene	2792.056	340	3441	0	81.1	47	125	2997	7.08	30	
Hexachlorobutadiene	2466.213	680	3441	0	71.7	40	125	2342	5.16	30	
Hexachloroethane	1540.694	340	3441	0	44.8	34	125	1409	8.93	30	
Indeno(1,2,3-cd)pyrene	877.297	340	3441	0	25.5	38	125	899.6	2.51	30	SA6L
Isophorone	2737.290	340	3441	0	79.5	43	125	2690	1.75	30	
N-Nitrosodi-n-propylamine	2322.925	340	3441	0	67.5	40	125	2241	3.59	30	
N-Nitrosodiphenylamine	2615.701	340	3441	0	76.0	49	125	2771	5.76	30	
Naphthalene	2412.135	340	3441	0	70.1	40	125	2296	4.92	30	
Nitrobenzene	2296.747	340	3441	0	66.7	41	125	2126	7.74	30	
Pentachlorophenol	2996.655	1700	3441	0	87.1	25	125	3303	9.74	30	
Phenanthrene	2764.501	340	3441	0	80.3	50	125	2940	6.15	30	
Phenol	2396.291	340	3441	0	69.6	39	125	2352	1.88	30	
Pyrene	1722.560	340	3441	0	50.1	46	125	1785	3.58	30	
Surr: 1,2-Dichlorobenzene-d4	2088.014		3441		60.7	25	110		0	30	
Surr: 2,4,6-Tribromophenol	2834.767		3441		82.4	36	126		0	30	
Surr: 2-Chlorophenol-d4	2257.825		3441		65.6	30	100		0	30	
Surr: 2-Fluorobiphenyl	2327.402		3441		67.6	43	125		0	30	
Surr: 2-Fluorophenol	2247.491		3441		65.3	37	125		0	30	
Surr: 4-Terphenyl-d14	8077.536		3441		235	32	125		0	30	SEA6L
Surr: Nitrobenzene-d5	2294.680		3441		66.7	37	125		0	30	
Surr: Phenol-d5	2268.847		3441		65.9	40	125		0	30	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N018577-005C-MS** SampType: **MS** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **2/8/2016** RunNo: **105829**
Client ID: **ZZZZZZ** Batch ID: **56158** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **2/11/2016** SeqNo: **2229954**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	2354.114	3400	3443	0	68.4	44	125				
1,2-Dichlorobenzene	2164.544	3400	3443	0	62.9	45	125				
1,3-Dichlorobenzene	1971.527	3400	3443	0	57.3	39	125				
1,4-Dichlorobenzene	2154.204	3400	3443	0	62.6	35	125				
2,4,5-Trichlorophenol	3040.012	3400	3443	0	88.3	49	125				
2,4,6-Trichlorophenol	2819.422	3400	3443	0	81.9	43	125				
2,4-Dichlorophenol	2764.274	17000	3443	0	80.3	45	125				
2,4-Dimethylphenol	2760.828	3400	3443	0	80.2	32	125				
2,4-Dinitrophenol	ND	17000	3443	0	0	25	132				S
2,4-Dinitrotoluene	2678.106	3400	3443	0	77.8	48	125				
2,6-Dinitrotoluene	2612.618	3400	3443	0	75.9	48	125				
2-Chloronaphthalene	2664.319	3400	3443	0	77.4	45	125				
2-Chlorophenol	2395.475	3400	3443	0	69.6	44	125				
2-Methylnaphthalene	2650.532	3400	3443	0	77.0	47	125				
2-Methylphenol	2516.110	3400	3443	0	73.1	40	125				
2-Nitroaniline	2564.364	17000	3443	0	74.5	44	125				
2-Nitrophenol	2161.097	3400	3443	0	62.8	42	125				
3,3´-Dichlorobenzidine	4373.895	6800	6887	0	63.5	25	128				
3-Nitroaniline	2622.959	17000	3443	0	76.2	27	125				
4,6-Dinitro-2-methylphenol	716.919	17000	3443	0	20.8	29	137				S
4-Bromophenyl-phenylether	2902.143	3400	3443	0	84.3	46	125				
4-Chloro-3-methylphenol	2964.184	6800	3443	0	86.1	46	125				
4-Chloroaniline	1957.740	6800	3443	0	56.9	10	125				
4-Chlorophenyl-phenylether	3057.246	3400	3443	0	88.8	47	125				
4-Methylphenol	2726.360	3400	3443	0	79.2	41	125				
4-Nitroaniline	2764.274	17000	3443	0	80.3	34	125				
4-Nitrophenol	1364.904	17000	3443	0	39.6	25	138				
Acenaphthene	3043.459	3400	3443	0	88.4	46	125				
Acenaphthylene	2933.164	3400	3443	0	85.2	44	125				
Anthracene	2919.377	3400	3443	0	84.8	53	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N018577-005C-MS** SampType: **MS** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **2/8/2016** RunNo: **105829**
Client ID: **ZZZZZZ** Batch ID: **56158** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **2/11/2016** SeqNo: **2229954**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)anthracene	3432.939	3400	3443	0	99.7	52	125				
Benzo(a)pyrene	3350.218	3400	3443	0	97.3	50	125				A6L
Benzo(b)fluoranthene	4132.625	3400	3443	0	120	45	125				A6L
Benzo(g,h,i)perylene	816.874	3400	3443	0	23.7	38	126				SA6L
Benzo(k)fluoranthene	5001.200	3400	3443	0	145	45	125				SA6L
Benzoic acid	14786.455	17000	3443	0	429	25	125				S
Benzyl alcohol	2037.015	6800	3443	0	59.2	25	125				
Bis(2-chloroethoxy)methane	2471.303	3400	3443	0	71.8	43	125				
Bis(2-chloroethyl)ether	2509.217	3400	3443	0	72.9	38	125				
Bis(2-chloroisopropyl)ether	2350.667	3400	3443	0	68.3	25	125				
Bis(2-ethylhexyl)phthalate	4229.133	3400	3443	0	123	47	127				
Butylbenzylphthalate	3763.825	3400	3443	0	109	49	125				
Chrysene	3346.771	3400	3443	0	97.2	53	125				
Di-n-butylphthalate	3557.021	3400	3443	0	103	56	125				
Di-n-octylphthalate	10198.863	3400	3443	0	296	41	132				SA6L
Dibenz(a,h)anthracene	1233.928	3400	3443	0	35.8	41	125				SA6L
Dibenzofuran	3098.607	3400	3443	0	90.0	51	125				
Diethylphthalate	3136.521	3400	3443	0	91.1	50	125				
Dimethylphthalate	2988.312	3400	3443	0	86.8	49	125				
Fluoranthene	3588.042	3400	3443	0	104	54	125				
Fluorene	3219.242	3400	3443	0	93.5	49	125				
Hexachlorobenzene	2998.652	3400	3443	0	87.1	47	125				
Hexachlorobutadiene	2643.639	6800	3443	0	76.8	40	125				
Hexachloroethane	1816.425	3400	3443	0	52.8	34	125				
Indeno(1,2,3-cd)pyrene	1023.678	3400	3443	0	29.7	38	125				SA6L
Isophorone	2867.676	3400	3443	0	83.3	43	125				
N-Nitrosodi-n-propylamine	2329.987	3400	3443	0	67.7	40	125				
N-Nitrosodiphenylamine	2936.611	3400	3443	0	85.3	49	125				
Naphthalene	2626.405	3400	3443	0	76.3	40	125				
Nitrobenzene	2123.183	3400	3443	0	61.7	41	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N018577-005C-MS** SampType: **MS** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **2/8/2016** RunNo: **105829**
Client ID: **ZZZZZZ** Batch ID: **56158** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **2/11/2016** SeqNo: **2229954**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pentachlorophenol	1220.141	17000	3443	0	35.4	25	125				
Phenanthrene	3505.320	3400	3443	0	102	50	125				
Phenol	2278.286	3400	3443	0	66.2	39	125				
Pyrene	3588.042	3400	3443	0	104	46	125				
Surr: 1,2-Dichlorobenzene-d4	2140.417		3443		62.2	25	110				
Surr: 2,4,6-Tribromophenol	2467.856		3443		71.7	36	126				
Surr: 2-Chlorophenol-d4	2326.540		3443		67.6	30	100				
Surr: 2-Fluorobiphenyl	2726.360		3443		79.2	43	125				
Surr: 2-Fluorophenol	2074.929		3443		60.3	37	125				
Surr: 4-Terphenyl-d14	3570.808		3443		104	32	125				
Surr: Nitrobenzene-d5	2164.544		3443		62.9	37	125				
Surr: Phenol-d5	2319.647		3443		67.4	40	125				

Sample ID **N018577-005C-MSD** SampType: **MSD** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **2/8/2016** RunNo: **105829**
Client ID: **ZZZZZZ** Batch ID: **56158** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **2/11/2016** SeqNo: **2229955**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	2393.880	3400	3441	0	69.6	44	125	2354	0	30	
1,2-Dichlorobenzene	2300.880	3400	3441	0	66.9	45	125	2165	0	30	
1,3-Dichlorobenzene	2097.659	3400	3441	0	61.0	39	125	1972	0	30	
1,4-Dichlorobenzene	2214.769	3400	3441	0	64.4	35	125	2154	0	30	
2,4,5-Trichlorophenol	2707.323	3400	3441	0	78.7	49	125	3040	0	30	
2,4,6-Trichlorophenol	2590.212	3400	3441	0	75.3	43	125	2819	0	30	
2,4-Dichlorophenol	2590.212	17000	3441	0	75.3	45	125	2764	0	30	
2,4-Dimethylphenol	2593.657	3400	3441	0	75.4	32	125	2761	0	30	
2,4-Dinitrophenol	ND	17000	3441	0	0	25	132	0	0	30	S
2,4-Dinitrotoluene	2428.324	3400	3441	0	70.6	48	125	2678	0	30	
2,6-Dinitrotoluene	2417.991	3400	3441	0	70.3	48	125	2613	0	30	
2-Chloronaphthalene	2541.990	3400	3441	0	73.9	45	125	2664	0	30	
2-Chlorophenol	2459.324	3400	3441	0	71.5	44	125	2395	0	30	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N018577-005C-MSD** SampType: **MSD** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **2/8/2016** RunNo: **105829**
Client ID: **ZZZZZZ** Batch ID: **56158** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **2/11/2016** SeqNo: **2229955**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	2593.657	3400	3441	0	75.4	47	125	2651	0	30	
2-Methylphenol	2424.880	3400	3441	0	70.5	40	125	2516	0	30	
2-Nitroaniline	2414.546	17000	3441	0	70.2	44	125	2564	0	30	
2-Nitrophenol	2214.769	3400	3441	0	64.4	42	125	2161	0	30	
3,3´-Dichlorobenzidine	4198.762	6800	6882	0	61.0	25	128	4374	0	30	
3-Nitroaniline	2462.768	17000	3441	0	71.6	27	125	2623	0	30	
4,6-Dinitro-2-methylphenol	664.775	17000	3441	0	19.3	29	137	716.9	0	30	S
4-Bromophenyl-phenylether	2693.545	3400	3441	0	78.3	46	125	2902	0	30	
4-Chloro-3-methylphenol	2669.434	6800	3441	0	77.6	46	125	2964	0	30	
4-Chloroaniline	2011.548	6800	3441	0	58.5	10	125	1958	0	30	
4-Chlorophenyl-phenylether	2758.990	3400	3441	0	80.2	47	125	3057	0	30	
4-Methylphenol	2634.990	3400	3441	0	76.6	41	125	2726	0	30	
4-Nitroaniline	2504.102	17000	3441	0	72.8	34	125	2764	0	30	
4-Nitrophenol	1164.218	17000	3441	0	33.8	25	138	1365	0	30	
Acenaphthene	2851.989	3400	3441	0	82.9	46	125	3043	0	30	
Acenaphthylene	2748.656	3400	3441	0	79.9	44	125	2933	0	30	
Anthracene	2617.768	3400	3441	0	76.1	53	125	2919	0	30	
Benzo(a)anthracene	3055.211	3400	3441	0	88.8	52	125	3433	0	30	
Benzo(a)pyrene	2969.100	3400	3441	0	86.3	50	125	3350	0	30	A6L
Benzo(b)fluoranthene	3671.764	3400	3441	0	107	45	125	4133	11.8	30	A6L
Benzo(g,h,i)perylene	788.775	3400	3441	0	22.9	38	126	816.9	0	30	SA6L
Benzo(k)fluoranthene	4436.428	3400	3441	0	129	45	125	5001	12.0	30	SA6L
Benzoic acid	14783.500	17000	3441	0	430	25	125	14790	0	30	S
Benzyl alcohol	1994.326	6800	3441	0	58.0	25	125	2037	0	30	
Bis(2-chloroethoxy)methane	2490.324	3400	3441	0	72.4	43	125	2471	0	30	
Bis(2-chloroethyl)ether	2559.213	3400	3441	0	74.4	38	125	2509	0	30	
Bis(2-chloroisopropyl)ether	2442.102	3400	3441	0	71.0	25	125	2351	0	30	
Bis(2-ethylhexyl)phthalate	3654.542	3400	3441	0	106	47	127	4229	14.6	30	
Butylbenzylphthalate	3299.765	3400	3441	0	95.9	49	125	3764	0	30	
Chrysene	3003.544	3400	3441	0	87.3	53	125	3347	0	30	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N018577-005C-MSD**	SampType: **MSD**	TestCode: **8270_S_PGE**	Units: **ug/Kg-dry**	Prep Date: **2/8/2016**	RunNo: **105829**
Client ID: **ZZZZZZ**	Batch ID: **56158**	TestNo: **EPA 8270C**	**EPA 3550B**	Analysis Date: **2/11/2016**	SeqNo: **2229955**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Di-n-butylphthalate	3227.432	3400	3441	0	93.8	56	125	3557	0	30	
Di-n-octylphthalate	8907.300	3400	3441	0	259	41	132	10200	13.5	30	SA6L
Dibenz(a,h)anthracene	1184.884	3400	3441	0	34.4	41	125	1234	0	30	SA6L
Dibenzofuran	2913.989	3400	3441	0	84.7	51	125	3099	0	30	
Diethylphthalate	2820.989	3400	3441	0	82.0	50	125	3137	0	30	
Dimethylphthalate	2738.323	3400	3441	0	79.6	49	125	2988	0	30	
Fluoranthene	3220.543	3400	3441	0	93.6	54	125	3588	0	30	
Fluorene	2944.989	3400	3441	0	85.6	49	125	3219	0	30	
Hexachlorobenzene	2721.101	3400	3441	0	79.1	47	125	2999	0	30	
Hexachlorobutadiene	2683.212	6800	3441	0	78.0	40	125	2644	0	30	
Hexachloroethane	1915.104	3400	3441	0	55.7	34	125	1816	0	30	
Indeno(1,2,3-cd)pyrene	995.441	3400	3441	0	28.9	38	125	1024	0	30	SA6L
Isophorone	2772.767	3400	3441	0	80.6	43	125	2868	0	30	
N-Nitrosodi-n-propylamine	2366.324	3400	3441	0	68.8	40	125	2330	0	30	
N-Nitrosodiphenylamine	2717.656	3400	3441	0	79.0	49	125	2937	0	30	
Naphthalene	2638.434	3400	3441	0	76.7	40	125	2626	0	30	
Nitrobenzene	2225.103	3400	3441	0	64.7	41	125	2123	0	30	
Pentachlorophenol	1043.663	17000	3441	0	30.3	25	125	1220	0	30	
Phenanthrene	3210.210	3400	3441	0	93.3	50	125	3505	0	30	
Phenol	2235.436	3400	3441	0	65.0	39	125	2278	0	30	
Pyrene	3206.766	3400	3441	0	93.2	46	125	3588	0	30	
Surr: 1,2-Dichlorobenzene-d4	2211.325		3441		64.3	25	110		0	30	
Surr: 2,4,6-Tribromophenol	2173.436		3441		63.2	36	126		0	30	
Surr: 2-Chlorophenol-d4	2324.991		3441		67.6	30	100		0	30	
Surr: 2-Fluorobiphenyl	2610.879		3441		75.9	43	125		0	30	
Surr: 2-Fluorophenol	2080.437		3441		60.5	37	125		0	30	
Surr: 4-Terphenyl-d14	3037.988		3441		88.3	32	125		0	30	
Surr: Nitrobenzene-d5	2218.214		3441		64.5	37	125		0	30	
Surr: Phenol-d5	2256.103		3441		65.6	40	125		0	30	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6666
Lab Order:	N018685	**Collection Date:**	2/3/2016 2:15:00 PM
Project:	Topock RFI, 666665.FP.FW	**Matrix:**	SOIL
Lab ID:	N018685-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PERCENT MOISTURE							
			D2216				
RunID: **WETCHEM_160210C**	QC Batch: **R105808**			PrepDate			Analyst: **LR**
Percent Moisture	0.9540	0.1000	0.1000		wt%	1	2/10/2016 12:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N018685
Project: Topock RFI, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: PMOIST

Sample ID **MB-R105808**	SampType: **MBLK**	TestCode: **PMOIST**	Units: **wt%**	Prep Date:	RunNo: **105808**
Client ID: **PBS**	Batch ID: **R105808**	TestNo: **D2216**		Analysis Date: **2/10/2016**	SeqNo: **2229214**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	ND	0.1000									

Sample ID **N018686-001BDUP**	SampType: **DUP**	TestCode: **PMOIST**	Units: **wt%**	Prep Date:	RunNo: **105808**
Client ID: **ZZZZZZ**	Batch ID: **R105808**	TestNo: **D2216**		Analysis Date: **2/10/2016**	SeqNo: **2229219**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	4.624	0.1000						5.129	10.4	30	

Sample ID **N018697-003B DUP**	SampType: **DUP**	TestCode: **PMOIST**	Units: **wt%**	Prep Date:	RunNo: **105808**
Client ID: **ZZZZZZ**	Batch ID: **R105808**	TestNo: **D2216**		Analysis Date: **2/10/2016**	SeqNo: **2229229**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	4.586	0.1000						4.280	6.91	30	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SAMPLE RECEIVING ITEMS

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name: Topock RFI
Location:
Project Manager:
QC Manager:
Project Number: 666665.FP.FW
Project: 2015-RFISOIL-IDW
Turnaround Time: 7 Days
Shipping Date: 02/05/16
COC Number: IDW

	Container	8 oz soil jar	8 oz soil jar	8 oz soil jar	8oz soil jar(s)	8oz soil jar(s)	8oz soil jar(s)	8 oz soil jar	4x40ml glass	4x40ml glass	8 oz soil jar	1 gal ziplock			
	Preservatives:	4°C	4°C	4°C	4°C	4°C	4°C	4°C	H2O, -7°C	H2O, -7°C	none	none			
	Filtered:	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
	Holding Time:	14	180	7	14	14	14	7	14	14	NA	NA			
DATE	TIME	Matrix	Hexavalent Chromium (7199)	Metals (6010B/7471A) Title 22 Metals	PH (9045)	SVOCs (8270C)	PCBs (8082)	PAHs (8270Sim)	TPH-Extractable (8015B-E)	TPH-Purgable (8015B-P)	VOCs (8260B)	Asbestos (EPA600/R-93-116)	Physical Parameters (1)	Sample ID	Number of Containers	COMMENTS
N0156557	2/3/16	1415	Soil	X	X		X	X				X	X		Soil-IDW-01-6666	10	
														TOTAL NUMBER OF CONTAINERS	10		

Signatures		Date/Time
Approved by		
Sampled by	[signature]	02/05/16 @1600
Relinquished by	[signature]	2/5/16 @1603
Received by	[signature]	
Relinquished by	[signature]	2/6/16 @1830
Received by		

Shipping Details

Method of Shipment: FedEx
On Ice: (yes) / no —1.6°C
Airbill No: 1242
Lab Name: Advanced Technology Laboratories
Lab Phone:

ATTN:

Sample Custody

Special Instructions:

Report Copy to

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	2/5/2016	Workorder:	N018685
Rep sample Temp (Deg C):	-1.6	IR Gun ID:	2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: MBC 2/8/2016

Reviewed By: 02/12/16

ASSET Laboratories

WORK ORDER Summary

10-Feb-16

WorkOrder: N018685

Client ID: CH2HI01

Project: Topock RFI, 666665.FP.FW **QC Level:** Level IV **Date Received:** 2/5/2016

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N018685-001A	Soil-IDW-01-6666	2/3/2016 2:15:00 PM	2/19/2016	Soil	EPA 3060A	Prep for Hexavalend Chromium	☐	☐	☐	WS
			2/19/2016		EPA 7199	Hexavalent Chromium by IC	☐	☐	☐	WS
N018685-001B			2/19/2016		EPA 3050B	SOPREP TOTAL METALS	☐	☐	☐	WS
			2/19/2016		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WS
			2/19/2016			MERCURY PREP	☐	☐	☐	WS
			2/19/2016		EPA 7471A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WS
			2/19/2016		D2216	PERCENT MOISTURE	☐	☐	☐	WS
N018685-001C			2/19/2016		EPA 3550B	ULTRASONIC EXTRACTION: 8270C	☐	☐	☐	WS
			2/19/2016		EPA 8270C	SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	WS
N018685-001D			2/19/2016		EPA 5035	Closed System Purge and Trap	☐	☐	☐	VS
			2/19/2016		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VS
N018685-001E							☐	☐	☐	VS
N018685-001F							☐	☐	☐	VS
N018685-001G			2/19/2016		EPA 3550B	ULTRASONIC EXTRACTION: PESTICIDES/PCB	☐	☐	☐	WS
			2/19/2016		EPA 8082	PCBs BY GC/ECD	☐	☐	☐	WS
N018685-001H			2/19/2016		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N018685-001I							☐	☐	☐	WS
N018685-002A	FOLDER		2/19/2016		Folder	Folder	☐	☐	☐	LAB

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

AmeriSci Los Angeles
24416 South Main Street, Suite 308
Carson, CA 90745

TEL: (310) 834-4868
FAX: (310) 834-4772
Acct #:

Field Sampler: Signed

08-Feb-16

				Requested Tests		
Sample ID	**Matrix**	**Date Collected**	**Bottle Type**	**Asb_PLM**		
N018685-001H / Soil-IDW-01-6666	Soil	2/3/2016 2:15:00 PM	8OZG	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N18685A Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT.

Please analyze for Asbestos-PLM by EPA 600/R-93-116.

		Date/Time	650 #. 530844732		**Date/Time**
Relinquished by:	Joanna Rodriguez	2/8/16 17:00	**Received by:**		
Relinquished by:			**Received by:**		

CH2M HILL

Project: PGE Topock

Project No.: 666665.FP.FW

ASSET Laboratories Work Order: N019173

ANALYTICAL and QC RESULTS

SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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ASSET Laboratories Work Order: N019173

April 11, 2016

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-00922

Workorder No.: N019173

RE: PGE Topock, 666665.FP.FW

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on March 21, 2016 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Glen Gesmundo
QA Manager

CLIENT: CH2M HILL
Project: PGE Topock, 666665.FP.FW
Lab Order: N019173

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Subcontracted Analyses:

Dioxins/ Furans was subcontracted to APPL,Inc- Clovis,CA.

Analytical Comments for EPA 6010B:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes on QC samples N019173-001B-MS and N019173-001B-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes on QC samples N019173-001B-MS and N019173-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 8082:

Surrogate Decachlorobiphenyl recovery bias high for sample N019173-004 possibly due to matrix interference. Sample result was non- detect (ND) therefore, reanalysis of the sample was not necessary.

Analytical Comments for EPA 8270C:

Some analytes for samples N019173-002, N019173-003 and N019173-004 were flagged A6L to indicate that concentrations reported are recovered low due to internal standard not meeting method

recovery criteria possibly due to matrix interference.Samples were analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes on QC samples N019173-001D-MS and N019173-001D-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 8270C_SIM:

Some analytes for samples N019173-002 and N019173-004 were flagged A6L to indicate that concentrations reported are recovered low due to internal standard not meeting method recovery criteria possibly due to matrix interference.Samples were analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

Surrogate 4-Terphenyl-d14 was outside recovery limit for samples N019173-002 and N019173-004 possibly due to matrix interference. Extracts are black and viscous.

ASSET Laboratories

Date: *11-Apr-16*

CLIENT: CH2M HILL
Project: PGE Topock, 666665.FP.FW
Lab Order: N019173
Contract No: 2015-RFISOIL-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N019173-001A	Soil-IDW-01-6238	Soil	3/21/2016 7:45:00 AM	3/21/2016	4/11/2016
N019173-001B	Soil-IDW-01-6238	Soil	3/21/2016 7:45:00 AM	3/21/2016	4/11/2016
N019173-001C	Soil-IDW-01-6238	Soil	3/21/2016 7:45:00 AM	3/21/2016	4/11/2016
N019173-001D	Soil-IDW-01-6238	Soil	3/21/2016 7:45:00 AM	3/21/2016	4/11/2016
N019173-001E	Soil-IDW-01-6238	Soil	3/21/2016 7:45:00 AM	3/21/2016	4/11/2016
N019173-002A	Soil-IDW-01-6582	Soil	3/21/2016 8:00:00 AM	3/21/2016	4/11/2016
N019173-002B	Soil-IDW-01-6582	Soil	3/21/2016 8:00:00 AM	3/21/2016	4/11/2016
N019173-002C	Soil-IDW-01-6582	Soil	3/21/2016 8:00:00 AM	3/21/2016	4/11/2016
N019173-002D	Soil-IDW-01-6582	Soil	3/21/2016 8:00:00 AM	3/21/2016	4/11/2016
N019173-002E	Soil-IDW-01-6582	Soil	3/21/2016 8:00:00 AM	3/21/2016	4/11/2016
N019173-003A	Soil-IDW-01-6590	Soil	3/21/2016 8:15:00 AM	3/21/2016	4/11/2016
N019173-003B	Soil-IDW-01-6590	Soil	3/21/2016 8:15:00 AM	3/21/2016	4/11/2016
N019173-003C	Soil-IDW-01-6590	Soil	3/21/2016 8:15:00 AM	3/21/2016	4/11/2016
N019173-003D	Soil-IDW-01-6590	Soil	3/21/2016 8:15:00 AM	3/21/2016	4/11/2016
N019173-003E	Soil-IDW-01-6590	Soil	3/21/2016 8:15:00 AM	3/21/2016	4/11/2016
N019173-004A	Soil-IDW-01-6657	Soil	3/21/2016 8:30:00 AM	3/21/2016	4/11/2016
N019173-004B	Soil-IDW-01-6657	Soil	3/21/2016 8:30:00 AM	3/21/2016	4/11/2016
N019173-004C	Soil-IDW-01-6657	Soil	3/21/2016 8:30:00 AM	3/21/2016	4/11/2016
N019173-004D	Soil-IDW-01-6657	Soil	3/21/2016 8:30:00 AM	3/21/2016	4/11/2016
N019173-004E	Soil-IDW-01-6657	Soil	3/21/2016 8:30:00 AM	3/21/2016	4/11/2016

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CALIFORNIA
11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F: 562.219.7436

NEVADA
3151 W. Post Rd., Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-001

Client Sample ID: Soil-IDW-01-6238
Collection Date: 3/21/2016 7:45:00 AM
Matrix: SOIL

TOTAL METALS BY ICP

EPA 3050B **EPA 6010B**

RunID: **ICP2_160403A** QC Batch: **56722** PrepDate **3/23/2016** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Antimony	ND	0.069	2.0		mg/Kg-dry	1	4/3/2016 04:56 PM
Arsenic	2.9	0.052	1.0		mg/Kg-dry	1	4/3/2016 04:56 PM
Barium	170	0.0077	1.0		mg/Kg-dry	1	4/3/2016 04:56 PM
Beryllium	ND	0.016	1.0		mg/Kg-dry	1	4/3/2016 04:56 PM
Cadmium	ND	0.052	1.0		mg/Kg-dry	1	4/3/2016 04:56 PM
Chromium	46	0.065	1.0		mg/Kg-dry	1	4/3/2016 04:56 PM
Cobalt	6.0	0.025	1.0		mg/Kg-dry	1	4/3/2016 04:56 PM
Copper	12	0.038	2.0		mg/Kg-dry	1	4/3/2016 04:56 PM
Lead	5.4	0.035	1.0		mg/Kg-dry	1	4/4/2016 05:48 PM
Molybdenum	ND	0.018	1.0		mg/Kg-dry	1	4/3/2016 04:56 PM
Nickel	9.6	0.013	1.0		mg/Kg-dry	1	4/3/2016 04:56 PM
Selenium	ND	0.068	1.0		mg/Kg-dry	1	4/3/2016 04:56 PM
Silver	ND	0.015	1.0		mg/Kg-dry	1	4/3/2016 04:56 PM
Thallium	ND	0.048	2.0		mg/Kg-dry	1	4/3/2016 04:56 PM
Vanadium	28	0.077	1.0		mg/Kg-dry	1	4/3/2016 04:56 PM
Zinc	80	0.083	1.0		mg/Kg-dry	1	4/3/2016 04:56 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-002

Client Sample ID: Soil-IDW-01-6582
Collection Date: 3/21/2016 8:00:00 AM
Matrix: SOIL

TOTAL METALS BY ICP

EPA 3050B **EPA 6010B**

RunID: **ICP2_160403A** QC Batch: **56722** PrepDate **3/23/2016** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Antimony	ND	0.069	2.0		mg/Kg-dry	1	4/3/2016 05:01 PM
Arsenic	3.0	0.052	1.0		mg/Kg-dry	1	4/3/2016 05:01 PM
Barium	100	0.0077	1.0		mg/Kg-dry	1	4/3/2016 05:01 PM
Beryllium	ND	0.016	1.0		mg/Kg-dry	1	4/3/2016 05:01 PM
Cadmium	ND	0.053	1.0		mg/Kg-dry	1	4/3/2016 05:01 PM
Chromium	37	0.065	1.0		mg/Kg-dry	1	4/3/2016 05:01 PM
Cobalt	6.5	0.025	1.0		mg/Kg-dry	1	4/3/2016 05:01 PM
Copper	12	0.038	2.0		mg/Kg-dry	1	4/3/2016 05:01 PM
Lead	220	0.035	1.0		mg/Kg-dry	1	4/4/2016 05:54 PM
Molybdenum	ND	0.018	1.0		mg/Kg-dry	1	4/3/2016 05:01 PM
Nickel	15	0.013	1.0		mg/Kg-dry	1	4/3/2016 05:01 PM
Selenium	ND	0.068	1.0		mg/Kg-dry	1	4/3/2016 05:01 PM
Silver	ND	0.015	1.0		mg/Kg-dry	1	4/3/2016 05:01 PM
Thallium	ND	0.048	2.0		mg/Kg-dry	1	4/3/2016 05:01 PM
Vanadium	28	0.077	1.0		mg/Kg-dry	1	4/3/2016 05:01 PM
Zinc	46	0.083	1.0		mg/Kg-dry	1	4/3/2016 05:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-003

Client Sample ID: Soil-IDW-01-6590
Collection Date: 3/21/2016 8:15:00 AM
Matrix: SOIL

TOTAL METALS BY ICP

EPA 3050B **EPA 6010B**

RunID: **ICP2_160403A** QC Batch: **56722** PrepDate **3/23/2016** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Antimony	ND	0.091	2.6		mg/Kg-dry	1	4/3/2016 05:07 PM
Arsenic	16	0.068	1.3		mg/Kg-dry	1	4/3/2016 05:07 PM
Barium	260	0.010	1.3		mg/Kg-dry	1	4/3/2016 05:07 PM
Beryllium	ND	0.021	1.3		mg/Kg-dry	1	4/3/2016 05:07 PM
Cadmium	ND	0.069	1.3		mg/Kg-dry	1	4/3/2016 05:07 PM
Chromium	4100	0.43	6.6		mg/Kg-dry	5	4/6/2016 10:50 AM
Cobalt	9.2	0.033	1.3		mg/Kg-dry	1	4/3/2016 05:07 PM
Copper	71	0.050	2.6		mg/Kg-dry	1	4/3/2016 05:07 PM
Lead	11	0.046	1.3		mg/Kg-dry	1	4/4/2016 05:59 PM
Molybdenum	10	0.024	1.3		mg/Kg-dry	1	4/3/2016 05:07 PM
Nickel	41	0.017	1.3		mg/Kg-dry	1	4/3/2016 05:07 PM
Selenium	ND	0.089	1.3		mg/Kg-dry	1	4/3/2016 05:07 PM
Silver	ND	0.020	1.3		mg/Kg-dry	1	4/3/2016 05:07 PM
Thallium	ND	0.063	2.6		mg/Kg-dry	1	4/3/2016 05:07 PM
Vanadium	34	0.10	1.3		mg/Kg-dry	1	4/3/2016 05:07 PM
Zinc	120	0.11	1.3		mg/Kg-dry	1	4/3/2016 05:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-004

Client Sample ID: Soil-IDW-01-6657
Collection Date: 3/21/2016 8:30:00 AM
Matrix: SOIL

TOTAL METALS BY ICP

EPA 3050B **EPA 6010B**

RunID: **ICP2_160403A** QC Batch: **56722** PrepDate **3/23/2016** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Antimony	ND	0.069	2.0		mg/Kg-dry	1	4/3/2016 05:14 PM
Arsenic	4.5	0.052	1.0		mg/Kg-dry	1	4/3/2016 05:14 PM
Barium	120	0.0077	1.0		mg/Kg-dry	1	4/3/2016 05:14 PM
Beryllium	ND	0.016	1.0		mg/Kg-dry	1	4/3/2016 05:14 PM
Cadmium	ND	0.053	1.0		mg/Kg-dry	1	4/3/2016 05:14 PM
Chromium	4100	0.33	5.0		mg/Kg-dry	5	4/6/2016 10:56 AM
Cobalt	5.5	0.026	1.0		mg/Kg-dry	1	4/3/2016 05:14 PM
Copper	9.6	0.038	2.0		mg/Kg-dry	1	4/3/2016 05:14 PM
Lead	4.7	0.035	1.0		mg/Kg-dry	1	4/4/2016 06:05 PM
Molybdenum	ND	0.018	1.0		mg/Kg-dry	1	4/3/2016 05:14 PM
Nickel	11	0.013	1.0		mg/Kg-dry	1	4/3/2016 05:14 PM
Selenium	ND	0.068	1.0		mg/Kg-dry	1	4/3/2016 05:14 PM
Silver	ND	0.015	1.0		mg/Kg-dry	1	4/3/2016 05:14 PM
Thallium	ND	0.048	2.0		mg/Kg-dry	1	4/3/2016 05:14 PM
Vanadium	27	0.077	1.0		mg/Kg-dry	1	4/3/2016 05:14 PM
Zinc	38	0.083	1.0		mg/Kg-dry	1	4/3/2016 05:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID **MB-56722**	SampType: **MBLK**	TestCode: **6010_SPGE**	Units: **mg/Kg**	Prep Date: **3/23/2016**	RunNo: **106729**
Client ID: **PBS**	Batch ID: **56722**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **4/3/2016**	SeqNo: **2283335**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.126	2.0									
Arsenic	ND	1.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	1.0									
Cobalt	ND	1.0									
Copper	ND	2.0									
Molybdenum	ND	1.0									
Nickel	0.028	1.0									
Selenium	ND	1.0									
Silver	ND	1.0									
Thallium	ND	2.0									
Vanadium	ND	1.0									
Zinc	ND	1.0									

Sample ID **LCS-56722**	SampType: **LCS**	TestCode: **6010_SPGE**	Units: **mg/Kg**	Prep Date: **3/23/2016**	RunNo: **106729**
Client ID: **LCSS**	Batch ID: **56722**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **4/3/2016**	SeqNo: **2283336**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	26.677	2.0	25.00	0	107	85	115				
Arsenic	26.459	1.0	25.00	0	106	85	115				
Barium	26.546	1.0	25.00	0	106	85	115				
Beryllium	26.008	1.0	25.00	0	104	85	115				
Cadmium	26.160	1.0	25.00	0	105	85	115				
Chromium	26.307	1.0	25.00	0	105	85	115				
Cobalt	26.308	1.0	25.00	0	105	85	115				
Copper	26.437	2.0	25.00	0	106	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID	LCS-56722	SampType:	LCS	TestCode:	6010_SPGE	Units:	mg/Kg	Prep Date:	3/23/2016	RunNo:	106729
Client ID:	LCSS	Batch ID:	56722	TestNo:	EPA 6010B	EPA 3050B		Analysis Date:	4/3/2016	SeqNo:	2283336

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	26.166	1.0	25.00	0	105	85	115				
Nickel	26.300	1.0	25.00	0	105	85	115				
Selenium	26.287	1.0	25.00	0	105	85	115				
Silver	27.135	1.0	25.00	0	109	85	115				
Thallium	26.113	2.0	25.00	0	104	85	115				
Vanadium	26.057	1.0	25.00	0	104	85	115				
Zinc	26.069	1.0	25.00	0	104	85	115				

Sample ID	N019173-001B-MS	SampType:	MS	TestCode:	6010_SPGE	Units:	mg/Kg-dry	Prep Date:	3/23/2016	RunNo:	106729
Client ID:	ZZZZZZ	Batch ID:	56722	TestNo:	EPA 6010B	EPA 3050B		Analysis Date:	4/3/2016	SeqNo:	2283365

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	17.154	2.0	25.03	0	68.5	75	125				S
Arsenic	23.116	1.0	25.03	2.880	80.8	75	125				
Barium	165.022	1.0	25.03	168.1	-12.4	75	125				S
Beryllium	20.902	1.0	25.03	0	83.5	75	125				
Cadmium	19.244	1.0	25.03	0.4139	75.2	75	125				
Chromium	58.765	1.0	25.03	45.55	52.8	75	125				S
Cobalt	28.863	1.0	25.03	6.024	91.2	75	125				
Copper	39.957	2.0	25.03	12.45	110	75	125				
Molybdenum	20.735	1.0	25.03	0	82.8	75	125				
Nickel	31.000	1.0	25.03	9.596	85.5	75	125				
Selenium	19.788	1.0	25.03	0	79.1	75	125				
Silver	23.687	1.0	25.03	0	94.6	75	125				
Thallium	20.218	2.0	25.03	0.4232	79.1	75	125				
Vanadium	52.887	1.0	25.03	27.85	100	75	125				
Zinc	55.178	1.0	25.03	80.02	-99.2	75	125				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID	N019173-001B-MSD	SampType:	MSD	TestCode:	6010_SPGE	Units:	mg/Kg-dry	Prep Date:	3/23/2016	RunNo:	106729
Client ID:	ZZZZZZ	Batch ID:	56722	TestNo:	EPA 6010B	EPA 3050B		Analysis Date:	4/3/2016	SeqNo:	2283366

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	16.983	2.0	24.98	0	68.0	75	125	17.15	1.00	20	S
Arsenic	22.808	1.0	24.98	2.880	79.8	75	125	23.12	1.34	20	
Barium	163.941	1.0	24.98	168.1	-16.8	75	125	165.0	0.657	20	S
Beryllium	20.816	1.0	24.98	0	83.3	75	125	20.90	0.415	20	
Cadmium	19.167	1.0	24.98	0.4139	75.1	75	125	19.24	0.403	20	
Chromium	58.554	1.0	24.98	45.55	52.1	75	125	58.76	0.360	20	S
Cobalt	28.517	1.0	24.98	6.024	90.0	75	125	28.86	1.21	20	
Copper	39.694	2.0	24.98	12.45	109	75	125	39.96	0.662	20	
Molybdenum	20.490	1.0	24.98	0	82.0	75	125	20.74	1.19	20	
Nickel	30.704	1.0	24.98	9.596	84.5	75	125	31.00	0.958	20	
Selenium	19.364	1.0	24.98	0	77.5	75	125	19.79	2.17	20	
Silver	23.642	1.0	24.98	0	94.6	75	125	23.69	0.187	20	
Thallium	20.090	2.0	24.98	0.4232	78.7	75	125	20.22	0.635	20	
Vanadium	52.980	1.0	24.98	27.85	101	75	125	52.89	0.174	20	
Zinc	55.090	1.0	24.98	80.02	-99.8	75	125	55.18	0.159	20	S

Sample ID	MB-56722	SampType:	MBLK	TestCode:	6010_SPGE	Units:	mg/Kg	Prep Date:	3/23/2016	RunNo:	106739
Client ID:	PBS	Batch ID:	56722	TestNo:	EPA 6010B	EPA 3050B		Analysis Date:	4/4/2016	SeqNo:	2284160

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	1.0									

Sample ID	LCS-56722	SampType:	LCS	TestCode:	6010_SPGE	Units:	mg/Kg	Prep Date:	3/23/2016	RunNo:	106739
Client ID:	LCSS	Batch ID:	56722	TestNo:	EPA 6010B	EPA 3050B		Analysis Date:	4/4/2016	SeqNo:	2284161

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	25.523	1.0	25.00	0	102	85	115				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID	N019173-001B-MS	SampType:	MS	TestCode:	6010_SPGE	Units:	mg/Kg-dry	Prep Date:	3/23/2016	RunNo:	106739
Client ID:	ZZZZZZ	Batch ID:	56722	TestNo:	EPA 6010B	EPA 3050B		Analysis Date:	4/4/2016	SeqNo:	2284188

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	26.527	1.0	25.03	5.355	84.6	75	125				

Sample ID	N019173-001B-MSD	SampType:	MSD	TestCode:	6010_SPGE	Units:	mg/Kg-dry	Prep Date:	3/23/2016	RunNo:	106739
Client ID:	ZZZZZZ	Batch ID:	56722	TestNo:	EPA 6010B	EPA 3050B		Analysis Date:	4/4/2016	SeqNo:	2284189

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	26.745	1.0	24.98	5.355	85.6	75	125	26.53	0.821	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6238
Lab Order:	N019173	**Collection Date:**	3/21/2016 7:45:00 AM
Project:	PGE Topock, 666665.FP.FW	**Matrix:**	SOIL
Lab ID:	N019173-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 3060A			**EPA 7199**				
RunID: **IC1_160324A**	QC Batch: **56682**			PrepDate	**3/22/2016**		Analyst: **JJS**
Hexavalent Chromium	1.6	0.010	0.20		mg/Kg-dry	1	3/24/2016 01:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6582
Lab Order:	N019173	**Collection Date:**	3/21/2016 8:00:00 AM
Project:	PGE Topock, 666665.FP.FW	**Matrix:**	SOIL
Lab ID:	N019173-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 3060A			**EPA 7199**				
RunID: **IC1_160324A**	QC Batch: **56682**			PrepDate	**3/22/2016**		Analyst: **JJS**
Hexavalent Chromium	0.97	0.010	0.20		mg/Kg-dry	1	3/24/2016 07:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6590
Lab Order:	N019173	**Collection Date:**	3/21/2016 8:15:00 AM
Project:	PGE Topock, 666665.FP.FW	**Matrix:**	SOIL
Lab ID:	N019173-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 3060A			**EPA 7199**				
RunID: **IC1_160324A**	QC Batch: **56682**			PrepDate	**3/22/2016**		Analyst: **JJS**
Hexavalent Chromium	ND	0.013	0.26		mg/Kg-dry	1	3/24/2016 08:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6657
Lab Order:	N019173	**Collection Date:**	3/21/2016 8:30:00 AM
Project:	PGE Topock, 666665.FP.FW	**Matrix:**	SOIL
Lab ID:	N019173-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 3060A			**EPA 7199**				
RunID: **IC1_160325A**	QC Batch: **56682**			PrepDate	**3/22/2016**		Analyst: **JJS**
Hexavalent Chromium	2800	10	200		mg/Kg-dry	1000	3/25/2016 11:39 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID	**MB-56682**	SampType:	**MBLK**	TestCode:	**7199_S_PGE**	Units:	**mg/kg**	Prep Date:	**3/22/2016**	RunNo:	**106620**
Client ID:	**PBS**	Batch ID:	**56682**	TestNo:	**EPA 7199**		**EPA 3060A**	Analysis Date:	**3/24/2016**	SeqNo:	**2277216**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	**LCS-56682**	SampType:	**LCS**	TestCode:	**7199_S_PGE**	Units:	**mg/kg**	Prep Date:	**3/22/2016**	RunNo:	**106620**
Client ID:	**LCSS**	Batch ID:	**56682**	TestNo:	**EPA 7199**		**EPA 3060A**	Analysis Date:	**3/24/2016**	SeqNo:	**2277217**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3.612	0.20	4.000	0	90.3	80	120				

Sample ID	**N019173-001AREP**	SampType:	**DUP**	TestCode:	**7199_S_PGE**	Units:	**mg/Kg-dry**	Prep Date:	**3/22/2016**	RunNo:	**106620**
Client ID:	**ZZZZZZ**	Batch ID:	**56682**	TestNo:	**EPA 7199**		**EPA 3060A**	Analysis Date:	**3/24/2016**	SeqNo:	**2277219**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.589	0.20						1.573	1.01	20	

Sample ID	**N019173-001A-DUP**	SampType:	**DUP**	TestCode:	**7199_S_PGE**	Units:	**mg/Kg-dry**	Prep Date:	**3/22/2016**	RunNo:	**106620**
Client ID:	**ZZZZZZ**	Batch ID:	**56682**	TestNo:	**EPA 7199**		**EPA 3060A**	Analysis Date:	**3/24/2016**	SeqNo:	**2277220**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.316	0.20						1.573	17.8	20	

Sample ID	**N019173-001A-MS**	SampType:	**MS**	TestCode:	**7199_S_PGE**	Units:	**mg/Kg-dry**	Prep Date:	**3/22/2016**	RunNo:	**106620**
Client ID:	**ZZZZZZ**	Batch ID:	**56682**	TestNo:	**EPA 7199**		**EPA 3060A**	Analysis Date:	**3/24/2016**	SeqNo:	**2277221**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.911	0.20	4.009	1.573	83.3	75	125				

Qualifiers:

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- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID	N019173-001A-MSD	SampType:	MSD	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	3/22/2016	RunNo:	106620	
Client ID:	ZZZZZZ	Batch ID:	56682	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	3/24/2016	SeqNo:	2277222	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium	4.619	0.20	3.999	1.573	76.2	75	125	4.911	6.13	20		

Sample ID	N019053-008AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	3/22/2016	RunNo:	106620	
Client ID:	ZZZZZZ	Batch ID:	56682	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	3/24/2016	SeqNo:	2277225	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium	0.014	0.21						0	0	20		

Sample ID	N019053-009AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	3/22/2016	RunNo:	106620	
Client ID:	ZZZZZZ	Batch ID:	56682	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	3/24/2016	SeqNo:	2277229	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium	0.063	0.21						0.06380	0	20		

Sample ID	N019053-010AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	3/22/2016	RunNo:	106620	
Client ID:	ZZZZZZ	Batch ID:	56682	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	3/24/2016	SeqNo:	2277231	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium	0.118	0.20						0.1322	0	20		

Sample ID	N019053-011AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	3/22/2016	RunNo:	106620	
Client ID:	ZZZZZZ	Batch ID:	56682	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	3/24/2016	SeqNo:	2277233	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium	0.822	0.21						0.8102	1.39	20		

Qualifiers:

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- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID	N019053-012AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	3/22/2016	RunNo:	106620
Client ID:	ZZZZZZ	Batch ID:	56682	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	3/24/2016	SeqNo:	2277235

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.068	0.21						0.07311	0	20	

Sample ID	N019053-013AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	3/22/2016	RunNo:	106620
Client ID:	ZZZZZZ	Batch ID:	56682	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	3/24/2016	SeqNo:	2277237

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.325	0.20						0.3238	0.425	20	

Sample ID	N019053-014AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	3/22/2016	RunNo:	106620
Client ID:	ZZZZZZ	Batch ID:	56682	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	3/24/2016	SeqNo:	2277241

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.409	0.20						2.338	3.00	20	

Sample ID	N019053-015AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	3/22/2016	RunNo:	106620
Client ID:	ZZZZZZ	Batch ID:	56682	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	3/24/2016	SeqNo:	2277243

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.210	0.21						0.2130	0	20	

Sample ID	N019053-016AREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	3/22/2016	RunNo:	106620
Client ID:	ZZZZZZ	Batch ID:	56682	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	3/24/2016	SeqNo:	2277245

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.187	0.21						0.1890	0	20	

Qualifiers:

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- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID **N019173-001A-MS_I**	SampType: **MS**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **3/22/2016**	RunNo: **106620**
Client ID: **ZZZZZZ**	Batch ID: **56682**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **3/24/2016**	SeqNo: **2277247**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	757.623	20	694.9	1.573	109	75	125				

Sample ID **N019173-002AREP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **3/22/2016**	RunNo: **106620**
Client ID: **ZZZZZZ**	Batch ID: **56682**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **3/24/2016**	SeqNo: **2277249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.993	0.20						0.9729	2.07	20	

Sample ID **N019173-003AREP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **3/22/2016**	RunNo: **106620**
Client ID: **ZZZZZZ**	Batch ID: **56682**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **3/24/2016**	SeqNo: **2277253**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.115	0.26						0.1121	0	20	

Sample ID **N019175-001AREP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **3/22/2016**	RunNo: **106620**
Client ID: **ZZZZZZ**	Batch ID: **56682**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **3/24/2016**	SeqNo: **2277255**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.140	0.20						0.1396	0	20	

Sample ID **N019175-002AREP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **3/22/2016**	RunNo: **106620**
Client ID: **ZZZZZZ**	Batch ID: **56682**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **3/24/2016**	SeqNo: **2277257**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20						0	0	20	

Qualifiers:

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- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID **N019175-003AREP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **3/22/2016**	RunNo: **106620**
Client ID: **ZZZZZZ**	Batch ID: **56682**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **3/24/2016**	SeqNo: **2277259**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.339	0.20						0.3395	0.120	20	

Sample ID **N019175-005AREP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **3/22/2016**	RunNo: **106620**
Client ID: **ZZZZZZ**	Batch ID: **56682**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **3/24/2016**	SeqNo: **2277265**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20						0	0	20	

Sample ID **N019175-004AREP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **3/22/2016**	RunNo: **106625**
Client ID: **ZZZZZZ**	Batch ID: **56682**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **3/25/2016**	SeqNo: **2277586**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.032	0.20						0.03246	0	20	

Sample ID **N019173-004AREP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **3/22/2016**	RunNo: **106625**
Client ID: **ZZZZZZ**	Batch ID: **56682**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **3/25/2016**	SeqNo: **2277592**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2707.425	200						2751	1.61	20	

Qualifiers:

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- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6238
Lab Order:	N019173	**Collection Date:**	3/21/2016 7:45:00 AM
Project:	PGE Topock, 666665.FP.FW	**Matrix:**	SOIL
Lab ID:	N019173-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7471A				
RunID: **AA1_160324B**	QC Batch: **56715**			PrepDate	**3/23/2016**		Analyst: **AM**
Mercury	ND	0.0031	0.10		mg/Kg-dry	1	3/24/2016 12:06 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6582
Lab Order:	N019173	**Collection Date:**	3/21/2016 8:00:00 AM
Project:	PGE Topock, 666665.FP.FW	**Matrix:**	SOIL
Lab ID:	N019173-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7471A				
RunID: **AA1_160324B**	QC Batch: **56715**			PrepDate	**3/23/2016**		Analyst: **AM**
Mercury	ND	0.0031	0.10		mg/Kg-dry	1	3/24/2016 12:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6590
Lab Order:	N019173	**Collection Date:**	3/21/2016 8:15:00 AM
Project:	PGE Topock, 666665.FP.FW	**Matrix:**	SOIL
Lab ID:	N019173-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
EPA 7471A							
RunID: **AA1_160324B**	QC Batch: **56715**				PrepDate **3/23/2016**		Analyst: **AM**
Mercury	0.75	0.0041	0.13		mg/Kg-dry	1	3/24/2016 12:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6657
Lab Order:	N019173	**Collection Date:**	3/21/2016 8:30:00 AM
Project:	PGE Topock, 666665.FP.FW	**Matrix:**	SOIL
Lab ID:	N019173-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
EPA 7471A							
RunID: **AA1_160324B**	QC Batch: **56715**				PrepDate **3/23/2016**		Analyst: **AM**
Mercury	ND	0.0031	0.10		mg/Kg-dry	1	3/24/2016 12:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S_PGE

Sample ID	**MB-56715**	SampType: **MBLK**	TestCode: **7471_S_PGE**	Units: **mg/Kg**	Prep Date: **3/23/2016**	RunNo: **106599**
Client ID:	**PBS**	Batch ID: **56715**	TestNo: **EPA 7471A**		Analysis Date: **3/24/2016**	SeqNo: **2275918**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.005	0.10									

Sample ID	**N019173-001B-MS**	SampType: **MS**	TestCode: **7471_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **3/23/2016**	RunNo: **106599**
Client ID:	**ZZZZZZ**	Batch ID: **56715**	TestNo: **EPA 7471A**		Analysis Date: **3/24/2016**	SeqNo: **2275920**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.469	0.099	0.4108	0.007096	112	75	125				

Sample ID	**N019173-001B-MSD**	SampType: **MSD**	TestCode: **7471_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **3/23/2016**	RunNo: **106599**
Client ID:	**ZZZZZZ**	Batch ID: **56715**	TestNo: **EPA 7471A**		Analysis Date: **3/24/2016**	SeqNo: **2275921**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.476	0.10	0.4204	0.007096	112	75	125	0.4691	1.48	20	

Sample ID	**LCS-56715**	SampType: **LCS**	TestCode: **7471_S_PGE**	Units: **mg/Kg**	Prep Date: **3/23/2016**	RunNo: **106599**
Client ID:	**LCSS**	Batch ID: **56715**	TestNo: **EPA 7471A**		Analysis Date: **3/24/2016**	SeqNo: **2275944**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.494	0.10	0.4167	0	119	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-001

Client Sample ID: Soil-IDW-01-6238
Collection Date: 3/21/2016 7:45:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID							
EPA 3550B			**EPA 8015B**				
RunID: **GC1_160328A**	QC Batch: **56766**			PrepDate	**3/25/2016**		Analyst: **MDM**
TPH-Diesel (C9-C25)	ND	1.5	10		mg/Kg-dry	1	3/28/2016 02:27 PM
TPH-Oil (C24-C40)	61	1.2	10		mg/Kg-dry	1	3/28/2016 02:27 PM
Surr: Octacosane	89.4	0	25-162		%REC	1	3/28/2016 02:27 PM
Surr: p-Terphenyl	83.3	0	47-142		%REC	1	3/28/2016 02:27 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-002

Client Sample ID: Soil-IDW-01-6582
Collection Date: 3/21/2016 8:00:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID							
EPA 3550B			**EPA 8015B**				
RunID: **GC1_160329B**	QC Batch: **56795**			PrepDate	**3/29/2016**		Analyst: **MDM**
TPH-Diesel (C9-C25)	15	1.6	10		mg/Kg-dry	1	3/30/2016 12:33 PM
TPH-Oil (C24-C40)	78	1.2	10		mg/Kg-dry	1	3/30/2016 12:33 PM
Surr: Octacosane	87.5	0	25-162		%REC	1	3/30/2016 12:33 PM
Surr: p-Terphenyl	88.1	0	47-142		%REC	1	3/30/2016 12:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-003

Client Sample ID: Soil-IDW-01-6590
Collection Date: 3/21/2016 8:15:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID							
EPA 3550B			**EPA 8015B**				
RunID: **GC1_160329B**	QC Batch: **56795**			PrepDate	**3/29/2016**		Analyst: **MDM**
TPH-Diesel (C9-C25)	34	2.0	13		mg/Kg-dry	1	3/30/2016 12:59 PM
TPH-Oil (C24-C40)	160	1.6	13		mg/Kg-dry	1	3/30/2016 12:59 PM
Surr: Octacosane	82.8	0	25-162		%REC	1	3/30/2016 12:59 PM
Surr: p-Terphenyl	82.2	0	47-142		%REC	1	3/30/2016 12:59 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-004

Client Sample ID: Soil-IDW-01-6657
Collection Date: 3/21/2016 8:30:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID							
EPA 3550B			**EPA 8015B**				
RunID: **GC1_160329B**	QC Batch: **56795**			PrepDate	**3/29/2016**		Analyst: **MDM**
TPH-Diesel (C9-C25)	ND	1.5	10		mg/Kg-dry	1	3/30/2016 01:25 PM
TPH-Oil (C24-C40)	11	1.2	10		mg/Kg-dry	1	3/30/2016 01:25 PM
Surr: Octacosane	97.3	0	25-162		%REC	1	3/30/2016 01:25 PM
Surr: p-Terphenyl	90.2	0	47-142		%REC	1	3/30/2016 01:25 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015DM_SPGE

Sample ID **LCS-56766_DRO**	SampType: **LCS**	TestCode: **8015DM_SPG**	Units: **mg/Kg**	Prep Date: **3/25/2016**	RunNo: **106649**
Client ID: **LCSS**	Batch ID: **56766**	TestNo: **EPA 8015B**	**EPA 3550B**	Analysis Date: **3/28/2016**	SeqNo: **2278497**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Diesel (C9-C25)	241.322	10	333.3	0	72.4	51	153				
Surr: Octacosane	24.144		26.67		90.5	25	162				
Surr: p-Terphenyl	26.637		26.67		99.9	47	142				

Sample ID **LCS-56766_ORO**	SampType: **LCS**	TestCode: **8015DM_SPG**	Units: **mg/Kg**	Prep Date: **3/25/2016**	RunNo: **106649**
Client ID: **LCSS**	Batch ID: **56766**	TestNo: **EPA 8015B**	**EPA 3550B**	Analysis Date: **3/28/2016**	SeqNo: **2278498**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Oil (C24-C40)	297.257	10	333.3	0	89.2	60	120				
Surr: Octacosane	21.113		26.67		79.2	25	162				
Surr: p-Terphenyl	23.893		26.67		89.6	47	142				

Sample ID **MB-56766**	SampType: **MBLK**	TestCode: **8015DM_SPG**	Units: **mg/Kg**	Prep Date: **3/25/2016**	RunNo: **106649**
Client ID: **PBS**	Batch ID: **56766**	TestNo: **EPA 8015B**	**EPA 3550B**	Analysis Date: **3/28/2016**	SeqNo: **2278499**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Diesel (C9-C25)	ND	10									
TPH-Oil (C24-C40)	2.076	10									
Surr: Octacosane	25.863		26.67		97.0	25	162				
Surr: p-Terphenyl	23.785		26.67		89.2	47	142				

Sample ID **N019173-001E-MS**	SampType: **MS**	TestCode: **8015DM_SPG**	Units: **mg/Kg-dry**	Prep Date: **3/25/2016**	RunNo: **106668**
Client ID: **ZZZZZZ**	Batch ID: **56766**	TestNo: **EPA 8015B**	**EPA 3550B**	Analysis Date: **3/29/2016**	SeqNo: **2279618**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Diesel (C9-C25)	259.427	10	333.0	5.976	76.1	51	153				
Surr: Octacosane	22.879		26.64		85.9	25	162				
Surr: p-Terphenyl	21.356		26.64		80.2	47	142				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015DM_SPGE

Sample ID **N019173-001E-MSD** SampType: **MSD** TestCode: **8015DM_SPG** Units: **mg/Kg-dry** Prep Date: **3/25/2016** RunNo: **106668**
Client ID: **ZZZZZZ** Batch ID: **56766** TestNo: **EPA 8015B** **EPA 3550B** Analysis Date: **3/29/2016** SeqNo: **2279619**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Diesel (C9-C25)	300.288	10	334.3	5.976	88.0	51	153	259.4	14.6	50	
Surr: Octacosane	25.246		26.75		94.4	25	162		0		
Surr: p-Terphenyl	24.961		26.75		93.3	47	142		0		

Sample ID **N019174-004E-MS** SampType: **MS** TestCode: **8015DM_SPG** Units: **mg/Kg-dry** Prep Date: **3/25/2016** RunNo: **106668**
Client ID: **ZZZZZZ** Batch ID: **56766** TestNo: **EPA 8015B** **EPA 3550B** Analysis Date: **3/29/2016** SeqNo: **2279622**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Oil (C24-C40)	309.299	10	339.4	4.891	89.7	60	120				
Surr: Octacosane	21.873		27.16		80.5	25	162				
Surr: p-Terphenyl	23.794		27.16		87.6	47	142				

Sample ID **N019174-004E-MSD** SampType: **MSD** TestCode: **8015DM_SPG** Units: **mg/Kg-dry** Prep Date: **3/25/2016** RunNo: **106668**
Client ID: **ZZZZZZ** Batch ID: **56766** TestNo: **EPA 8015B** **EPA 3550B** Analysis Date: **3/29/2016** SeqNo: **2279623**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Oil (C24-C40)	298.863	10	339.4	4.891	86.6	60	120	309.3	3.43	50	
Surr: Octacosane	21.700		27.16		79.9	25	162		0		
Surr: p-Terphenyl	27.098		27.16		99.8	47	142		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015DM_SPGE

Sample ID **LCS-56795_DRO**	SampType: **LCS**	TestCode: **8015DM_SPG**	Units: **mg/Kg**	Prep Date: **3/29/2016**	RunNo: **106688**
Client ID: **LCSS**	Batch ID: **56795**	TestNo: **EPA 8015B**	**EPA 3550B**	Analysis Date: **3/30/2016**	SeqNo: **2280673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Diesel (C9-C25)	298.797	10	333.3	0	89.6	51	153				
Surr: Octacosane	26.411		26.67		99.0	25	162				
Surr: p-Terphenyl	24.298		26.67		91.1	47	142				

Sample ID **LCS-56795_ORO**	SampType: **LCS**	TestCode: **8015DM_SPG**	Units: **mg/Kg**	Prep Date: **3/29/2016**	RunNo: **106688**
Client ID: **LCSS**	Batch ID: **56795**	TestNo: **EPA 8015B**	**EPA 3550B**	Analysis Date: **3/30/2016**	SeqNo: **2280674**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Oil (C24-C40)	286.451	10	333.3	0	85.9	60	120				
Surr: Octacosane	20.952		26.67		78.6	25	162				
Surr: p-Terphenyl	23.438		26.67		87.9	47	142				

Sample ID **MB-56795**	SampType: **MBLK**	TestCode: **8015DM_SPG**	Units: **mg/Kg**	Prep Date: **3/29/2016**	RunNo: **106688**
Client ID: **PBS**	Batch ID: **56795**	TestNo: **EPA 8015B**	**EPA 3550B**	Analysis Date: **3/30/2016**	SeqNo: **2280675**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Diesel (C9-C25)	ND	10									
TPH-Oil (C24-C40)	ND	10									
Surr: Octacosane	26.083		26.67		97.8	25	162				
Surr: p-Terphenyl	23.926		26.67		89.7	47	142				

Sample ID **N019171-001E-MS**	SampType: **MS**	TestCode: **8015DM_SPG**	Units: **mg/Kg-dry**	Prep Date: **3/29/2016**	RunNo: **106688**
Client ID: **ZZZZZZ**	Batch ID: **56795**	TestNo: **EPA 8015B**	**EPA 3550B**	Analysis Date: **3/30/2016**	SeqNo: **2280677**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Diesel (C9-C25)	281.743	10	341.9	0	82.4	51	153				
Surr: Octacosane	25.451		27.35		93.1	25	162				
Surr: p-Terphenyl	23.725		27.35		86.7	47	142				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015DM_SPGE

Sample ID **N019171-001E-MSD**	SampType: **MSD**	TestCode: **8015DM_SPG**	Units: **mg/Kg-dry**	Prep Date: **3/29/2016**	RunNo: **106688**
Client ID: **ZZZZZZ**	Batch ID: **56795**	TestNo: **EPA 8015B**	**EPA 3550B**	Analysis Date: **3/30/2016**	SeqNo: **2280678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Diesel (C9-C25)	286.871	10	342.7	0	83.7	51	153	281.7	1.80	50	
Surr: Octacosane	25.370		27.42		92.5	25	162		0		
Surr: p-Terphenyl	24.485		27.42		89.3	47	142		0		

Sample ID **N019171-002E-MS**	SampType: **MS**	TestCode: **8015DM_SPG**	Units: **mg/Kg-dry**	Prep Date: **3/29/2016**	RunNo: **106688**
Client ID: **ZZZZZZ**	Batch ID: **56795**	TestNo: **EPA 8015B**	**EPA 3550B**	Analysis Date: **3/30/2016**	SeqNo: **2280680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Oil (C24-C40)	310.070	10	348.1	3.789	88.0	60	120				
Surr: Octacosane	23.294		27.85		83.6	25	162				
Surr: p-Terphenyl	29.360		27.85		105	47	142				

Sample ID **N019171-002E-MSD**	SampType: **MSD**	TestCode: **8015DM_SPG**	Units: **mg/Kg-dry**	Prep Date: **3/29/2016**	RunNo: **106688**
Client ID: **ZZZZZZ**	Batch ID: **56795**	TestNo: **EPA 8015B**	**EPA 3550B**	Analysis Date: **3/30/2016**	SeqNo: **2280681**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Oil (C24-C40)	308.040	10	349.6	3.789	87.0	60	120	310.1	0.657	50	
Surr: Octacosane	23.677		27.97		84.6	25	162		0		
Surr: p-Terphenyl	29.216		27.97		104	47	142		0		

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-001

Client Sample ID: Soil-IDW-01-6238
Collection Date: 3/21/2016 7:45:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES BY GC/ECD							
EPA 3550B			**EPA 8081A**				
RunID: **GC7_160325A**	QC Batch: **56728**			PrepDate	**3/23/2016**		Analyst: **MDM**
4,4´-DDD	ND	0.20	2.0		ug/Kg-dry	1	3/28/2016 01:36 PM
4,4´-DDE	ND	0.42	2.0		ug/Kg-dry	1	3/28/2016 01:36 PM
4,4´-DDT	ND	0.22	2.0		ug/Kg-dry	1	3/28/2016 01:36 PM
Aldrin	ND	0.13	1.0		ug/Kg-dry	1	3/28/2016 01:36 PM
alpha-BHC	ND	0.25	1.0		ug/Kg-dry	1	3/28/2016 01:36 PM
alpha-Chlordane	ND	0.11	1.0		ug/Kg-dry	1	3/28/2016 01:36 PM
beta-BHC	ND	0.12	1.0		ug/Kg-dry	1	3/28/2016 01:36 PM
delta-BHC	ND	0.36	1.0		ug/Kg-dry	1	3/28/2016 01:36 PM
Dieldrin	ND	0.20	2.0		ug/Kg-dry	1	3/28/2016 01:36 PM
Endosulfan I	ND	0.17	1.0		ug/Kg-dry	1	3/28/2016 01:36 PM
Endosulfan II	ND	0.19	2.0		ug/Kg-dry	1	3/28/2016 01:36 PM
Endosulfan sulfate	ND	0.43	2.0		ug/Kg-dry	1	3/28/2016 01:36 PM
Endrin	ND	0.31	2.0		ug/Kg-dry	1	3/28/2016 01:36 PM
Endrin aldehyde	ND	0.20	2.0		ug/Kg-dry	1	3/28/2016 01:36 PM
gamma-BHC	ND	0.13	1.0		ug/Kg-dry	1	3/28/2016 01:36 PM
gamma-Chlordane	ND	0.19	1.0		ug/Kg-dry	1	3/28/2016 01:36 PM
Heptachlor	ND	0.14	1.0		ug/Kg-dry	1	3/28/2016 01:36 PM
Heptachlor epoxide	ND	0.12	1.0		ug/Kg-dry	1	3/28/2016 01:36 PM
Methoxychlor	ND	1.2	5.0		ug/Kg-dry	1	3/28/2016 01:36 PM
Toxaphene	ND	5.3	50		ug/Kg-dry	1	3/28/2016 01:36 PM
Surr: Tetrachloro-m-xylene	48.7	0	36-124		%REC	1	3/28/2016 01:36 PM
Surr: Decachlorobiphenyl	54.2	0	26-125		%REC	1	3/28/2016 01:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-002

Client Sample ID: Soil-IDW-01-6582
Collection Date: 3/21/2016 8:00:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES BY GC/ECD							
EPA 3550B			**EPA 8081A**				
RunID: **GC7_160325A**	QC Batch: **56728**			PrepDate	**3/23/2016**		Analyst: **MDM**
4,4´-DDD	ND	0.20	2.0		ug/Kg-dry	1	3/28/2016 01:59 PM
4,4´-DDE	ND	0.42	2.0		ug/Kg-dry	1	3/28/2016 01:59 PM
4,4´-DDT	ND	0.22	2.0		ug/Kg-dry	1	3/28/2016 01:59 PM
Aldrin	ND	0.13	1.0		ug/Kg-dry	1	3/28/2016 01:59 PM
alpha-BHC	ND	0.26	1.0		ug/Kg-dry	1	3/28/2016 01:59 PM
alpha-Chlordane	ND	0.11	1.0		ug/Kg-dry	1	3/28/2016 01:59 PM
beta-BHC	ND	0.12	1.0		ug/Kg-dry	1	3/28/2016 01:59 PM
delta-BHC	ND	0.36	1.0		ug/Kg-dry	1	3/28/2016 01:59 PM
Dieldrin	ND	0.20	2.0		ug/Kg-dry	1	3/28/2016 01:59 PM
Endosulfan I	ND	0.17	1.0		ug/Kg-dry	1	3/28/2016 01:59 PM
Endosulfan II	ND	0.19	2.0		ug/Kg-dry	1	3/28/2016 01:59 PM
Endosulfan sulfate	ND	0.43	2.0		ug/Kg-dry	1	3/28/2016 01:59 PM
Endrin	ND	0.31	2.0		ug/Kg-dry	1	3/28/2016 01:59 PM
Endrin aldehyde	ND	0.20	2.0		ug/Kg-dry	1	3/28/2016 01:59 PM
gamma-BHC	ND	0.13	1.0		ug/Kg-dry	1	3/28/2016 01:59 PM
gamma-Chlordane	ND	0.19	1.0		ug/Kg-dry	1	3/28/2016 01:59 PM
Heptachlor	ND	0.14	1.0		ug/Kg-dry	1	3/28/2016 01:59 PM
Heptachlor epoxide	ND	0.12	1.0		ug/Kg-dry	1	3/28/2016 01:59 PM
Methoxychlor	ND	1.2	5.0		ug/Kg-dry	1	3/28/2016 01:59 PM
Toxaphene	ND	5.3	50		ug/Kg-dry	1	3/28/2016 01:59 PM
Surr: Tetrachloro-m-xylene	63.7	0	36-124		%REC	1	3/28/2016 01:59 PM
Surr: Decachlorobiphenyl	69.1	0	26-125		%REC	1	3/28/2016 01:59 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-003

Client Sample ID: Soil-IDW-01-6590
Collection Date: 3/21/2016 8:15:00 AM
Matrix: SOIL

ORGANOCHLORINE PESTICIDES BY GC/ECD

EPA 3550B **EPA 8081A**

RunID: **GC7_160325A** QC Batch: **56728** PrepDate **3/23/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
4,4´-DDD	ND	0.26	2.6		ug/Kg-dry	1	3/28/2016 02:22 PM
4,4´-DDE	ND	0.55	2.6		ug/Kg-dry	1	3/28/2016 02:22 PM
4,4´-DDT	ND	0.28	2.6		ug/Kg-dry	1	3/28/2016 02:22 PM
Aldrin	ND	0.17	1.3		ug/Kg-dry	1	3/28/2016 02:22 PM
alpha-BHC	ND	0.33	1.3		ug/Kg-dry	1	3/28/2016 02:22 PM
alpha-Chlordane	ND	0.14	1.3		ug/Kg-dry	1	3/28/2016 02:22 PM
beta-BHC	ND	0.15	1.3		ug/Kg-dry	1	3/28/2016 02:22 PM
delta-BHC	ND	0.47	1.3		ug/Kg-dry	1	3/28/2016 02:22 PM
Dieldrin	ND	0.26	2.6		ug/Kg-dry	1	3/28/2016 02:22 PM
Endosulfan I	ND	0.22	1.3		ug/Kg-dry	1	3/28/2016 02:22 PM
Endosulfan II	ND	0.25	2.6		ug/Kg-dry	1	3/28/2016 02:22 PM
Endosulfan sulfate	ND	0.57	2.6		ug/Kg-dry	1	3/28/2016 02:22 PM
Endrin	ND	0.40	2.6		ug/Kg-dry	1	3/28/2016 02:22 PM
Endrin aldehyde	ND	0.27	2.6		ug/Kg-dry	1	3/28/2016 02:22 PM
gamma-BHC	ND	0.17	1.3		ug/Kg-dry	1	3/28/2016 02:22 PM
gamma-Chlordane	ND	0.25	1.3		ug/Kg-dry	1	3/28/2016 02:22 PM
Heptachlor	ND	0.19	1.3		ug/Kg-dry	1	3/28/2016 02:22 PM
Heptachlor epoxide	ND	0.15	1.3		ug/Kg-dry	1	3/28/2016 02:22 PM
Methoxychlor	ND	1.5	6.6		ug/Kg-dry	1	3/28/2016 02:22 PM
Toxaphene	ND	6.9	66		ug/Kg-dry	1	3/28/2016 02:22 PM
Surr: Tetrachloro-m-xylene	74.6	0	36-124		%REC	1	3/28/2016 02:22 PM
Surr: Decachlorobiphenyl	60.2	0	26-125		%REC	1	3/28/2016 02:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-004

Client Sample ID: Soil-IDW-01-6657
Collection Date: 3/21/2016 8:30:00 AM
Matrix: SOIL

ORGANOCHLORINE PESTICIDES BY GC/ECD

EPA 3550B **EPA 8081A**

RunID: **GC7_160325A** QC Batch: **56728** PrepDate **3/23/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
4,4´-DDD	ND	0.20	2.0		ug/Kg-dry	1	3/28/2016 02:44 PM
4,4´-DDE	ND	0.43	2.0		ug/Kg-dry	1	3/28/2016 02:44 PM
4,4´-DDT	ND	0.22	2.0		ug/Kg-dry	1	3/28/2016 02:44 PM
Aldrin	ND	0.13	1.0		ug/Kg-dry	1	3/28/2016 02:44 PM
alpha-BHC	ND	0.26	1.0		ug/Kg-dry	1	3/28/2016 02:44 PM
alpha-Chlordane	ND	0.11	1.0		ug/Kg-dry	1	3/28/2016 02:44 PM
beta-BHC	ND	0.12	1.0		ug/Kg-dry	1	3/28/2016 02:44 PM
delta-BHC	ND	0.36	1.0		ug/Kg-dry	1	3/28/2016 02:44 PM
Dieldrin	ND	0.20	2.0		ug/Kg-dry	1	3/28/2016 02:44 PM
Endosulfan I	ND	0.17	1.0		ug/Kg-dry	1	3/28/2016 02:44 PM
Endosulfan II	ND	0.20	2.0		ug/Kg-dry	1	3/28/2016 02:44 PM
Endosulfan sulfate	ND	0.44	2.0		ug/Kg-dry	1	3/28/2016 02:44 PM
Endrin	ND	0.31	2.0		ug/Kg-dry	1	3/28/2016 02:44 PM
Endrin aldehyde	ND	0.21	2.0		ug/Kg-dry	1	3/28/2016 02:44 PM
gamma-BHC	ND	0.13	1.0		ug/Kg-dry	1	3/28/2016 02:44 PM
gamma-Chlordane	ND	0.19	1.0		ug/Kg-dry	1	3/28/2016 02:44 PM
Heptachlor	ND	0.14	1.0		ug/Kg-dry	1	3/28/2016 02:44 PM
Heptachlor epoxide	ND	0.12	1.0		ug/Kg-dry	1	3/28/2016 02:44 PM
Methoxychlor	ND	1.2	5.1		ug/Kg-dry	1	3/28/2016 02:44 PM
Toxaphene	ND	5.3	51		ug/Kg-dry	1	3/28/2016 02:44 PM
Surr: Tetrachloro-m-xylene	62.9	0	36-124		%REC	1	3/28/2016 02:44 PM
Surr: Decachlorobiphenyl	71.5	0	26-125		%REC	1	3/28/2016 02:44 PM

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S_PGE

Sample ID **LCS-56728_OCP**	SampType: **LCS**	TestCode: **8081_S_PGE**	Units: **ug/Kg**	Prep Date: **3/23/2016**	RunNo: **106632**
Client ID: **LCSS**	Batch ID: **56728**	TestNo: **EPA 8081A**	**EPA 3550B**	Analysis Date: **3/25/2016**	SeqNo: **2277893**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	14.418	2.0	16.67	0	86.5	50	139				
4,4´-DDE	14.267	2.0	16.67	0	85.6	68	126				
4,4´-DDT	13.367	2.0	16.67	0	80.2	46	135				
Aldrin	12.722	1.0	16.67	0	76.3	47	120				
alpha-BHC	13.207	1.0	16.67	0	79.2	62	125				
alpha-Chlordane	12.810	1.0	16.67	0	76.8	63	121				
beta-BHC	12.403	1.0	16.67	0	74.4	62	127				
delta-BHC	14.257	1.0	16.67	0	85.5	57	130				
Dieldrin	14.500	2.0	16.67	0	87.0	67	125				
Endosulfan I	13.620	1.0	16.67	0	81.7	41	147				
Endosulfan II	14.522	2.0	16.67	0	87.1	37	141				
Endosulfan sulfate	14.763	2.0	16.67	0	88.6	62	135				
Endrin	15.392	2.0	16.67	0	92.3	61	133				
Endrin aldehyde	14.055	2.0	16.67	0	84.3	37	147				
gamma-BHC	12.907	1.0	16.67	0	77.4	59	123				
gamma-Chlordane	13.753	1.0	16.67	0	82.5	48	124				
Heptachlor	13.372	1.0	16.67	0	80.2	51	140				
Heptachlor epoxide	13.588	1.0	16.67	0	81.5	66	130				
Methoxychlor	13.128	5.0	16.67	0	78.8	57	143				
Surr: Tetrachloro-m-xylene	9.293		16.67		55.7	36	124				
Surr: Decachlorobiphenyl	12.253		16.67		73.5	26	125				

Sample ID **MB-56728**	SampType: **MBLK**	TestCode: **8081_S_PGE**	Units: **ug/Kg**	Prep Date: **3/23/2016**	RunNo: **106632**
Client ID: **PBS**	Batch ID: **56728**	TestNo: **EPA 8081A**	**EPA 3550B**	Analysis Date: **3/25/2016**	SeqNo: **2277894**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	ND	2.0									
4,4´-DDE	ND	2.0									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S_PGE

Sample ID **MB-56728**	SampType: **MBLK**	TestCode: **8081_S_PGE**	Units: **ug/Kg**	Prep Date: **3/23/2016**	RunNo: **106632**
Client ID: **PBS**	Batch ID: **56728**	TestNo: **EPA 8081A**	**EPA 3550B**	Analysis Date: **3/25/2016**	SeqNo: **2277894**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	ND	2.0									
Aldrin	ND	1.0									
alpha-BHC	ND	1.0									
alpha-Chlordane	ND	1.0									
beta-BHC	ND	1.0									
delta-BHC	ND	1.0									
Dieldrin	ND	2.0									
Endosulfan I	ND	1.0									
Endosulfan II	ND	2.0									
Endosulfan sulfate	ND	2.0									
Endrin	ND	2.0									
Endrin aldehyde	ND	2.0									
gamma-BHC	ND	1.0									
gamma-Chlordane	ND	1.0									
Heptachlor	ND	1.0									
Heptachlor epoxide	ND	1.0									
Methoxychlor	ND	5.0									
Toxaphene	ND	50									
Surr: Tetrachloro-m-xylene	8.505		16.67		51.0	36	124				
Surr: Decachlorobiphenyl	11.605		16.67		69.6	26	125				

Sample ID **N019171-003D-MS**	SampType: **MS**	TestCode: **8081_S_PGE**	Units: **ug/Kg-dry**	Prep Date: **3/23/2016**	RunNo: **106632**
Client ID: **ZZZZZZ**	Batch ID: **56728**	TestNo: **EPA 8081A**	**EPA 3550B**	Analysis Date: **3/28/2016**	SeqNo: **2279633**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	16.017	2.2	17.99	0	89.0	50	139				
4,4´-DDE	15.282	2.2	17.99	0	85.0	68	126				
4,4´-DDT	14.886	2.2	17.99	0	82.7	46	135				
Aldrin	13.061	1.1	17.99	0	72.6	47	120				
alpha-BHC	13.474	1.1	17.99	0	74.9	62	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S_PGE

Sample ID **N019171-003D-MS**	SampType: **MS**	TestCode: **8081_S_PGE**	Units: **ug/Kg-dry**	Prep Date: **3/23/2016**	RunNo: **106632**
Client ID: **ZZZZZZ**	Batch ID: **56728**	TestNo: **EPA 8081A** **EPA 3550B**		Analysis Date: **3/28/2016**	SeqNo: **2279633**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
alpha-Chlordane	13.597	1.1	17.99	0	75.6	63	121				
beta-BHC	13.591	1.1	17.99	0	75.5	62	127				
delta-BHC	15.876	1.1	17.99	0	88.3	57	130				
Dieldrin	14.549	2.2	17.99	0	80.9	67	125				
Endosulfan I	14.843	1.1	17.99	0	82.5	41	147				
Endosulfan II	15.176	2.2	17.99	0	84.4	37	141				
Endosulfan sulfate	14.866	2.2	17.99	0	82.6	62	135				
Endrin	16.351	2.2	17.99	0	90.9	61	133				
Endrin aldehyde	15.867	2.2	17.99	0	88.2	37	147				
gamma-BHC	13.075	1.1	17.99	0	72.7	59	123				
gamma-Chlordane	14.383	1.1	17.99	0	80.0	48	124				
Heptachlor	13.233	1.1	17.99	0	73.6	51	140				
Heptachlor epoxide	13.927	1.1	17.99	0	77.4	66	130				
Methoxychlor	14.752	5.4	17.99	0	82.0	57	143				
Surr: Tetrachloro-m-xylene	8.265		17.99		45.9	36	124				
Surr: Decachlorobiphenyl	10.679		17.99		59.4	26	125				

Sample ID **N019171-003D-MSD**	SampType: **MSD**	TestCode: **8081_S_PGE**	Units: **ug/Kg-dry**	Prep Date: **3/23/2016**	RunNo: **106632**
Client ID: **ZZZZZZ**	Batch ID: **56728**	TestNo: **EPA 8081A** **EPA 3550B**		Analysis Date: **3/28/2016**	SeqNo: **2279634**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	15.368	2.2	18.05	0	85.1	50	139	16.02	4.14	50	
4,4´-DDE	14.515	2.2	18.05	0	80.4	68	126	15.28	5.15	50	
4,4´-DDT	14.236	2.2	18.05	0	78.9	46	135	14.89	4.46	50	
Aldrin	12.958	1.1	18.05	0	71.8	47	120	13.06	0.787	50	
alpha-BHC	13.197	1.1	18.05	0	73.1	62	125	13.47	2.08	50	
alpha-Chlordane	13.313	1.1	18.05	0	73.8	63	121	13.60	2.11	50	
beta-BHC	12.634	1.1	18.05	0	70.0	62	127	13.59	7.30	50	
delta-BHC	14.854	1.1	18.05	0	82.3	57	130	15.88	6.65	50	
Dieldrin	14.527	2.2	18.05	0	80.5	67	125	14.55	0.153	50	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S_PGE

Sample ID **N019171-003D-MSD** SampType: **MSD** TestCode: **8081_S_PGE** Units: **ug/Kg-dry** Prep Date: **3/23/2016** RunNo: **106632**
Client ID: **ZZZZZZ** Batch ID: **56728** TestNo: **EPA 8081A EPA 3550B** Analysis Date: **3/28/2016** SeqNo: **2279634**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Endosulfan I	14.244	1.1	18.05	0	78.9	41	147	14.84	4.12	50	
Endosulfan II	14.415	2.2	18.05	0	79.9	37	141	15.18	5.14	50	
Endosulfan sulfate	14.336	2.2	18.05	0	79.4	62	135	14.87	3.63	50	
Endrin	15.480	2.2	18.05	0	85.8	61	133	16.35	5.48	50	
Endrin aldehyde	15.784	2.2	18.05	0	87.5	37	147	15.87	0.519	50	
gamma-BHC	12.786	1.1	18.05	0	70.8	59	123	13.07	2.23	50	
gamma-Chlordane	13.642	1.1	18.05	0	75.6	48	124	14.38	5.29	50	
Heptachlor	13.125	1.1	18.05	0	72.7	51	140	13.23	0.824	50	
Heptachlor epoxide	13.308	1.1	18.05	0	73.7	66	130	13.93	4.55	50	
Methoxychlor	13.950	5.4	18.05	0	77.3	57	143	14.75	5.59	50	
Surr: Tetrachloro-m-xylene	9.044		18.05		50.1	36	124		0	0	
Surr: Decachlorobiphenyl	10.375		18.05		57.5	26	125		0	0	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-001

Client Sample ID: Soil-IDW-01-6238
Collection Date: 3/21/2016 7:45:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PCBS BY GC/ECD							
	EPA 3550B			**EPA 8082**			
RunID: **GC7_160328A**	QC Batch: **56728**			PrepDate	**3/23/2016**		Analyst: **MDM**
Aroclor 1016	ND	5.0	17		ug/Kg-dry	1	3/28/2016 01:36 PM
Aroclor 1221	ND	5.4	33		ug/Kg-dry	1	3/28/2016 01:36 PM
Aroclor 1232	ND	11	17		ug/Kg-dry	1	3/28/2016 01:36 PM
Aroclor 1242	ND	8.1	17		ug/Kg-dry	1	3/28/2016 01:36 PM
Aroclor 1248	ND	2.8	17		ug/Kg-dry	1	3/28/2016 01:36 PM
Aroclor 1254	19	5.0	17		ug/Kg-dry	1	3/28/2016 01:36 PM
Aroclor 1260	ND	3.2	17		ug/Kg-dry	1	3/28/2016 01:36 PM
Surr: Decachlorobiphenyl	91.5	0	26-125		%REC	1	3/28/2016 01:36 PM
Surr: Tetrachloro-m-xylene	81.9	0	48-121		%REC	1	3/28/2016 01:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-002

Client Sample ID: Soil-IDW-01-6582
Collection Date: 3/21/2016 8:00:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PCBS BY GC/ECD							
	EPA 3550B			**EPA 8082**			
RunID: **GC7_160328A**	QC Batch: **56728**			PrepDate	**3/23/2016**		Analyst: **MDM**
Aroclor 1016	ND	5.0	17		ug/Kg-dry	1	3/28/2016 01:59 PM
Aroclor 1221	ND	5.4	33		ug/Kg-dry	1	3/28/2016 01:59 PM
Aroclor 1232	ND	11	17		ug/Kg-dry	1	3/28/2016 01:59 PM
Aroclor 1242	ND	8.1	17		ug/Kg-dry	1	3/28/2016 01:59 PM
Aroclor 1248	ND	2.8	17		ug/Kg-dry	1	3/28/2016 01:59 PM
Aroclor 1254	69	5.0	17		ug/Kg-dry	1	3/28/2016 01:59 PM
Aroclor 1260	ND	3.2	17		ug/Kg-dry	1	3/28/2016 01:59 PM
Surr: Decachlorobiphenyl	101	0	26-125		%REC	1	3/28/2016 01:59 PM
Surr: Tetrachloro-m-xylene	92.6	0	48-121		%REC	1	3/28/2016 01:59 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-003

Client Sample ID: Soil-IDW-01-6590
Collection Date: 3/21/2016 8:15:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PCBS BY GC/ECD							
	EPA 3550B			**EPA 8082**			
RunID: **GC7_160328A**	QC Batch: **56728**			PrepDate	**3/23/2016**		Analyst: **MDM**
Aroclor 1016	ND	6.5	22		ug/Kg-dry	1	3/28/2016 02:22 PM
Aroclor 1221	ND	7.0	43		ug/Kg-dry	1	3/28/2016 02:22 PM
Aroclor 1232	ND	15	22		ug/Kg-dry	1	3/28/2016 02:22 PM
Aroclor 1242	ND	11	22		ug/Kg-dry	1	3/28/2016 02:22 PM
Aroclor 1248	ND	3.6	22		ug/Kg-dry	1	3/28/2016 02:22 PM
Aroclor 1254	ND	6.5	22		ug/Kg-dry	1	3/28/2016 02:22 PM
Aroclor 1260	ND	4.2	22		ug/Kg-dry	1	3/28/2016 02:22 PM
Surr: Decachlorobiphenyl	85.9	0	26-125		%REC	1	3/28/2016 02:22 PM
Surr: Tetrachloro-m-xylene	103	0	48-121		%REC	1	3/28/2016 02:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-004

Client Sample ID: Soil-IDW-01-6657
Collection Date: 3/21/2016 8:30:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PCBS BY GC/ECD							
	EPA 3550B			**EPA 8082**			
RunID: **GC7_160328A**	QC Batch: **56728**			PrepDate	**3/23/2016**		Analyst: **MDM**
Aroclor 1016	ND	5.0	17		ug/Kg-dry	1	3/28/2016 02:44 PM
Aroclor 1221	ND	5.4	33		ug/Kg-dry	1	3/28/2016 02:44 PM
Aroclor 1232	ND	11	17		ug/Kg-dry	1	3/28/2016 02:44 PM
Aroclor 1242	ND	8.2	17		ug/Kg-dry	1	3/28/2016 02:44 PM
Aroclor 1248	ND	2.8	17		ug/Kg-dry	1	3/28/2016 02:44 PM
Aroclor 1254	ND	5.0	17		ug/Kg-dry	1	3/28/2016 02:44 PM
Aroclor 1260	ND	3.2	17		ug/Kg-dry	1	3/28/2016 02:44 PM
Surr: Decachlorobiphenyl	133	0	26-125	S	%REC	1	3/28/2016 02:44 PM
Surr: Tetrachloro-m-xylene	112	0	48-121		%REC	1	3/28/2016 02:44 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_S_PGE

Sample ID **N019171-002D-MS**	SampType: **MS**	TestCode: **8082_S_PGE**	Units: **ug/Kg-dry**	Prep Date: **3/23/2016**	RunNo: **106656**
Client ID: **ZZZZZZ**	Batch ID: **56728**	TestNo: **EPA 8082**	**EPA 3550B**	Analysis Date: **3/28/2016**	SeqNo: **2278645**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	170.494	17	174.1	0	97.9	41	138				
Aroclor 1260	178.831	17	174.1	0	103	61	131				
Surr: Decachlorobiphenyl	13.174		17.41		75.7	26	125				
Surr: Tetrachloro-m-xylene	12.155		17.41		69.8	48	121				

Sample ID **N019171-002D-MSD**	SampType: **MSD**	TestCode: **8082_S_PGE**	Units: **ug/Kg-dry**	Prep Date: **3/23/2016**	RunNo: **106656**
Client ID: **ZZZZZZ**	Batch ID: **56728**	TestNo: **EPA 8082**	**EPA 3550B**	Analysis Date: **3/28/2016**	SeqNo: **2278646**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	158.873	17	174.6	0	91.0	41	138	170.5	7.06	20	
Aroclor 1260	167.184	17	174.6	0	95.7	61	131	178.8	6.73	20	
Surr: Decachlorobiphenyl	12.363		17.47		70.8	26	125		0		
Surr: Tetrachloro-m-xylene	11.986		17.47		68.6	48	121		0		

Sample ID **LCS-56728_PCB**	SampType: **LCS**	TestCode: **8082_S_PGE**	Units: **ug/Kg**	Prep Date: **3/23/2016**	RunNo: **106656**
Client ID: **LCSS**	Batch ID: **56728**	TestNo: **EPA 8082**	**EPA 3550B**	Analysis Date: **3/29/2016**	SeqNo: **2278647**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	147.137	16	166.7	0	88.3	41	138				
Aroclor 1260	163.362	16	166.7	0	98.0	61	131				
Surr: Decachlorobiphenyl	14.873		16.67		89.2	26	125				
Surr: Tetrachloro-m-xylene	11.215		16.67		67.3	48	121				

Sample ID **MB-56728**	SampType: **MBLK**	TestCode: **8082_S_PGE**	Units: **ug/Kg**	Prep Date: **3/23/2016**	RunNo: **106656**
Client ID: **PBS**	Batch ID: **56728**	TestNo: **EPA 8082**	**EPA 3550B**	Analysis Date: **3/29/2016**	SeqNo: **2278648**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	16									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_S_PGE

Sample ID **MB-56728**	SampType: **MBLK**	TestCode: **8082_S_PGE**	Units: **ug/Kg**	Prep Date: **3/23/2016**	RunNo: **106656**
Client ID: **PBS**	Batch ID: **56728**	TestNo: **EPA 8082**	**EPA 3550B**	Analysis Date: **3/29/2016**	SeqNo: **2278648**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1221	ND	33									
Aroclor 1232	ND	16									
Aroclor 1242	ND	16									
Aroclor 1248	ND	16									
Aroclor 1254	ND	16									
Aroclor 1260	ND	16									
Surr: Decachlorobiphenyl	17.399		16.67		104	26	125				
Surr: Tetrachloro-m-xylene	13.620		16.67		81.7	48	121				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-001

Client Sample ID: Soil-IDW-01-6238
Collection Date: 3/21/2016 7:45:00 AM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **MS3_160402A** QC Batch: **56803** PrepDate **3/30/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,2,4-Trichlorobenzene	ND	42	330		ug/Kg-dry	1	4/2/2016 07:41 PM
1,2-Dichlorobenzene	ND	41	330		ug/Kg-dry	1	4/2/2016 07:41 PM
1,3-Dichlorobenzene	ND	49	330		ug/Kg-dry	1	4/2/2016 07:41 PM
1,4-Dichlorobenzene	ND	42	330		ug/Kg-dry	1	4/2/2016 07:41 PM
2,4,5-Trichlorophenol	ND	41	330		ug/Kg-dry	1	4/2/2016 07:41 PM
2,4,6-Trichlorophenol	ND	39	330		ug/Kg-dry	1	4/2/2016 07:41 PM
2,4-Dichlorophenol	ND	40	1600		ug/Kg-dry	1	4/2/2016 07:41 PM
2,4-Dimethylphenol	ND	90	330		ug/Kg-dry	1	4/2/2016 07:41 PM
2,4-Dinitrophenol	ND	27	1600		ug/Kg-dry	1	4/2/2016 07:41 PM
2,4-Dinitrotoluene	ND	44	330		ug/Kg-dry	1	4/2/2016 07:41 PM
2,6-Dinitrotoluene	ND	43	330		ug/Kg-dry	1	4/2/2016 07:41 PM
2-Chloronaphthalene	ND	45	330		ug/Kg-dry	1	4/2/2016 07:41 PM
2-Chlorophenol	ND	43	330		ug/Kg-dry	1	4/2/2016 07:41 PM
2-Methylnaphthalene	ND	160	330		ug/Kg-dry	1	4/2/2016 07:41 PM
2-Methylphenol	ND	48	330		ug/Kg-dry	1	4/2/2016 07:41 PM
2-Nitroaniline	ND	53	1600		ug/Kg-dry	1	4/2/2016 07:41 PM
2-Nitrophenol	ND	45	330		ug/Kg-dry	1	4/2/2016 07:41 PM
3,3´-Dichlorobenzidine	ND	24	660		ug/Kg-dry	1	4/2/2016 07:41 PM
3-Nitroaniline	ND	48	1600		ug/Kg-dry	1	4/2/2016 07:41 PM
4,6-Dinitro-2-methylphenol	ND	52	1600		ug/Kg-dry	1	4/2/2016 07:41 PM
4-Bromophenyl-phenylether	ND	45	330		ug/Kg-dry	1	4/2/2016 07:41 PM
4-Chloro-3-methylphenol	ND	40	660		ug/Kg-dry	1	4/2/2016 07:41 PM
4-Chloroaniline	ND	44	660		ug/Kg-dry	1	4/2/2016 07:41 PM
4-Chlorophenyl-phenylether	ND	45	330		ug/Kg-dry	1	4/2/2016 07:41 PM
4-Methylphenol	ND	36	330		ug/Kg-dry	1	4/2/2016 07:41 PM
4-Nitroaniline	ND	46	1600		ug/Kg-dry	1	4/2/2016 07:41 PM
4-Nitrophenol	ND	35	1600		ug/Kg-dry	1	4/2/2016 07:41 PM
Acenaphthene	ND	41	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Acenaphthylene	ND	37	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Anthracene	ND	64	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Benzo(a)anthracene	ND	75	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Benzo(a)pyrene	ND	64	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Benzo(b)fluoranthene	ND	40	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Benzo(g,h,i)perylene	ND	48	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Benzo(k)fluoranthene	ND	57	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Benzoic acid	ND	110	1600		ug/Kg-dry	1	4/2/2016 07:41 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-001

Client Sample ID: Soil-IDW-01-6238
Collection Date: 3/21/2016 7:45:00 AM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **MS3_160402A** QC Batch: **56803** PrepDate **3/30/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Benzyl alcohol	ND	68	660		ug/Kg-dry	1	4/2/2016 07:41 PM
Bis(2-chloroethoxy)methane	ND	64	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Bis(2-chloroethyl)ether	ND	62	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Bis(2-chloroisopropyl)ether	ND	57	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Bis(2-ethylhexyl)phthalate	ND	80	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Butylbenzylphthalate	ND	67	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Chrysene	ND	80	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Di-n-butylphthalate	ND	41	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Di-n-octylphthalate	ND	51	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Dibenz(a,h)anthracene	ND	93	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Dibenzofuran	ND	40	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Diethylphthalate	ND	44	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Dimethylphthalate	ND	43	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Fluoranthene	ND	61	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Fluorene	ND	45	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Hexachlorobenzene	ND	47	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Hexachlorobutadiene	ND	61	660		ug/Kg-dry	1	4/2/2016 07:41 PM
Hexachloroethane	ND	42	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Indeno(1,2,3-cd)pyrene	ND	39	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Isophorone	ND	59	330		ug/Kg-dry	1	4/2/2016 07:41 PM
N-Nitrosodi-n-propylamine	ND	46	330		ug/Kg-dry	1	4/2/2016 07:41 PM
N-Nitrosodiphenylamine	ND	48	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Naphthalene	ND	48	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Nitrobenzene	ND	57	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Pentachlorophenol	ND	34	1600		ug/Kg-dry	1	4/2/2016 07:41 PM
Phenanthrene	ND	83	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Phenol	ND	38	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Pyrene	ND	47	330		ug/Kg-dry	1	4/2/2016 07:41 PM
Surr: 1,2-Dichlorobenzene-d4	57.3	0	25-110		%REC	1	4/2/2016 07:41 PM
Surr: 2,4,6-Tribromophenol	87.0	0	36-126		%REC	1	4/2/2016 07:41 PM
Surr: 2-Chlorophenol-d4	65.0	0	30-100		%REC	1	4/2/2016 07:41 PM
Surr: 2-Fluorobiphenyl	63.3	0	43-125		%REC	1	4/2/2016 07:41 PM
Surr: 2-Fluorophenol	63.2	0	37-125		%REC	1	4/2/2016 07:41 PM
Surr: 4-Terphenyl-d14	84.1	0	32-125		%REC	1	4/2/2016 07:41 PM
Surr: Nitrobenzene-d5	58.3	0	37-125		%REC	1	4/2/2016 07:41 PM
Surr: Phenol-d5	65.6	0	40-125		%REC	1	4/2/2016 07:41 PM

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike/Surrogate outside of limits due to matrix interference
- Results are wet unless otherwise specified
- DO Surrogate Diluted Out

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-002

Client Sample ID: Soil-IDW-01-6582
Collection Date: 3/21/2016 8:00:00 AM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **MS3_160402A** QC Batch: **56803** PrepDate **3/30/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,2,4-Trichlorobenzene	ND	43	330		ug/Kg-dry	1	4/2/2016 10:22 PM
1,2,4-Trichlorobenzene	ND	430	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
1,2-Dichlorobenzene	ND	420	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
1,2-Dichlorobenzene	ND	42	330		ug/Kg-dry	1	4/2/2016 10:22 PM
1,3-Dichlorobenzene	ND	500	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
1,3-Dichlorobenzene	ND	50	330		ug/Kg-dry	1	4/2/2016 10:22 PM
1,4-Dichlorobenzene	ND	420	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
1,4-Dichlorobenzene	ND	42	330		ug/Kg-dry	1	4/2/2016 10:22 PM
2,4,5-Trichlorophenol	ND	410	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
2,4,5-Trichlorophenol	ND	41	330		ug/Kg-dry	1	4/2/2016 10:22 PM
2,4,6-Trichlorophenol	ND	400	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
2,4,6-Trichlorophenol	ND	40	330		ug/Kg-dry	1	4/2/2016 10:22 PM
2,4-Dichlorophenol	ND	410	17000		ug/Kg-dry	10	4/2/2016 09:02 PM
2,4-Dichlorophenol	ND	41	1700		ug/Kg-dry	1	4/2/2016 10:22 PM
2,4-Dimethylphenol	ND	91	330		ug/Kg-dry	1	4/2/2016 10:22 PM
2,4-Dimethylphenol	ND	910	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
2,4-Dinitrophenol	ND	27	1700		ug/Kg-dry	1	4/2/2016 10:22 PM
2,4-Dinitrophenol	ND	270	17000		ug/Kg-dry	10	4/2/2016 09:02 PM
2,4-Dinitrotoluene	ND	45	330		ug/Kg-dry	1	4/2/2016 10:22 PM
2,4-Dinitrotoluene	ND	450	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
2,6-Dinitrotoluene	ND	440	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
2,6-Dinitrotoluene	ND	44	330		ug/Kg-dry	1	4/2/2016 10:22 PM
2-Chloronaphthalene	ND	45	330		ug/Kg-dry	1	4/2/2016 10:22 PM
2-Chloronaphthalene	ND	450	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
2-Chlorophenol	ND	430	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
2-Chlorophenol	ND	43	330		ug/Kg-dry	1	4/2/2016 10:22 PM
2-Methylnaphthalene	ND	170	330		ug/Kg-dry	1	4/2/2016 10:22 PM
2-Methylnaphthalene	ND	1700	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
2-Methylphenol	ND	48	330		ug/Kg-dry	1	4/2/2016 10:22 PM
2-Methylphenol	ND	480	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
2-Nitroaniline	ND	54	1700		ug/Kg-dry	1	4/2/2016 10:22 PM
2-Nitroaniline	ND	540	17000		ug/Kg-dry	10	4/2/2016 09:02 PM
2-Nitrophenol	ND	450	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
2-Nitrophenol	ND	45	330		ug/Kg-dry	1	4/2/2016 10:22 PM
3,3´-Dichlorobenzidine	ND	25	670		ug/Kg-dry	1	4/2/2016 10:22 PM
3,3´-Dichlorobenzidine	ND	250	6700		ug/Kg-dry	10	4/2/2016 09:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-002

Client Sample ID: Soil-IDW-01-6582
Collection Date: 3/21/2016 8:00:00 AM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **MS3_160402A** QC Batch: **56803** PrepDate **3/30/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
3-Nitroaniline	ND	490	17000		ug/Kg-dry	10	4/2/2016 09:02 PM
3-Nitroaniline	ND	49	1700		ug/Kg-dry	1	4/2/2016 10:22 PM
4,6-Dinitro-2-methylphenol	ND	530	17000		ug/Kg-dry	10	4/2/2016 09:02 PM
4,6-Dinitro-2-methylphenol	ND	53	1700		ug/Kg-dry	1	4/2/2016 10:22 PM
4-Bromophenyl-phenylether	ND	450	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
4-Bromophenyl-phenylether	ND	45	330		ug/Kg-dry	1	4/2/2016 10:22 PM
4-Chloro-3-methylphenol	ND	41	670		ug/Kg-dry	1	4/2/2016 10:22 PM
4-Chloro-3-methylphenol	ND	410	6700		ug/Kg-dry	10	4/2/2016 09:02 PM
4-Chloroaniline	ND	440	6700		ug/Kg-dry	10	4/2/2016 09:02 PM
4-Chloroaniline	ND	44	670		ug/Kg-dry	1	4/2/2016 10:22 PM
4-Chlorophenyl-phenylether	ND	46	330		ug/Kg-dry	1	4/2/2016 10:22 PM
4-Chlorophenyl-phenylether	ND	460	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
4-Methylphenol	ND	360	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
4-Methylphenol	ND	36	330		ug/Kg-dry	1	4/2/2016 10:22 PM
4-Nitroaniline	ND	470	17000		ug/Kg-dry	10	4/2/2016 09:02 PM
4-Nitroaniline	ND	47	1700		ug/Kg-dry	1	4/2/2016 10:22 PM
4-Nitrophenol	ND	360	17000		ug/Kg-dry	10	4/2/2016 09:02 PM
4-Nitrophenol	ND	36	1700		ug/Kg-dry	1	4/2/2016 10:22 PM
Acenaphthene	ND	41	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Acenaphthene	ND	410	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Acenaphthylene	ND	38	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Acenaphthylene	ND	380	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Anthracene	ND	65	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Anthracene	ND	650	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Benzo(a)anthracene	ND	76	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Benzo(a)anthracene	ND	760	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Benzo(a)pyrene	ND	650	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Benzo(a)pyrene	ND	65	330	A6L	ug/Kg-dry	1	4/2/2016 10:22 PM
Benzo(b)fluoranthene	ND	41	330	A6L	ug/Kg-dry	1	4/2/2016 10:22 PM
Benzo(b)fluoranthene	ND	410	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Benzo(g,h,i)perylene	ND	48	330	A6L	ug/Kg-dry	1	4/2/2016 10:22 PM
Benzo(g,h,i)perylene	ND	480	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Benzo(k)fluoranthene	ND	57	330	A6L	ug/Kg-dry	1	4/2/2016 10:22 PM
Benzo(k)fluoranthene	ND	570	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Benzoic acid	ND	120	1700		ug/Kg-dry	1	4/2/2016 10:22 PM
Benzoic acid	ND	1200	17000		ug/Kg-dry	10	4/2/2016 09:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-002

Client Sample ID: Soil-IDW-01-6582
Collection Date: 3/21/2016 8:00:00 AM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **MS3_160402A** QC Batch: **56803** PrepDate **3/30/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Benzyl alcohol	ND	69	670		ug/Kg-dry	1	4/2/2016 10:22 PM
Benzyl alcohol	ND	690	6700		ug/Kg-dry	10	4/2/2016 09:02 PM
Bis(2-chloroethoxy)methane	ND	65	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Bis(2-chloroethoxy)methane	ND	650	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Bis(2-chloroethyl)ether	ND	63	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Bis(2-chloroethyl)ether	ND	630	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Bis(2-chloroisopropyl)ether	ND	57	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Bis(2-chloroisopropyl)ether	ND	570	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Bis(2-ethylhexyl)phthalate	ND	810	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Bis(2-ethylhexyl)phthalate	ND	81	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Butylbenzylphthalate	ND	68	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Butylbenzylphthalate	ND	680	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Chrysene	ND	81	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Chrysene	ND	810	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Di-n-butylphthalate	ND	41	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Di-n-butylphthalate	ND	410	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Di-n-octylphthalate	ND	520	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Di-n-octylphthalate	480	52	330	A6L	ug/Kg-dry	1	4/2/2016 10:22 PM
Dibenz(a,h)anthracene	ND	94	330	A6L	ug/Kg-dry	1	4/2/2016 10:22 PM
Dibenz(a,h)anthracene	ND	940	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Dibenzofuran	ND	40	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Dibenzofuran	ND	400	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Diethylphthalate	ND	45	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Diethylphthalate	ND	450	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Dimethylphthalate	ND	43	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Dimethylphthalate	ND	430	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Fluoranthene	ND	62	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Fluoranthene	ND	620	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Fluorene	ND	46	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Fluorene	ND	460	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Hexachlorobenzene	ND	48	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Hexachlorobenzene	ND	480	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Hexachlorobutadiene	ND	61	670		ug/Kg-dry	1	4/2/2016 10:22 PM
Hexachlorobutadiene	ND	610	6700		ug/Kg-dry	10	4/2/2016 09:02 PM
Hexachloroethane	ND	42	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Hexachloroethane	ND	420	3300		ug/Kg-dry	10	4/2/2016 09:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-002

Client Sample ID: Soil-IDW-01-6582
Collection Date: 3/21/2016 8:00:00 AM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **MS3_160402A** QC Batch: **56803** PrepDate **3/30/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Indeno(1,2,3-cd)pyrene	ND	40	330	A6L	ug/Kg-dry	1	4/2/2016 10:22 PM
Indeno(1,2,3-cd)pyrene	ND	400	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Isophorone	ND	59	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Isophorone	ND	590	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
N-Nitrosodi-n-propylamine	ND	47	330		ug/Kg-dry	1	4/2/2016 10:22 PM
N-Nitrosodi-n-propylamine	ND	470	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
N-Nitrosodiphenylamine	ND	480	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
N-Nitrosodiphenylamine	ND	48	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Naphthalene	ND	490	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Naphthalene	ND	49	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Nitrobenzene	ND	570	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Nitrobenzene	ND	57	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Pentachlorophenol	ND	350	17000		ug/Kg-dry	10	4/2/2016 09:02 PM
Pentachlorophenol	ND	35	1700		ug/Kg-dry	1	4/2/2016 10:22 PM
Phenanthrene	ND	84	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Phenanthrene	ND	840	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Phenol	ND	380	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Phenol	ND	38	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Pyrene	ND	47	330		ug/Kg-dry	1	4/2/2016 10:22 PM
Pyrene	ND	470	3300		ug/Kg-dry	10	4/2/2016 09:02 PM
Surr: 1,2-Dichlorobenzene-d4	67.8	0	25-110		%REC	10	4/2/2016 09:02 PM
Surr: 1,2-Dichlorobenzene-d4	58.6	0	25-110		%REC	1	4/2/2016 10:22 PM
Surr: 2,4,6-Tribromophenol	81.9	0	36-126		%REC	10	4/2/2016 09:02 PM
Surr: 2,4,6-Tribromophenol	85.6	0	36-126		%REC	1	4/2/2016 10:22 PM
Surr: 2-Chlorophenol-d4	75.0	0	30-100		%REC	10	4/2/2016 09:02 PM
Surr: 2-Chlorophenol-d4	65.6	0	30-100		%REC	1	4/2/2016 10:22 PM
Surr: 2-Fluorobiphenyl	66.5	0	43-125		%REC	1	4/2/2016 10:22 PM
Surr: 2-Fluorobiphenyl	75.3	0	43-125		%REC	10	4/2/2016 09:02 PM
Surr: 2-Fluorophenol	74.4	0	37-125		%REC	10	4/2/2016 09:02 PM
Surr: 2-Fluorophenol	65.5	0	37-125		%REC	1	4/2/2016 10:22 PM
Surr: 4-Terphenyl-d14	90.2	0	32-125		%REC	10	4/2/2016 09:02 PM
Surr: 4-Terphenyl-d14	89.3	0	32-125		%REC	1	4/2/2016 10:22 PM
Surr: Nitrobenzene-d5	66.0	0	37-125		%REC	10	4/2/2016 09:02 PM
Surr: Nitrobenzene-d5	60.7	0	37-125		%REC	1	4/2/2016 10:22 PM
Surr: Phenol-d5	66.5	0	40-125		%REC	1	4/2/2016 10:22 PM
Surr: Phenol-d5	75.1	0	40-125		%REC	10	4/2/2016 09:02 PM

Qualifiers:

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- E Value above quantitation range
- ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-003

Client Sample ID: Soil-IDW-01-6590
Collection Date: 3/21/2016 8:15:00 AM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **MS3_160402A** QC Batch: **56803** PrepDate **3/30/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,2,4-Trichlorobenzene	ND	560	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
1,2,4-Trichlorobenzene	ND	56	430		ug/Kg-dry	1	4/2/2016 10:49 PM
1,2-Dichlorobenzene	ND	54	430		ug/Kg-dry	1	4/2/2016 10:49 PM
1,2-Dichlorobenzene	ND	540	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
1,3-Dichlorobenzene	ND	65	430		ug/Kg-dry	1	4/2/2016 10:49 PM
1,3-Dichlorobenzene	ND	650	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
1,4-Dichlorobenzene	ND	55	430		ug/Kg-dry	1	4/2/2016 10:49 PM
1,4-Dichlorobenzene	ND	550	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
2,4,5-Trichlorophenol	ND	53	430		ug/Kg-dry	1	4/2/2016 10:49 PM
2,4,5-Trichlorophenol	ND	530	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
2,4,6-Trichlorophenol	ND	51	430		ug/Kg-dry	1	4/2/2016 10:49 PM
2,4,6-Trichlorophenol	ND	510	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
2,4-Dichlorophenol	ND	53	2200		ug/Kg-dry	1	4/2/2016 10:49 PM
2,4-Dichlorophenol	ND	530	22000		ug/Kg-dry	10	4/2/2016 09:29 PM
2,4-Dimethylphenol	ND	120	430		ug/Kg-dry	1	4/2/2016 10:49 PM
2,4-Dimethylphenol	ND	1200	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
2,4-Dinitrophenol	ND	35	2200		ug/Kg-dry	1	4/2/2016 10:49 PM
2,4-Dinitrophenol	ND	350	22000		ug/Kg-dry	10	4/2/2016 09:29 PM
2,4-Dinitrotoluene	ND	58	430		ug/Kg-dry	1	4/2/2016 10:49 PM
2,4-Dinitrotoluene	ND	580	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
2,6-Dinitrotoluene	ND	57	430		ug/Kg-dry	1	4/2/2016 10:49 PM
2,6-Dinitrotoluene	ND	570	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
2-Chloronaphthalene	ND	59	430		ug/Kg-dry	1	4/2/2016 10:49 PM
2-Chloronaphthalene	ND	590	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
2-Chlorophenol	ND	56	430		ug/Kg-dry	1	4/2/2016 10:49 PM
2-Chlorophenol	ND	560	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
2-Methylnaphthalene	ND	220	430		ug/Kg-dry	1	4/2/2016 10:49 PM
2-Methylnaphthalene	ND	2200	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
2-Methylphenol	ND	630	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
2-Methylphenol	ND	63	430		ug/Kg-dry	1	4/2/2016 10:49 PM
2-Nitroaniline	ND	700	22000		ug/Kg-dry	10	4/2/2016 09:29 PM
2-Nitroaniline	ND	70	2200		ug/Kg-dry	1	4/2/2016 10:49 PM
2-Nitrophenol	ND	590	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
2-Nitrophenol	ND	59	430		ug/Kg-dry	1	4/2/2016 10:49 PM
3,3´-Dichlorobenzidine	ND	320	8700		ug/Kg-dry	10	4/2/2016 09:29 PM
3,3´-Dichlorobenzidine	ND	32	870		ug/Kg-dry	1	4/2/2016 10:49 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-003

Client Sample ID: Soil-IDW-01-6590
Collection Date: 3/21/2016 8:15:00 AM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **MS3_160402A** QC Batch: **56803** PrepDate **3/30/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
3-Nitroaniline	ND	630	22000		ug/Kg-dry	10	4/2/2016 09:29 PM
3-Nitroaniline	ND	63	2200		ug/Kg-dry	1	4/2/2016 10:49 PM
4,6-Dinitro-2-methylphenol	ND	68	2200		ug/Kg-dry	1	4/2/2016 10:49 PM
4,6-Dinitro-2-methylphenol	ND	680	22000		ug/Kg-dry	10	4/2/2016 09:29 PM
4-Bromophenyl-phenylether	ND	59	430		ug/Kg-dry	1	4/2/2016 10:49 PM
4-Bromophenyl-phenylether	ND	590	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
4-Chloro-3-methylphenol	ND	530	8700		ug/Kg-dry	10	4/2/2016 09:29 PM
4-Chloro-3-methylphenol	ND	53	870		ug/Kg-dry	1	4/2/2016 10:49 PM
4-Chloroaniline	ND	570	8700		ug/Kg-dry	10	4/2/2016 09:29 PM
4-Chloroaniline	ND	57	870		ug/Kg-dry	1	4/2/2016 10:49 PM
4-Chlorophenyl-phenylether	ND	59	430		ug/Kg-dry	1	4/2/2016 10:49 PM
4-Chlorophenyl-phenylether	ND	590	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
4-Methylphenol	ND	47	430		ug/Kg-dry	1	4/2/2016 10:49 PM
4-Methylphenol	ND	470	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
4-Nitroaniline	ND	61	2200		ug/Kg-dry	1	4/2/2016 10:49 PM
4-Nitroaniline	ND	610	22000		ug/Kg-dry	10	4/2/2016 09:29 PM
4-Nitrophenol	ND	46	2200		ug/Kg-dry	1	4/2/2016 10:49 PM
4-Nitrophenol	ND	460	22000		ug/Kg-dry	10	4/2/2016 09:29 PM
Acenaphthene	ND	530	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Acenaphthene	ND	53	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Acenaphthylene	ND	490	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Acenaphthylene	ND	49	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Anthracene	ND	840	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Anthracene	ND	84	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Benzo(a)anthracene	ND	99	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Benzo(a)anthracene	ND	990	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Benzo(a)pyrene	ND	840	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Benzo(a)pyrene	ND	84	430	A6L	ug/Kg-dry	1	4/2/2016 10:49 PM
Benzo(b)fluoranthene	ND	530	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Benzo(b)fluoranthene	ND	53	430	A6L	ug/Kg-dry	1	4/2/2016 10:49 PM
Benzo(g,h,i)perylene	ND	63	430	A6L	ug/Kg-dry	1	4/2/2016 10:49 PM
Benzo(g,h,i)perylene	ND	630	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Benzo(k)fluoranthene	ND	74	430	A6L	ug/Kg-dry	1	4/2/2016 10:49 PM
Benzo(k)fluoranthene	ND	740	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Benzoic acid	ND	1500	22000		ug/Kg-dry	10	4/2/2016 09:29 PM
Benzoic acid	ND	150	2200		ug/Kg-dry	1	4/2/2016 10:49 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-003

Client Sample ID: Soil-IDW-01-6590
Collection Date: 3/21/2016 8:15:00 AM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **MS3_160402A** QC Batch: **56803** PrepDate **3/30/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Benzyl alcohol	ND	890	8700		ug/Kg-dry	10	4/2/2016 09:29 PM
Benzyl alcohol	ND	89	870		ug/Kg-dry	1	4/2/2016 10:49 PM
Bis(2-chloroethoxy)methane	ND	840	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Bis(2-chloroethoxy)methane	ND	84	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Bis(2-chloroethyl)ether	ND	810	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Bis(2-chloroethyl)ether	ND	81	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Bis(2-chloroisopropyl)ether	ND	740	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Bis(2-chloroisopropyl)ether	ND	74	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Bis(2-ethylhexyl)phthalate	ND	1100	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Bis(2-ethylhexyl)phthalate	ND	110	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Butylbenzylphthalate	ND	880	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Butylbenzylphthalate	ND	88	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Chrysene	ND	1000	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Chrysene	ND	100	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Di-n-butylphthalate	ND	540	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Di-n-butylphthalate	ND	54	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Di-n-octylphthalate	ND	670	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Di-n-octylphthalate	ND	67	430	A6L	ug/Kg-dry	1	4/2/2016 10:49 PM
Dibenz(a,h)anthracene	ND	1200	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Dibenz(a,h)anthracene	ND	120	430	A6L	ug/Kg-dry	1	4/2/2016 10:49 PM
Dibenzofuran	ND	520	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Dibenzofuran	ND	52	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Diethylphthalate	ND	580	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Diethylphthalate	ND	58	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Dimethylphthalate	ND	56	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Dimethylphthalate	ND	560	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Fluoranthene	ND	81	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Fluoranthene	ND	810	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Fluorene	ND	590	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Fluorene	ND	59	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Hexachlorobenzene	ND	62	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Hexachlorobenzene	ND	620	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Hexachlorobutadiene	ND	790	8700		ug/Kg-dry	10	4/2/2016 09:29 PM
Hexachlorobutadiene	ND	79	870		ug/Kg-dry	1	4/2/2016 10:49 PM
Hexachloroethane	ND	550	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Hexachloroethane	ND	55	430		ug/Kg-dry	1	4/2/2016 10:49 PM

Qualifiers:

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- E Value above quantitation range
- ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-003

Client Sample ID: Soil-IDW-01-6590
Collection Date: 3/21/2016 8:15:00 AM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS
EPA 3550B **EPA 8270C**

RunID: **MS3_160402A** QC Batch: **56803** PrepDate **3/30/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Indeno(1,2,3-cd)pyrene	ND	51	430	A6L	ug/Kg-dry	1	4/2/2016 10:49 PM
Indeno(1,2,3-cd)pyrene	ND	510	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Isophorone	ND	770	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Isophorone	ND	77	430		ug/Kg-dry	1	4/2/2016 10:49 PM
N-Nitrosodi-n-propylamine	ND	610	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
N-Nitrosodi-n-propylamine	ND	61	430		ug/Kg-dry	1	4/2/2016 10:49 PM
N-Nitrosodiphenylamine	ND	630	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
N-Nitrosodiphenylamine	ND	63	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Naphthalene	ND	640	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Naphthalene	ND	64	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Nitrobenzene	ND	740	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Nitrobenzene	ND	74	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Pentachlorophenol	ND	450	22000		ug/Kg-dry	10	4/2/2016 09:29 PM
Pentachlorophenol	ND	45	2200		ug/Kg-dry	1	4/2/2016 10:49 PM
Phenanthrene	ND	110	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Phenanthrene	ND	1100	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Phenol	ND	50	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Phenol	ND	500	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Pyrene	ND	61	430		ug/Kg-dry	1	4/2/2016 10:49 PM
Pyrene	ND	610	4300		ug/Kg-dry	10	4/2/2016 09:29 PM
Surr: 1,2-Dichlorobenzene-d4	67.0	0	25-110		%REC	10	4/2/2016 09:29 PM
Surr: 1,2-Dichlorobenzene-d4	59.9	0	25-110		%REC	1	4/2/2016 10:49 PM
Surr: 2,4,6-Tribromophenol	85.2	0	36-126		%REC	1	4/2/2016 10:49 PM
Surr: 2,4,6-Tribromophenol	80.1	0	36-126		%REC	10	4/2/2016 09:29 PM
Surr: 2-Chlorophenol-d4	68.7	0	30-100		%REC	1	4/2/2016 10:49 PM
Surr: 2-Chlorophenol-d4	74.2	0	30-100		%REC	10	4/2/2016 09:29 PM
Surr: 2-Fluorobiphenyl	72.4	0	43-125		%REC	10	4/2/2016 09:29 PM
Surr: 2-Fluorobiphenyl	66.2	0	43-125		%REC	1	4/2/2016 10:49 PM
Surr: 2-Fluorophenol	74.9	0	37-125		%REC	10	4/2/2016 09:29 PM
Surr: 2-Fluorophenol	67.6	0	37-125		%REC	1	4/2/2016 10:49 PM
Surr: 4-Terphenyl-d14	92.5	0	32-125		%REC	1	4/2/2016 10:49 PM
Surr: 4-Terphenyl-d14	93.4	0	32-125		%REC	10	4/2/2016 09:29 PM
Surr: Nitrobenzene-d5	61.7	0	37-125		%REC	1	4/2/2016 10:49 PM
Surr: Nitrobenzene-d5	63.6	0	37-125		%REC	10	4/2/2016 09:29 PM
Surr: Phenol-d5	73.9	0	40-125		%REC	10	4/2/2016 09:29 PM
Surr: Phenol-d5	68.3	0	40-125		%REC	1	4/2/2016 10:49 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-004

Client Sample ID: Soil-IDW-01-6657
Collection Date: 3/21/2016 8:30:00 AM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **MS3_160402A** QC Batch: **56803** PrepDate **3/30/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,2,4-Trichlorobenzene	ND	43	330		ug/Kg-dry	1	4/2/2016 11:15 PM
1,2,4-Trichlorobenzene	ND	430	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
1,2-Dichlorobenzene	ND	420	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
1,2-Dichlorobenzene	ND	42	330		ug/Kg-dry	1	4/2/2016 11:15 PM
1,3-Dichlorobenzene	ND	50	330		ug/Kg-dry	1	4/2/2016 11:15 PM
1,3-Dichlorobenzene	ND	500	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
1,4-Dichlorobenzene	ND	42	330		ug/Kg-dry	1	4/2/2016 11:15 PM
1,4-Dichlorobenzene	ND	420	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
2,4,5-Trichlorophenol	ND	41	330		ug/Kg-dry	1	4/2/2016 11:15 PM
2,4,5-Trichlorophenol	ND	410	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
2,4,6-Trichlorophenol	ND	400	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
2,4,6-Trichlorophenol	ND	40	330		ug/Kg-dry	1	4/2/2016 11:15 PM
2,4-Dichlorophenol	ND	410	17000		ug/Kg-dry	10	4/2/2016 09:55 PM
2,4-Dichlorophenol	ND	41	1700		ug/Kg-dry	1	4/2/2016 11:15 PM
2,4-Dimethylphenol	ND	91	330		ug/Kg-dry	1	4/2/2016 11:15 PM
2,4-Dimethylphenol	ND	910	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
2,4-Dinitrophenol	ND	270	17000		ug/Kg-dry	10	4/2/2016 09:55 PM
2,4-Dinitrophenol	ND	27	1700		ug/Kg-dry	1	4/2/2016 11:15 PM
2,4-Dinitrotoluene	ND	45	330		ug/Kg-dry	1	4/2/2016 11:15 PM
2,4-Dinitrotoluene	ND	450	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
2,6-Dinitrotoluene	ND	44	330		ug/Kg-dry	1	4/2/2016 11:15 PM
2,6-Dinitrotoluene	ND	440	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
2-Chloronaphthalene	ND	450	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
2-Chloronaphthalene	ND	45	330		ug/Kg-dry	1	4/2/2016 11:15 PM
2-Chlorophenol	ND	43	330		ug/Kg-dry	1	4/2/2016 11:15 PM
2-Chlorophenol	ND	430	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
2-Methylnaphthalene	ND	170	330		ug/Kg-dry	1	4/2/2016 11:15 PM
2-Methylnaphthalene	ND	1700	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
2-Methylphenol	ND	49	330		ug/Kg-dry	1	4/2/2016 11:15 PM
2-Methylphenol	ND	490	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
2-Nitroaniline	ND	54	1700		ug/Kg-dry	1	4/2/2016 11:15 PM
2-Nitroaniline	ND	540	17000		ug/Kg-dry	10	4/2/2016 09:55 PM
2-Nitrophenol	ND	45	330		ug/Kg-dry	1	4/2/2016 11:15 PM
2-Nitrophenol	ND	450	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
3,3´-Dichlorobenzidine	ND	25	670		ug/Kg-dry	1	4/2/2016 11:15 PM
3,3´-Dichlorobenzidine	ND	250	6700		ug/Kg-dry	10	4/2/2016 09:55 PM

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike/Surrogate outside of limits due to matrix interference
- Results are wet unless otherwise specified
- DO Surrogate Diluted Out

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-004

Client Sample ID: Soil-IDW-01-6657
Collection Date: 3/21/2016 8:30:00 AM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **MS3_160402A** QC Batch: **56803** PrepDate **3/30/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
3-Nitroaniline	ND	49	1700		ug/Kg-dry	1	4/2/2016 11:15 PM
3-Nitroaniline	ND	490	17000		ug/Kg-dry	10	4/2/2016 09:55 PM
4,6-Dinitro-2-methylphenol	ND	530	17000		ug/Kg-dry	10	4/2/2016 09:55 PM
4,6-Dinitro-2-methylphenol	ND	53	1700		ug/Kg-dry	1	4/2/2016 11:15 PM
4-Bromophenyl-phenylether	ND	450	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
4-Bromophenyl-phenylether	ND	45	330		ug/Kg-dry	1	4/2/2016 11:15 PM
4-Chloro-3-methylphenol	ND	410	6700		ug/Kg-dry	10	4/2/2016 09:55 PM
4-Chloro-3-methylphenol	ND	41	670		ug/Kg-dry	1	4/2/2016 11:15 PM
4-Chloroaniline	ND	440	6700		ug/Kg-dry	10	4/2/2016 09:55 PM
4-Chloroaniline	ND	44	670		ug/Kg-dry	1	4/2/2016 11:15 PM
4-Chlorophenyl-phenylether	ND	46	330		ug/Kg-dry	1	4/2/2016 11:15 PM
4-Chlorophenyl-phenylether	ND	460	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
4-Methylphenol	ND	360	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
4-Methylphenol	ND	36	330		ug/Kg-dry	1	4/2/2016 11:15 PM
4-Nitroaniline	ND	47	1700		ug/Kg-dry	1	4/2/2016 11:15 PM
4-Nitroaniline	ND	470	17000		ug/Kg-dry	10	4/2/2016 09:55 PM
4-Nitrophenol	ND	360	17000		ug/Kg-dry	10	4/2/2016 09:55 PM
4-Nitrophenol	ND	36	1700		ug/Kg-dry	1	4/2/2016 11:15 PM
Acenaphthene	ND	410	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Acenaphthene	ND	41	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Acenaphthylene	ND	380	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Acenaphthylene	ND	38	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Anthracene	ND	65	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Anthracene	ND	650	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Benzo(a)anthracene	ND	76	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Benzo(a)anthracene	ND	760	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Benzo(a)pyrene	ND	65	330	A6L	ug/Kg-dry	1	4/2/2016 11:15 PM
Benzo(a)pyrene	ND	650	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Benzo(b)fluoranthene	ND	410	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Benzo(b)fluoranthene	ND	41	330	A6L	ug/Kg-dry	1	4/2/2016 11:15 PM
Benzo(g,h,i)perylene	ND	480	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Benzo(g,h,i)perylene	ND	48	330	A6L	ug/Kg-dry	1	4/2/2016 11:15 PM
Benzo(k)fluoranthene	ND	570	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Benzo(k)fluoranthene	ND	57	330	A6L	ug/Kg-dry	1	4/2/2016 11:15 PM
Benzoic acid	ND	120	1700		ug/Kg-dry	1	4/2/2016 11:15 PM
Benzoic acid	ND	1200	17000		ug/Kg-dry	10	4/2/2016 09:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-004

Client Sample ID: Soil-IDW-01-6657
Collection Date: 3/21/2016 8:30:00 AM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **MS3_160402A** QC Batch: **56803** PrepDate **3/30/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Benzyl alcohol	ND	69	670		ug/Kg-dry	1	4/2/2016 11:15 PM
Benzyl alcohol	ND	690	6700		ug/Kg-dry	10	4/2/2016 09:55 PM
Bis(2-chloroethoxy)methane	ND	650	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Bis(2-chloroethoxy)methane	ND	65	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Bis(2-chloroethyl)ether	ND	63	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Bis(2-chloroethyl)ether	ND	630	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Bis(2-chloroisopropyl)ether	ND	570	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Bis(2-chloroisopropyl)ether	ND	57	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Bis(2-ethylhexyl)phthalate	ND	810	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Bis(2-ethylhexyl)phthalate	ND	81	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Butylbenzylphthalate	12000	680	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Butylbenzylphthalate	12000	68	330	E	ug/Kg-dry	1	4/2/2016 11:15 PM
Chrysene	ND	810	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Chrysene	ND	81	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Di-n-butylphthalate	ND	41	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Di-n-butylphthalate	ND	410	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Di-n-octylphthalate	ND	52	330	A6L	ug/Kg-dry	1	4/2/2016 11:15 PM
Di-n-octylphthalate	ND	520	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Dibenz(a,h)anthracene	ND	94	330	A6L	ug/Kg-dry	1	4/2/2016 11:15 PM
Dibenz(a,h)anthracene	ND	940	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Dibenzofuran	ND	40	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Dibenzofuran	ND	400	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Diethylphthalate	ND	450	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Diethylphthalate	ND	45	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Dimethylphthalate	ND	43	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Dimethylphthalate	ND	430	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Fluoranthene	ND	62	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Fluoranthene	ND	620	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Fluorene	ND	460	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Fluorene	ND	46	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Hexachlorobenzene	ND	480	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Hexachlorobenzene	ND	48	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Hexachlorobutadiene	ND	61	670		ug/Kg-dry	1	4/2/2016 11:15 PM
Hexachlorobutadiene	ND	610	6700		ug/Kg-dry	10	4/2/2016 09:55 PM
Hexachloroethane	ND	42	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Hexachloroethane	ND	420	3300		ug/Kg-dry	10	4/2/2016 09:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-004

Client Sample ID: Soil-IDW-01-6657
Collection Date: 3/21/2016 8:30:00 AM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **MS3_160402A** QC Batch: **56803** PrepDate **3/30/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Indeno(1,2,3-cd)pyrene	ND	40	330	A6L	ug/Kg-dry	1	4/2/2016 11:15 PM
Indeno(1,2,3-cd)pyrene	ND	400	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Isophorone	ND	59	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Isophorone	ND	590	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
N-Nitrosodi-n-propylamine	ND	47	330		ug/Kg-dry	1	4/2/2016 11:15 PM
N-Nitrosodi-n-propylamine	ND	470	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
N-Nitrosodiphenylamine	ND	480	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
N-Nitrosodiphenylamine	ND	48	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Naphthalene	ND	49	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Naphthalene	ND	490	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Nitrobenzene	ND	570	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Nitrobenzene	ND	57	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Pentachlorophenol	ND	350	17000		ug/Kg-dry	10	4/2/2016 09:55 PM
Pentachlorophenol	ND	35	1700		ug/Kg-dry	1	4/2/2016 11:15 PM
Phenanthrene	ND	840	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Phenanthrene	ND	84	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Phenol	ND	380	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Phenol	ND	38	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Pyrene	ND	47	330		ug/Kg-dry	1	4/2/2016 11:15 PM
Pyrene	ND	470	3300		ug/Kg-dry	10	4/2/2016 09:55 PM
Surr: 1,2-Dichlorobenzene-d4	58.0	0	25-110		%REC	1	4/2/2016 11:15 PM
Surr: 1,2-Dichlorobenzene-d4	66.0	0	25-110		%REC	10	4/2/2016 09:55 PM
Surr: 2,4,6-Tribromophenol	88.2	0	36-126		%REC	1	4/2/2016 11:15 PM
Surr: 2,4,6-Tribromophenol	86.9	0	36-126		%REC	10	4/2/2016 09:55 PM
Surr: 2-Chlorophenol-d4	67.6	0	30-100		%REC	1	4/2/2016 11:15 PM
Surr: 2-Chlorophenol-d4	75.8	0	30-100		%REC	10	4/2/2016 09:55 PM
Surr: 2-Fluorobiphenyl	70.0	0	43-125		%REC	1	4/2/2016 11:15 PM
Surr: 2-Fluorobiphenyl	78.5	0	43-125		%REC	10	4/2/2016 09:55 PM
Surr: 2-Fluorophenol	73.5	0	37-125		%REC	10	4/2/2016 09:55 PM
Surr: 2-Fluorophenol	66.0	0	37-125		%REC	1	4/2/2016 11:15 PM
Surr: 4-Terphenyl-d14	103	0	32-125		%REC	1	4/2/2016 11:15 PM
Surr: 4-Terphenyl-d14	96.7	0	32-125		%REC	10	4/2/2016 09:55 PM
Surr: Nitrobenzene-d5	61.6	0	37-125		%REC	1	4/2/2016 11:15 PM
Surr: Nitrobenzene-d5	65.0	0	37-125		%REC	10	4/2/2016 09:55 PM
Surr: Phenol-d5	75.9	0	40-125		%REC	10	4/2/2016 09:55 PM
Surr: Phenol-d5	69.1	0	40-125		%REC	1	4/2/2016 11:15 PM

Qualifiers:

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- E Value above quantitation range
- ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **LCS-56803**	SampType: **LCS**	TestCode: **8270_S_PGE**	Units: **ug/Kg**	Prep Date: **3/30/2016**	RunNo: **106728**
Client ID: **LCSS**	Batch ID: **56803**	TestNo: **EPA 8270C**	**EPA 3550B**	Analysis Date: **4/2/2016**	SeqNo: **2283263**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	2256.000	330	3330	0	67.7	44	125				
1,2-Dichlorobenzene	2183.333	330	3330	0	65.6	45	125				
1,3-Dichlorobenzene	2044.333	330	3330	0	61.4	39	125				
1,4-Dichlorobenzene	2159.667	330	3330	0	64.9	35	125				
2,4,5-Trichlorophenol	2390.667	330	3330	0	71.8	49	125				
2,4,6-Trichlorophenol	2315.333	330	3330	0	69.5	43	125				
2,4-Dichlorophenol	2175.000	1600	3330	0	65.3	45	125				
2,4-Dimethylphenol	2273.667	330	3330	0	68.3	32	125				
2,4-Dinitrophenol	1150.000	1600	3330	0	34.5	25	132				
2,4-Dinitrotoluene	2636.333	330	3330	0	79.2	48	125				
2,6-Dinitrotoluene	2526.000	330	3330	0	75.9	48	125				
2-Chloronaphthalene	2292.667	330	3330	0	68.8	45	125				
2-Chlorophenol	2185.000	330	3330	0	65.6	44	125				
2-Methylnaphthalene	2196.667	330	3330	0	66.0	47	125				
2-Methylphenol	2393.333	330	3330	0	71.9	40	125				
2-Nitroaniline	2469.000	1600	3330	0	74.1	44	125				
2-Nitrophenol	2074.000	330	3330	0	62.3	42	125				
3,3´-Dichlorobenzidine	4178.333	660	6660	0	62.7	25	128				
3-Nitroaniline	2517.000	1600	3330	0	75.6	27	125				
4,6-Dinitro-2-methylphenol	1968.333	1600	3330	0	59.1	29	137				
4-Bromophenyl-phenylether	2665.000	330	3330	0	80.0	46	125				
4-Chloro-3-methylphenol	2302.333	660	3330	0	69.1	46	125				
4-Chloroaniline	1688.667	660	3330	0	50.7	10	125				
4-Chlorophenyl-phenylether	2506.000	330	3330	0	75.3	47	125				
4-Methylphenol	2314.000	330	3330	0	69.5	41	125				
4-Nitroaniline	2956.333	1600	3330	0	88.8	34	125				
4-Nitrophenol	2631.000	1600	3330	0	79.0	25	138				
Acenaphthene	2189.333	330	3330	0	65.7	46	125				
Acenaphthylene	2222.667	330	3330	0	66.7	44	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **LCS-56803**	SampType: **LCS**	TestCode: **8270_S_PGE**	Units: **ug/Kg**	Prep Date: **3/30/2016**	RunNo: **106728**
Client ID: **LCSS**	Batch ID: **56803**	TestNo: **EPA 8270C**	**EPA 3550B**	Analysis Date: **4/2/2016**	SeqNo: **2283263**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Anthracene	2543.333	330	3330	0	76.4	53	125				
Benzo(a)anthracene	2710.000	330	3330	0	81.4	52	125				
Benzo(a)pyrene	2569.667	330	3330	0	77.2	50	125				
Benzo(b)fluoranthene	2947.333	330	3330	0	88.5	45	125				
Benzo(g,h,i)perylene	2611.333	330	3330	0	78.4	38	126				
Benzo(k)fluoranthene	2405.333	330	3330	0	72.2	45	125				
Benzoic acid	914.667	1600	3330	0	27.5	25	125				
Benzyl alcohol	2137.000	660	3330	0	64.2	25	125				
Bis(2-chloroethoxy)methane	2297.667	330	3330	0	69.0	43	125				
Bis(2-chloroethyl)ether	2698.667	330	3330	0	81.0	38	125				
Bis(2-chloroisopropyl)ether	2212.333	330	3330	0	66.4	25	125				
Bis(2-ethylhexyl)phthalate	2777.333	330	3330	0	83.4	47	127				
Butylbenzylphthalate	2687.333	330	3330	0	80.7	49	125				
Chrysene	2671.333	330	3330	0	80.2	53	125				
Di-n-butylphthalate	2831.333	330	3330	0	85.0	56	125				
Di-n-octylphthalate	2675.667	330	3330	0	80.4	41	132				
Dibenz(a,h)anthracene	2756.000	330	3330	0	82.8	41	125				
Dibenzofuran	2446.667	330	3330	0	73.5	51	125				
Diethylphthalate	2647.667	330	3330	0	79.5	50	125				
Dimethylphthalate	2570.667	330	3330	0	77.2	49	125				
Fluoranthene	2630.667	330	3330	0	79.0	54	125				
Fluorene	2391.333	330	3330	0	71.8	49	125				
Hexachlorobenzene	2710.667	330	3330	0	81.4	47	125				
Hexachlorobutadiene	2528.000	660	3330	0	75.9	40	125				
Hexachloroethane	2060.000	330	3330	0	61.9	34	125				
Indeno(1,2,3-cd)pyrene	2679.333	330	3330	0	80.5	38	125				
Isophorone	2583.667	330	3330	0	77.6	43	125				
N-Nitrosodi-n-propylamine	2306.667	330	3330	0	69.3	40	125				
N-Nitrosodiphenylamine	2671.667	330	3330	0	80.2	49	125				
Naphthalene	2104.000	330	3330	0	63.2	40	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **LCS-56803** SampType: **LCS** TestCode: **8270_S_PGE** Units: **ug/Kg** Prep Date: **3/30/2016** RunNo: **106728**
Client ID: **LCSS** Batch ID: **56803** TestNo: **EPA 8270C** **EPA 3550B** Analysis Date: **4/2/2016** SeqNo: **2283263**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrobenzene	2143.667	330	3330	0	64.4	41	125				
Pentachlorophenol	2506.333	1600	3330	0	75.3	25	125				
Phenanthrene	2582.667	330	3330	0	77.6	50	125				
Phenol	2115.000	330	3330	0	63.5	39	125				
Pyrene	2789.667	330	3330	0	83.8	46	125				
Surr: 1,2-Dichlorobenzene-d4	2164.000		3330		65.0	25	110				
Surr: 2,4,6-Tribromophenol	2808.000		3330		84.3	36	126				
Surr: 2-Chlorophenol-d4	2335.667		3330		70.1	30	100				
Surr: 2-Fluorobiphenyl	2311.000		3330		69.4	43	125				
Surr: 2-Fluorophenol	2330.000		3330		70.0	37	125				
Surr: 4-Terphenyl-d14	2824.667		3330		84.8	32	125				
Surr: Nitrobenzene-d5	2168.333		3330		65.1	37	125				
Surr: Phenol-d5	2417.667		3330		72.6	40	125				

Sample ID **MB-56803** SampType: **MBLK** TestCode: **8270_S_PGE** Units: **ug/Kg** Prep Date: **3/30/2016** RunNo: **106728**
Client ID: **PBS** Batch ID: **56803** TestNo: **EPA 8270C** **EPA 3550B** Analysis Date: **4/2/2016** SeqNo: **2283264**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	330									
1,2-Dichlorobenzene	ND	330									
1,3-Dichlorobenzene	ND	330									
1,4-Dichlorobenzene	ND	330									
2,4,5-Trichlorophenol	ND	330									
2,4,6-Trichlorophenol	ND	330									
2,4-Dichlorophenol	ND	1600									
2,4-Dimethylphenol	ND	330									
2,4-Dinitrophenol	ND	1600									
2,4-Dinitrotoluene	ND	330									
2,6-Dinitrotoluene	ND	330									
2-Chloronaphthalene	ND	330									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID	MB-56803	SampType:	MBLK	TestCode:	8270_S_PGE	Units:	ug/Kg	Prep Date:	3/30/2016	RunNo:	106728
Client ID:	PBS	Batch ID:	56803	TestNo:	EPA 8270C	EPA 3550B		Analysis Date:	4/2/2016	SeqNo:	2283264

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Chlorophenol	ND	330									
2-Methylnaphthalene	ND	330									
2-Methylphenol	ND	330									
2-Nitroaniline	ND	1600									
2-Nitrophenol	ND	330									
3,3´-Dichlorobenzidine	ND	660									
3-Nitroaniline	ND	1600									
4,6-Dinitro-2-methylphenol	ND	1600									
4-Bromophenyl-phenylether	ND	330									
4-Chloro-3-methylphenol	ND	660									
4-Chloroaniline	ND	660									
4-Chlorophenyl-phenylether	ND	330									
4-Methylphenol	ND	330									
4-Nitroaniline	ND	1600									
4-Nitrophenol	ND	1600									
Acenaphthene	ND	330									
Acenaphthylene	ND	330									
Anthracene	ND	330									
Benzo(a)anthracene	ND	330									
Benzo(a)pyrene	ND	330									
Benzo(b)fluoranthene	ND	330									
Benzo(g,h,i)perylene	ND	330									
Benzo(k)fluoranthene	ND	330									
Benzoic acid	ND	1600									
Benzyl alcohol	ND	660									
Bis(2-chloroethoxy)methane	ND	330									
Bis(2-chloroethyl)ether	ND	330									
Bis(2-chloroisopropyl)ether	ND	330									
Bis(2-ethylhexyl)phthalate	ND	330									
Butylbenzylphthalate	ND	330									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **MB-56803**	SampType: **MBLK**	TestCode: **8270_S_PGE**	Units: **ug/Kg**	Prep Date: **3/30/2016**	RunNo: **106728**
Client ID: **PBS**	Batch ID: **56803**	TestNo: **EPA 8270C**	**EPA 3550B**	Analysis Date: **4/2/2016**	SeqNo: **2283264**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chrysene	ND	330									
Di-n-butylphthalate	ND	330									
Di-n-octylphthalate	ND	330									
Dibenz(a,h)anthracene	ND	330									
Dibenzofuran	ND	330									
Diethylphthalate	ND	330									
Dimethylphthalate	ND	330									
Fluoranthene	ND	330									
Fluorene	ND	330									
Hexachlorobenzene	ND	330									
Hexachlorobutadiene	ND	660									
Hexachloroethane	ND	330									
Indeno(1,2,3-cd)pyrene	ND	330									
Isophorone	ND	330									
N-Nitrosodi-n-propylamine	ND	330									
N-Nitrosodiphenylamine	ND	330									
Naphthalene	ND	330									
Nitrobenzene	ND	330									
Pentachlorophenol	ND	1600									
Phenanthrene	ND	330									
Phenol	ND	330									
Pyrene	ND	330									
Surr: 1,2-Dichlorobenzene-d4	2290.000		3330		68.8	25	110				
Surr: 2,4,6-Tribromophenol	2246.667		3330		67.5	36	126				
Surr: 2-Chlorophenol-d4	2439.667		3330		73.3	30	100				
Surr: 2-Fluorobiphenyl	2406.667		3330		72.3	43	125				
Surr: 2-Fluorophenol	2459.333		3330		73.9	37	125				
Surr: 4-Terphenyl-d14	2824.333		3330		84.8	32	125				
Surr: Nitrobenzene-d5	2276.667		3330		68.4	37	125				
Surr: Phenol-d5	2533.000		3330		76.1	40	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID	N019173-001D-MS	SampType:	MS	TestCode:	8270_S_PGE	Units:	ug/Kg-dry	Prep Date:	3/30/2016	RunNo:	106728
Client ID:	ZZZZZZ	Batch ID:	56803	TestNo:	EPA 8270C	EPA 3550B		Analysis Date:	4/2/2016	SeqNo:	2283279

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	1957.870	330	3328	0	58.8	44	125				
1,2-Dichlorobenzene	1825.303	330	3328	0	54.9	45	125				
1,3-Dichlorobenzene	1755.355	330	3328	0	52.8	39	125				
1,4-Dichlorobenzene	1803.319	330	3328	0	54.2	35	125				
2,4,5-Trichlorophenol	2459.495	330	3328	0	73.9	49	125				
2,4,6-Trichlorophenol	2294.619	330	3328	0	69.0	43	125				
2,4-Dichlorophenol	2121.748	1600	3328	0	63.8	45	125				
2,4-Dimethylphenol	2161.385	330	3328	0	65.0	32	125				
2,4-Dinitrophenol	414.357	1600	3328	0	12.5	25	132				S
2,4-Dinitrotoluene	2385.218	330	3328	0	71.7	48	125				
2,6-Dinitrotoluene	2328.593	330	3328	0	70.0	48	125				
2-Chloronaphthalene	2151.392	330	3328	0	64.7	45	125				
2-Chlorophenol	1953.540	330	3328	0	58.7	44	125				
2-Methylnaphthalene	2043.806	330	3328	0	61.4	47	125				
2-Methylphenol	2160.719	330	3328	0	64.9	40	125				
2-Nitroaniline	2359.903	1600	3328	0	70.9	44	125				
2-Nitrophenol	1889.921	330	3328	0	56.8	42	125				
3,3´-Dichlorobenzidine	3061.046	660	6655	0	46.0	25	128				
3-Nitroaniline	2462.493	1600	3328	0	74.0	27	125				
4,6-Dinitro-2-methylphenol	1427.267	1600	3328	0	42.9	29	137				
4-Bromophenyl-phenylether	2461.827	330	3328	0	74.0	46	125				
4-Chloro-3-methylphenol	2304.611	660	3328	0	69.3	46	125				
4-Chloroaniline	1670.085	660	3328	0	50.2	10	125				
4-Chlorophenyl-phenylether	2426.520	330	3328	0	72.9	47	125				
4-Methylphenol	2138.735	330	3328	0	64.3	41	125				
4-Nitroaniline	2498.799	1600	3328	0	75.1	34	125				
4-Nitrophenol	2243.990	1600	3328	0	67.4	25	138				
Acenaphthene	1984.850	330	3328	0	59.6	46	125				
Acenaphthylene	2216.677	330	3328	0	66.6	44	125				
Anthracene	2476.483	330	3328	0	74.4	53	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID	N019173-001D-MS	SampType:	MS	TestCode:	8270_S_PGE	Units:	ug/Kg-dry	Prep Date:	3/30/2016	RunNo:	106728
Client ID:	ZZZZZZ	Batch ID:	56803	TestNo:	EPA 8270C	EPA 3550B		Analysis Date:	4/2/2016	SeqNo:	2283279

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)anthracene	2631.034	330	3328	0	79.1	52	125				
Benzo(a)pyrene	2627.703	330	3328	0	79.0	50	125				
Benzo(b)fluoranthene	3395.130	330	3328	0	102	45	125				
Benzo(g,h,i)perylene	1001.918	330	3328	0	30.1	38	126				S
Benzo(k)fluoranthene	3094.354	330	3328	0	93.0	45	125				
Benzoic acid	270.798	1600	3328	0	8.14	25	125				S
Benzyl alcohol	1800.654	660	3328	0	54.1	25	125				
Bis(2-chloroethoxy)methane	2138.735	330	3328	0	64.3	43	125				
Bis(2-chloroethyl)ether	2111.422	330	3328	0	63.5	38	125				
Bis(2-chloroisopropyl)ether	1928.559	330	3328	0	58.0	25	125				
Bis(2-ethylhexyl)phthalate	2733.291	330	3328	0	82.1	47	127				
Butylbenzylphthalate	2578.407	330	3328	0	77.5	49	125				
Chrysene	2565.749	330	3328	0	77.1	53	125				
Di-n-butylphthalate	2537.104	330	3328	0	76.2	56	125				
Di-n-octylphthalate	4242.829	330	3328	0	128	41	132				
Dibenz(a,h)anthracene	1271.050	330	3328	0	38.2	41	125				S
Dibenzofuran	2242.657	330	3328	0	67.4	51	125				
Diethylphthalate	2590.731	330	3328	0	77.9	50	125				
Dimethylphthalate	2494.469	330	3328	0	75.0	49	125				
Fluoranthene	2528.111	330	3328	0	76.0	54	125				
Fluorene	2359.237	330	3328	0	70.9	49	125				
Hexachlorobenzene	2519.451	330	3328	0	75.7	47	125				
Hexachlorobutadiene	2186.033	660	3328	0	65.7	40	125				
Hexachloroethane	1737.368	330	3328	0	52.2	34	125				
Indeno(1,2,3-cd)pyrene	1218.423	330	3328	0	36.6	38	125				S
Isophorone	2299.615	330	3328	0	69.1	43	125				
N-Nitrosodi-n-propylamine	2049.468	330	3328	0	61.6	40	125				
N-Nitrosodiphenylamine	2509.791	330	3328	0	75.4	49	125				
Naphthalene	1905.576	330	3328	0	57.3	40	125				
Nitrobenzene	1904.244	330	3328	0	57.2	41	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N019173-001D-MS** SampType: **MS** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **3/30/2016** RunNo: **106728**
Client ID: **ZZZZZZ** Batch ID: **56803** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **4/2/2016** SeqNo: **2283279**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pentachlorophenol	2449.836	1600	3328	0	73.6	25	125				
Phenanthrene	2391.546	330	3328	0	71.9	50	125				
Phenol	1938.551	330	3328	0	58.3	39	125				
Pyrene	2506.793	330	3328	0	75.3	46	125				
Surr: 1,2-Dichlorobenzene-d4	1642.106		3328		49.3	25	110				
Surr: 2,4,6-Tribromophenol	2651.685		3328		79.7	36	126				
Surr: 2-Chlorophenol-d4	1882.260		3328		56.6	30	100				
Surr: 2-Fluorobiphenyl	1992.178		3328		59.9	43	125				
Surr: 2-Fluorophenol	1881.594		3328		56.5	37	125				
Surr: 4-Terphenyl-d14	2432.849		3328		73.1	32	125				
Surr: Nitrobenzene-d5	1724.711		3328		51.8	37	125				
Surr: Phenol-d5	1946.212		3328		58.5	40	125				

Sample ID **N019173-001D-MSD** SampType: **MSD** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **3/30/2016** RunNo: **106728**
Client ID: **ZZZZZZ** Batch ID: **56803** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **4/2/2016** SeqNo: **2283280**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	1914.299	330	3337	0	57.4	44	125	1958	2.25	30	
1,2-Dichlorobenzene	1818.752	330	3337	0	54.5	45	125	1825	0.360	30	
1,3-Dichlorobenzene	1766.300	330	3337	0	52.9	39	125	1755	0.622	30	
1,4-Dichlorobenzene	1814.074	330	3337	0	54.4	35	125	1803	0.595	30	
2,4,5-Trichlorophenol	2498.278	330	3337	0	74.9	49	125	2459	1.56	30	
2,4,6-Trichlorophenol	2297.493	330	3337	0	68.8	43	125	2295	0.125	30	
2,4-Dichlorophenol	2059.626	1700	3337	0	61.7	45	125	2122	2.97	30	
2,4-Dimethylphenol	2086.687	330	3337	0	62.5	32	125	2161	3.52	30	
2,4-Dinitrophenol	391.212	1700	3337	0	11.7	25	132	414.4	0	30	S
2,4-Dinitrotoluene	2392.373	330	3337	0	71.7	48	125	2385	0.300	30	
2,6-Dinitrotoluene	2313.864	330	3337	0	69.3	48	125	2329	0.635	30	
2-Chloronaphthalene	1930.670	330	3337	0	57.8	45	125	2151	10.8	30	
2-Chlorophenol	1917.640	330	3337	0	57.5	44	125	1954	1.85	30	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N019173-001D-MSD** SampType: **MSD** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **3/30/2016** RunNo: **106728**
Client ID: **ZZZZZZ** Batch ID: **56803** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **4/2/2016** SeqNo: **2283280**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	1971.762	330	3337	0	59.1	47	125	2044	3.59	30	
2-Methylphenol	2097.377	330	3337	0	62.8	40	125	2161	2.98	30	
2-Nitroaniline	2366.983	1700	3337	0	70.9	44	125	2360	0.300	30	
2-Nitrophenol	1888.575	330	3337	0	56.6	42	125	1890	0.0712	30	
3,3´-Dichlorobenzidine	3056.866	660	6675	0	45.8	25	128	3061	0.137	30	
3-Nitroaniline	2399.055	1700	3337	0	71.9	27	125	2462	2.61	30	
4,6-Dinitro-2-methylphenol	1431.883	1700	3337	0	42.9	29	137	1427	0	30	
4-Bromophenyl-phenylether	2608.191	330	3337	0	78.1	46	125	2462	5.77	30	
4-Chloro-3-methylphenol	2377.005	660	3337	0	71.2	46	125	2305	3.09	30	
4-Chloroaniline	1596.252	660	3337	0	47.8	10	125	1670	4.52	30	
4-Chlorophenyl-phenylether	2428.120	330	3337	0	72.8	47	125	2427	0.0659	30	
4-Methylphenol	2069.648	330	3337	0	62.0	41	125	2139	3.28	30	
4-Nitroaniline	2444.490	1700	3337	0	73.2	34	125	2499	2.20	30	
4-Nitrophenol	2279.119	1700	3337	0	68.3	25	138	2244	1.55	30	
Acenaphthene	1998.489	330	3337	0	59.9	46	125	1985	0.685	30	
Acenaphthylene	2049.603	330	3337	0	61.4	44	125	2217	7.83	30	
Anthracene	2613.537	330	3337	0	78.3	53	125	2476	5.39	30	
Benzo(a)anthracene	2671.667	330	3337	0	80.1	52	125	2631	1.53	30	
Benzo(a)pyrene	2673.672	330	3337	0	80.1	50	125	2628	1.73	30	
Benzo(b)fluoranthene	3296.404	330	3337	0	98.8	45	125	3395	2.95	30	
Benzo(g,h,i)perylene	920.066	330	3337	0	27.6	38	126	1002	8.52	30	S
Benzo(k)fluoranthene	3421.685	330	3337	0	103	45	125	3094	10.0	30	
Benzoic acid	254.906	1700	3337	0	7.64	25	125	270.8	0	30	S
Benzyl alcohol	1718.526	660	3337	0	51.5	25	125	1801	4.67	30	
Bis(2-chloroethoxy)methane	2081.007	330	3337	0	62.4	43	125	2139	2.74	30	
Bis(2-chloroethyl)ether	2215.643	330	3337	0	66.4	38	125	2111	4.82	30	
Bis(2-chloroisopropyl)ether	1966.082	330	3337	0	58.9	25	125	1929	1.93	30	
Bis(2-ethylhexyl)phthalate	2948.957	330	3337	0	88.4	47	127	2733	7.59	30	
Butylbenzylphthalate	2753.518	330	3337	0	82.5	49	125	2578	6.57	30	
Chrysene	2623.225	330	3337	0	78.6	53	125	2566	2.22	30	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N019173-001D-MSD**	SampType: **MSD**	TestCode: **8270_S_PGE**	Units: **ug/Kg-dry**	Prep Date: **3/30/2016**	RunNo: **106728**
Client ID: **ZZZZZZ**	Batch ID: **56803**	TestNo: **EPA 8270C**	**EPA 3550B**	Analysis Date: **4/2/2016**	SeqNo: **2283280**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Di-n-butylphthalate	2607.189	330	3337	0	78.1	56	125	2537	2.72	30	
Di-n-octylphthalate	5305.249	330	3337	0	159	41	132	4243	22.3	30	S
Dibenz(a,h)anthracene	1181.654	330	3337	0	35.4	41	125	1271	7.29	30	S
Dibenzofuran	2281.792	330	3337	0	68.4	51	125	2243	1.73	30	
Diethylphthalate	2508.300	330	3337	0	75.2	50	125	2591	3.23	30	
Dimethylphthalate	2364.978	330	3337	0	70.9	49	125	2494	5.33	30	
Fluoranthene	2588.814	330	3337	0	77.6	54	125	2528	2.37	30	
Fluorene	2346.938	330	3337	0	70.3	49	125	2359	0.523	30	
Hexachlorobenzene	2612.200	330	3337	0	78.3	47	125	2519	3.61	30	
Hexachlorobutadiene	2157.846	660	3337	0	64.7	40	125	2186	1.30	30	
Hexachloroethane	1760.287	330	3337	0	52.7	34	125	1737	1.31	30	
Indeno(1,2,3-cd)pyrene	1118.178	330	3337	0	33.5	38	125	1218	8.58	30	S
Isophorone	2197.268	330	3337	0	65.8	43	125	2300	4.55	30	
N-Nitrosodi-n-propylamine	1997.820	330	3337	0	59.9	40	125	2049	2.55	30	
N-Nitrosodiphenylamine	2677.347	330	3337	0	80.2	49	125	2510	6.46	30	
Naphthalene	1915.970	330	3337	0	57.4	40	125	1906	0.544	30	
Nitrobenzene	1878.218	330	3337	0	56.3	41	125	1904	1.38	30	
Pentachlorophenol	2544.047	1700	3337	0	76.2	25	125	2450	3.77	30	
Phenanthrene	2549.393	330	3337	0	76.4	50	125	2392	6.39	30	
Phenol	1881.225	330	3337	0	56.4	39	125	1939	3.00	30	
Pyrene	2659.306	330	3337	0	79.7	46	125	2507	5.90	30	
Surr: 1,2-Dichlorobenzene-d4	1873.875		3337		56.1	25	110		0		
Surr: 2,4,6-Tribromophenol	2918.221		3337		87.4	36	126		0		
Surr: 2-Chlorophenol-d4	2131.788		3337		63.9	30	100		0		
Surr: 2-Fluorobiphenyl	2079.671		3337		62.3	43	125		0		
Surr: 2-Fluorophenol	2103.391		3337		63.0	37	125		0		
Surr: 4-Terphenyl-d14	2878.131		3337		86.2	32	125		0		
Surr: Nitrobenzene-d5	1919.311		3337		57.5	37	125		0		
Surr: Phenol-d5	2110.741		3337		63.2	40	125		0		

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-001

Client Sample ID: Soil-IDW-01-6238
Collection Date: 3/21/2016 7:45:00 AM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM
EPA 3550B **EPA 8270CSIM**

RunID: **MS3_160322B** QC Batch: **56711** PrepDate **3/22/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1-Methylnaphthalene	ND	1.0	5.0		ug/Kg-dry	1	3/23/2016 12:44 AM
2-Methylnaphthalene	ND	1.7	5.0		ug/Kg-dry	1	3/23/2016 12:44 AM
Acenaphthene	ND	0.51	5.0		ug/Kg-dry	1	3/23/2016 12:44 AM
Acenaphthylene	ND	0.51	5.0		ug/Kg-dry	1	3/23/2016 12:44 AM
Anthracene	ND	0.51	5.0		ug/Kg-dry	1	3/23/2016 12:44 AM
Benzo(a)anthracene	ND	0.51	5.0		ug/Kg-dry	1	3/23/2016 12:44 AM
Benzo(a)pyrene	ND	0.56	5.0		ug/Kg-dry	1	3/23/2016 12:44 AM
Benzo(b)fluoranthene	14	0.56	5.0		ug/Kg-dry	1	3/23/2016 12:44 AM
Benzo(g,h,i)perylene	ND	0.51	5.0		ug/Kg-dry	1	3/23/2016 12:44 AM
Benzo(k)fluoranthene	5.7	0.72	5.0		ug/Kg-dry	1	3/23/2016 12:44 AM
Chrysene	11	0.51	5.0		ug/Kg-dry	1	3/23/2016 12:44 AM
Dibenz(a,h)anthracene	ND	0.40	5.0		ug/Kg-dry	1	3/23/2016 12:44 AM
Fluoranthene	8.4	0.79	5.0		ug/Kg-dry	1	3/23/2016 12:44 AM
Fluorene	ND	0.60	5.0		ug/Kg-dry	1	3/23/2016 12:44 AM
Indeno(1,2,3-cd)pyrene	ND	0.60	5.0		ug/Kg-dry	1	3/23/2016 12:44 AM
Naphthalene	ND	1.2	5.0		ug/Kg-dry	1	3/23/2016 12:44 AM
Phenanthrene	ND	0.72	5.0		ug/Kg-dry	1	3/23/2016 12:44 AM
Pyrene	7.7	0.60	5.0		ug/Kg-dry	1	3/23/2016 12:44 AM
Surr: 1,2-Dichlorobenzene-d4	54.0	0	25-110		%REC	1	3/23/2016 12:44 AM
Surr: 2-Fluorobiphenyl	68.0	0	34-135		%REC	1	3/23/2016 12:44 AM
Surr: 4-Terphenyl-d14	94.0	0	14-129		%REC	1	3/23/2016 12:44 AM
Surr: Nitrobenzene-d5	88.0	0	25-135		%REC	1	3/23/2016 12:44 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-002

Client Sample ID: Soil-IDW-01-6582
Collection Date: 3/21/2016 8:00:00 AM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM

EPA 3550B **EPA 8270CSIM**

RunID: **MS3_160329A** QC Batch: **56711** PrepDate **3/22/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1-Methylnaphthalene	ND	10	50		ug/Kg-dry	10	3/29/2016 06:36 PM
1-Methylnaphthalene	ND	1.0	5.0		ug/Kg-dry	1	3/23/2016 04:27 AM
2-Methylnaphthalene	ND	1.7	5.0		ug/Kg-dry	1	3/23/2016 04:27 AM
2-Methylnaphthalene	ND	17	50		ug/Kg-dry	10	3/29/2016 06:36 PM
Acenaphthene	ND	0.51	5.0		ug/Kg-dry	1	3/23/2016 04:27 AM
Acenaphthene	ND	5.1	50		ug/Kg-dry	10	3/29/2016 06:36 PM
Acenaphthylene	ND	0.51	5.0		ug/Kg-dry	1	3/23/2016 04:27 AM
Acenaphthylene	ND	5.1	50		ug/Kg-dry	10	3/29/2016 06:36 PM
Anthracene	ND	0.51	5.0		ug/Kg-dry	1	3/23/2016 04:27 AM
Anthracene	ND	5.1	50		ug/Kg-dry	10	3/29/2016 06:36 PM
Benzo(a)anthracene	19	0.51	5.0	A6L	ug/Kg-dry	1	3/23/2016 04:27 AM
Benzo(a)anthracene	ND	5.1	50		ug/Kg-dry	10	3/29/2016 06:36 PM
Benzo(a)pyrene	32	0.56	5.0	A6L	ug/Kg-dry	1	3/23/2016 04:27 AM
Benzo(a)pyrene	ND	5.6	50		ug/Kg-dry	10	3/29/2016 06:36 PM
Benzo(b)fluoranthene	81	0.56	5.0	A6L	ug/Kg-dry	1	3/23/2016 04:27 AM
Benzo(b)fluoranthene	77	5.6	50		ug/Kg-dry	10	3/29/2016 06:36 PM
Benzo(g,h,i)perylene	12	0.51	5.0	A6L	ug/Kg-dry	1	3/23/2016 04:27 AM
Benzo(g,h,i)perylene	ND	5.1	50		ug/Kg-dry	10	3/29/2016 06:36 PM
Benzo(k)fluoranthene	28	0.73	5.0	A6L	ug/Kg-dry	1	3/23/2016 04:27 AM
Benzo(k)fluoranthene	ND	7.3	50		ug/Kg-dry	10	3/29/2016 06:36 PM
Chrysene	38	0.51	5.0	A6L	ug/Kg-dry	1	3/23/2016 04:27 AM
Chrysene	ND	5.1	50		ug/Kg-dry	10	3/29/2016 06:36 PM
Dibenz(a,h)anthracene	ND	4.0	50		ug/Kg-dry	10	3/29/2016 06:36 PM
Dibenz(a,h)anthracene	ND	0.40	5.0	A6L	ug/Kg-dry	1	3/23/2016 04:27 AM
Fluoranthene	64	8.0	50		ug/Kg-dry	10	3/29/2016 06:36 PM
Fluoranthene	53	0.80	5.0		ug/Kg-dry	1	3/23/2016 04:27 AM
Fluorene	ND	0.60	5.0		ug/Kg-dry	1	3/23/2016 04:27 AM
Fluorene	ND	6.0	50		ug/Kg-dry	10	3/29/2016 06:36 PM
Indeno(1,2,3-cd)pyrene	10	0.60	5.0	A6L	ug/Kg-dry	1	3/23/2016 04:27 AM
Indeno(1,2,3-cd)pyrene	ND	6.0	50		ug/Kg-dry	10	3/29/2016 06:36 PM
Naphthalene	ND	12	50		ug/Kg-dry	10	3/29/2016 06:36 PM
Naphthalene	ND	1.2	5.0		ug/Kg-dry	1	3/23/2016 04:27 AM
Phenanthrene	ND	7.3	50		ug/Kg-dry	10	3/29/2016 06:36 PM
Phenanthrene	18	0.73	5.0		ug/Kg-dry	1	3/23/2016 04:27 AM
Pyrene	47	0.60	5.0		ug/Kg-dry	1	3/23/2016 04:27 AM
Pyrene	60	6.0	50		ug/Kg-dry	10	3/29/2016 06:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-002

Client Sample ID: Soil-IDW-01-6582
Collection Date: 3/21/2016 8:00:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM							
EPA 3550B			**EPA 8270CSIM**				
RunID: **MS3_160329A**	QC Batch: **56711**				PrepDate	**3/22/2016**	Analyst: **MDM**
Surr: 1,2-Dichlorobenzene-d4	60.0	0	25-110		%REC	1	3/23/2016 04:27 AM
Surr: 1,2-Dichlorobenzene-d4	80.0	0	25-110		%REC	10	3/29/2016 06:36 PM
Surr: 2-Fluorobiphenyl	80.0	0	34-135		%REC	10	3/29/2016 06:36 PM
Surr: 2-Fluorobiphenyl	74.0	0	34-135		%REC	1	3/23/2016 04:27 AM
Surr: 4-Terphenyl-d14	222	0	14-129	SA6L	%REC	1	3/23/2016 04:27 AM
Surr: 4-Terphenyl-d14	90.0	0	14-129		%REC	10	3/29/2016 06:36 PM
Surr: Nitrobenzene-d5	98.0	0	25-135		%REC	1	3/23/2016 04:27 AM
Surr: Nitrobenzene-d5	70.0	0	25-135		%REC	10	3/29/2016 06:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-003

Client Sample ID: Soil-IDW-01-6590
Collection Date: 3/21/2016 8:15:00 AM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM
EPA 3550B **EPA 8270CSIM**

RunID: **MS3_160322B** QC Batch: **56711** PrepDate **3/22/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1-Methylnaphthalene	ND	1.3	6.5		ug/Kg-dry	1	3/22/2016 09:30 PM
2-Methylnaphthalene	ND	2.2	6.5		ug/Kg-dry	1	3/22/2016 09:30 PM
Acenaphthene	ND	0.67	6.5		ug/Kg-dry	1	3/22/2016 09:30 PM
Acenaphthylene	ND	0.67	6.5		ug/Kg-dry	1	3/22/2016 09:30 PM
Anthracene	ND	0.67	6.5		ug/Kg-dry	1	3/22/2016 09:30 PM
Benzo(a)anthracene	ND	0.67	6.5		ug/Kg-dry	1	3/22/2016 09:30 PM
Benzo(a)pyrene	ND	0.73	6.5		ug/Kg-dry	1	3/22/2016 09:30 PM
Benzo(b)fluoranthene	ND	0.73	6.5		ug/Kg-dry	1	3/22/2016 09:30 PM
Benzo(g,h,i)perylene	ND	0.67	6.5		ug/Kg-dry	1	3/22/2016 09:30 PM
Benzo(k)fluoranthene	ND	0.94	6.5		ug/Kg-dry	1	3/22/2016 09:30 PM
Chrysene	ND	0.67	6.5		ug/Kg-dry	1	3/22/2016 09:30 PM
Dibenz(a,h)anthracene	ND	0.52	6.5		ug/Kg-dry	1	3/22/2016 09:30 PM
Fluoranthene	ND	1.0	6.5		ug/Kg-dry	1	3/22/2016 09:30 PM
Fluorene	ND	0.78	6.5		ug/Kg-dry	1	3/22/2016 09:30 PM
Indeno(1,2,3-cd)pyrene	ND	0.78	6.5		ug/Kg-dry	1	3/22/2016 09:30 PM
Naphthalene	ND	1.5	6.5		ug/Kg-dry	1	3/22/2016 09:30 PM
Phenanthrene	ND	0.94	6.5		ug/Kg-dry	1	3/22/2016 09:30 PM
Pyrene	ND	0.78	6.5		ug/Kg-dry	1	3/22/2016 09:30 PM
Surr: 1,2-Dichlorobenzene-d4	51.0	0	25-110		%REC	1	3/22/2016 09:30 PM
Surr: 2-Fluorobiphenyl	63.0	0	34-135		%REC	1	3/22/2016 09:30 PM
Surr: 4-Terphenyl-d14	85.0	0	14-129		%REC	1	3/22/2016 09:30 PM
Surr: Nitrobenzene-d5	75.0	0	25-135		%REC	1	3/22/2016 09:30 PM

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
E Value above quantitation range
ND Not Detected at the Reporting Limit
Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-004

Client Sample ID: Soil-IDW-01-6657
Collection Date: 3/21/2016 8:30:00 AM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM

EPA 3550B **EPA 8270CSIM**

RunID: **MS3_160322B** QC Batch: **56711** PrepDate **3/22/2016** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1-Methylnaphthalene	33	1.0	5.0		ug/Kg-dry	1	3/23/2016 04:55 AM
1-Methylnaphthalene	ND	10	50		ug/Kg-dry	10	3/29/2016 07:03 PM
2-Methylnaphthalene	ND	17	50		ug/Kg-dry	10	3/29/2016 07:03 PM
2-Methylnaphthalene	41	1.7	5.0		ug/Kg-dry	1	3/23/2016 04:55 AM
Acenaphthene	ND	0.51	5.0		ug/Kg-dry	1	3/23/2016 04:55 AM
Acenaphthene	ND	5.1	50		ug/Kg-dry	10	3/29/2016 07:03 PM
Acenaphthylene	ND	0.51	5.0		ug/Kg-dry	1	3/23/2016 04:55 AM
Acenaphthylene	ND	5.1	50		ug/Kg-dry	10	3/29/2016 07:03 PM
Anthracene	ND	0.51	5.0		ug/Kg-dry	1	3/23/2016 04:55 AM
Anthracene	ND	5.1	50		ug/Kg-dry	10	3/29/2016 07:03 PM
Benzo(a)anthracene	9.7	0.51	5.0	A6L	ug/Kg-dry	1	3/23/2016 04:55 AM
Benzo(a)anthracene	ND	5.1	50		ug/Kg-dry	10	3/29/2016 07:03 PM
Benzo(a)pyrene	ND	5.6	50		ug/Kg-dry	10	3/29/2016 07:03 PM
Benzo(a)pyrene	20	0.56	5.0	A6L	ug/Kg-dry	1	3/23/2016 04:55 AM
Benzo(b)fluoranthene	50	5.6	50		ug/Kg-dry	10	3/29/2016 07:03 PM
Benzo(b)fluoranthene	51	0.56	5.0	A6L	ug/Kg-dry	1	3/23/2016 04:55 AM
Benzo(g,h,i)perylene	12	0.51	5.0	A6L	ug/Kg-dry	1	3/23/2016 04:55 AM
Benzo(g,h,i)perylene	ND	5.1	50		ug/Kg-dry	10	3/29/2016 07:03 PM
Benzo(k)fluoranthene	24	0.73	5.0	A6L	ug/Kg-dry	1	3/23/2016 04:55 AM
Benzo(k)fluoranthene	ND	7.3	50		ug/Kg-dry	10	3/29/2016 07:03 PM
Chrysene	21	0.51	5.0	A6L	ug/Kg-dry	1	3/23/2016 04:55 AM
Chrysene	ND	5.1	50		ug/Kg-dry	10	3/29/2016 07:03 PM
Dibenz(a,h)anthracene	ND	0.40	5.0	A6L	ug/Kg-dry	1	3/23/2016 04:55 AM
Dibenz(a,h)anthracene	ND	4.0	50		ug/Kg-dry	10	3/29/2016 07:03 PM
Fluoranthene	18	0.80	5.0		ug/Kg-dry	1	3/23/2016 04:55 AM
Fluoranthene	ND	8.0	50		ug/Kg-dry	10	3/29/2016 07:03 PM
Fluorene	ND	6.0	50		ug/Kg-dry	10	3/29/2016 07:03 PM
Fluorene	ND	0.60	5.0		ug/Kg-dry	1	3/23/2016 04:55 AM
Indeno(1,2,3-cd)pyrene	ND	6.0	50		ug/Kg-dry	10	3/29/2016 07:03 PM
Indeno(1,2,3-cd)pyrene	8.7	0.60	5.0	A6L	ug/Kg-dry	1	3/23/2016 04:55 AM
Naphthalene	7.4	1.2	5.0		ug/Kg-dry	1	3/23/2016 04:55 AM
Naphthalene	ND	12	50		ug/Kg-dry	10	3/29/2016 07:03 PM
Phenanthrene	ND	7.3	50		ug/Kg-dry	10	3/29/2016 07:03 PM
Phenanthrene	8.4	0.73	5.0		ug/Kg-dry	1	3/23/2016 04:55 AM
Pyrene	18	0.60	5.0		ug/Kg-dry	1	3/23/2016 04:55 AM
Pyrene	ND	6.0	50		ug/Kg-dry	10	3/29/2016 07:03 PM

Qualifiers:

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- E Value above quantitation range
- ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-004

Client Sample ID: Soil-IDW-01-6657
Collection Date: 3/21/2016 8:30:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM							
EPA 3550B			**EPA 8270CSIM**				
RunID: **MS3_160322B**	QC Batch: **56711**				PrepDate	**3/22/2016**	Analyst: **MDM**
Surr: 1,2-Dichlorobenzene-d4	80.0	0	25-110		%REC	10	3/29/2016 07:03 PM
Surr: 1,2-Dichlorobenzene-d4	54.0	0	25-110		%REC	1	3/23/2016 04:55 AM
Surr: 2-Fluorobiphenyl	70.0	0	34-135		%REC	1	3/23/2016 04:55 AM
Surr: 2-Fluorobiphenyl	80.0	0	34-135		%REC	10	3/29/2016 07:03 PM
Surr: 4-Terphenyl-d14	258	0	14-129	SA6L	%REC	1	3/23/2016 04:55 AM
Surr: 4-Terphenyl-d14	90.0	0	14-129		%REC	10	3/29/2016 07:03 PM
Surr: Nitrobenzene-d5	90.0	0	25-135		%REC	1	3/23/2016 04:55 AM
Surr: Nitrobenzene-d5	50.0	0	25-135		%REC	10	3/29/2016 07:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_SIMPGE

Sample ID **LCS-56711**	SampType: **LCS**	TestCode: **8270_S_SIM**	Units: **ug/Kg**	Prep Date: **3/22/2016**	RunNo: **106563**
Client ID: **LCSS**	Batch ID: **56711**	TestNo: **EPA 8270CSI EPA 3550B**		Analysis Date: **3/22/2016**	SeqNo: **2274025**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1-Methylnaphthalene	22.333	5.0	33.30	0	67.1	30	111				
2-Methylnaphthalene	24.667	5.0	33.30	0	74.1	30	111				
Acenaphthene	23.333	5.0	33.30	0	70.1	28	110				
Acenaphthylene	23.333	5.0	33.30	0	70.1	23	126				
Anthracene	23.000	5.0	33.30	0	69.1	28	136				
Benzo(a)anthracene	19.000	5.0	33.30	0	57.1	31	146				
Benzo(a)pyrene	24.000	5.0	33.30	0	72.1	28	128				
Benzo(b)fluoranthene	28.000	5.0	33.30	0	84.1	30	139				
Benzo(g,h,i)perylene	25.667	5.0	33.30	0	77.1	21	149				
Benzo(k)fluoranthene	28.000	5.0	33.30	0	84.1	42	129				
Chrysene	32.667	5.0	33.30	0	98.1	39	134				
Dibenz(a,h)anthracene	27.333	5.0	33.30	0	82.1	30	138				
Fluoranthene	25.333	5.0	33.30	0	76.1	30	142				
Fluorene	24.667	5.0	33.30	0	74.1	27	116				
Indeno(1,2,3-cd)pyrene	29.333	5.0	33.30	0	88.1	17	164				
Naphthalene	23.000	5.0	33.30	0	69.1	29	106				
Phenanthrene	23.333	5.0	33.30	0	70.1	32	127				
Pyrene	27.667	5.0	33.30	0	83.1	28	130				
Surr: 1,2-Dichlorobenzene-d4	19.333		33.30		58.1	25	110				
Surr: 2-Fluorobiphenyl	24.000		33.30		72.1	34	135				
Surr: 4-Terphenyl-d14	33.000		33.30		99.1	14	129				
Surr: Nitrobenzene-d5	27.333		33.30		82.1	25	135				

Sample ID **MB-56711**	SampType: **MBLK**	TestCode: **8270_S_SIM**	Units: **ug/Kg**	Prep Date: **3/22/2016**	RunNo: **106563**
Client ID: **PBS**	Batch ID: **56711**	TestNo: **EPA 8270CSI EPA 3550B**		Analysis Date: **3/22/2016**	SeqNo: **2274026**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1-Methylnaphthalene	ND	5.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_SIMPGE

Sample ID **MB-56711**	SampType: **MBLK**	TestCode: **8270_S_SIM**	Units: **ug/Kg**	Prep Date: **3/22/2016**	RunNo: **106563**
Client ID: **PBS**	Batch ID: **56711**	TestNo: **EPA 8270CSI EPA 3550B**		Analysis Date: **3/22/2016**	SeqNo: **2274026**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	ND	5.0									
Acenaphthene	ND	5.0									
Acenaphthylene	ND	5.0									
Anthracene	ND	5.0									
Benzo(a)anthracene	ND	5.0									
Benzo(a)pyrene	ND	5.0									
Benzo(b)fluoranthene	ND	5.0									
Benzo(g,h,i)perylene	ND	5.0									
Benzo(k)fluoranthene	ND	5.0									
Chrysene	ND	5.0									
Dibenz(a,h)anthracene	ND	5.0									
Fluoranthene	ND	5.0									
Fluorene	ND	5.0									
Indeno(1,2,3-cd)pyrene	ND	5.0									
Naphthalene	ND	5.0									
Phenanthrene	ND	5.0									
Pyrene	ND	5.0									
Surr: 1,2-Dichlorobenzene-d4	15.333		33.30		46.0	25	110				
Surr: 2-Fluorobiphenyl	23.000		33.30		69.1	34	135				
Surr: 4-Terphenyl-d14	34.667		33.30		104	14	129				
Surr: Nitrobenzene-d5	23.333		33.30		70.1	25	135				

Sample ID **N019053-012C-MS**	SampType: **MS**	TestCode: **8270_S_SIM**	Units: **ug/Kg-dry**	Prep Date: **3/22/2016**	RunNo: **106563**
Client ID: **ZZZZZZ**	Batch ID: **56711**	TestNo: **EPA 8270CSI EPA 3550B**		Analysis Date: **3/22/2016**	SeqNo: **2274035**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1-Methylnaphthalene	83.504	5.2	137.4	0	60.8	30	111				
2-Methylnaphthalene	102.747	5.2	137.4	0	74.8	30	111				
Acenaphthene	93.125	5.2	137.4	0	67.8	28	110				
Acenaphthylene	107.558	5.2	137.4	0	78.3	23	126				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_SIMPGE

Sample ID **N019053-012C-MS** SampType: **MS** TestCode: **8270_S_SIM** Units: **ug/Kg-dry** Prep Date: **3/22/2016** RunNo: **106563**
Client ID: **ZZZZZZ** Batch ID: **56711** TestNo: **EPA 8270CSI EPA 3550B** Analysis Date: **3/22/2016** SeqNo: **2274035**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Anthracene	106.527	5.2	137.4	0	77.5	28	136				
Benzo(a)anthracene	91.064	5.2	137.4	1.379	65.3	31	146				
Benzo(a)pyrene	110.995	5.2	137.4	2.413	79.0	28	128				
Benzo(b)fluoranthene	117.524	5.2	137.4	4.827	82.0	30	139				
Benzo(g,h,i)perylene	56.013	5.2	137.4	1.724	39.5	21	149				
Benzo(k)fluoranthene	123.366	5.2	137.4	2.069	88.3	42	129				
Chrysene	114.775	5.2	137.4	4.482	80.3	39	134				
Dibenz(a,h)anthracene	69.758	5.2	137.4	0	50.8	30	138				
Fluoranthene	125.771	5.2	137.4	5.517	87.5	30	142				
Fluorene	100.685	5.2	137.4	0	73.3	27	116				
Indeno(1,2,3-cd)pyrene	70.789	5.2	137.4	1.379	50.5	17	164				
Naphthalene	86.940	5.2	137.4	0	63.3	29	106				
Phenanthrene	101.373	5.2	137.4	1.379	72.8	32	127				
Pyrene	120.273	5.2	137.4	5.172	83.8	28	130				
Surr: 1,2-Dichlorobenzene-d4	17.869		34.33		52.1	25	110				
Surr: 2-Fluorobiphenyl	24.055		34.33		70.1	34	135				
Surr: 4-Terphenyl-d14	30.584		34.33		89.1	14	129				
Surr: Nitrobenzene-d5	30.927		34.33		90.1	25	135				

Sample ID **N019053-012C-MSD** SampType: **MSD** TestCode: **8270_S_SIM** Units: **ug/Kg-dry** Prep Date: **3/22/2016** RunNo: **106563**
Client ID: **ZZZZZZ** Batch ID: **56711** TestNo: **EPA 8270CSI EPA 3550B** Analysis Date: **3/22/2016** SeqNo: **2274036**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1-Methylnaphthalene	81.659	5.2	137.8	0	59.3	30	111	83.50	2.23	30	
2-Methylnaphthalene	96.131	5.2	137.8	0	69.8	30	111	102.7	6.65	30	
Acenaphthene	92.685	5.2	137.8	0	67.3	28	110	93.13	0.474	30	
Acenaphthylene	107.501	5.2	137.8	0	78.0	23	126	107.6	0.0532	30	
Anthracene	101.299	5.2	137.8	0	73.5	28	136	106.5	5.03	30	
Benzo(a)anthracene	108.535	5.2	137.8	1.379	77.8	31	146	91.06	17.5	30	
Benzo(a)pyrene	125.073	5.2	137.8	2.413	89.0	28	128	111.0	11.9	30	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_SIMPGE

Sample ID **N019053-012C-MSD** SampType: **MSD** TestCode: **8270_S_SIM** Units: **ug/Kg-dry** Prep Date: **3/22/2016** RunNo: **106563**
Client ID: **ZZZZZZ** Batch ID: **56711** TestNo: **EPA 8270CSI EPA 3550B** Analysis Date: **3/22/2016** SeqNo: **2274036**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	142.990	5.2	137.8	4.827	100	30	139	117.5	19.6	30	
Benzo(g,h,i)perylene	48.927	5.2	137.8	1.724	34.3	21	149	56.01	13.5	30	
Benzo(k)fluoranthene	131.964	5.2	137.8	2.069	94.3	42	129	123.4	6.74	30	
Chrysene	131.620	5.2	137.8	4.482	92.3	39	134	114.8	13.7	30	
Dibenz(a,h)anthracene	63.398	5.2	137.8	0	46.0	30	138	69.76	9.55	30	
Fluoranthene	135.755	5.2	137.8	5.517	94.5	30	142	125.8	7.63	30	
Fluorene	101.644	5.2	137.8	0	73.8	27	116	100.7	0.947	30	
Indeno(1,2,3-cd)pyrene	64.432	5.2	137.8	1.379	45.8	17	164	70.79	9.40	30	
Naphthalene	82.004	5.2	137.8	0	59.5	29	106	86.94	5.84	30	
Phenanthrene	96.820	5.2	137.8	1.379	69.3	32	127	101.4	4.59	30	
Pyrene	132.654	5.2	137.8	5.172	92.5	28	130	120.3	9.79	30	
Surr: 1,2-Dichlorobenzene-d4	16.539		34.42		48.0	25	110		0		
Surr: 2-Fluorobiphenyl	23.774		34.42		69.1	34	135		0		
Surr: 4-Terphenyl-d14	30.665		34.42		89.1	14	129		0		
Surr: Nitrobenzene-d5	29.632		34.42		86.1	25	135		0		

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-001

Client Sample ID: Soil-IDW-01-6238
Collection Date: 3/21/2016 7:45:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			EPA 9045C				
RunID: **WETCHEM_160322D**	QC Batch: **R106548**			PrepDate			Analyst: **LR**
pH	8.6	0.10	0.10		pH Units	1	3/22/2016 02:30 PM
Temp. at time of pH Analysis	21	0	0		°C	1	3/22/2016 02:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-002

Client Sample ID: Soil-IDW-01-6582
Collection Date: 3/21/2016 8:00:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			EPA 9045C				
RunID: **WETCHEM_160322D**	QC Batch: **R106548**			PrepDate			Analyst: **LR**
pH	8.4	0.10	0.10		pH Units	1	3/22/2016 02:30 PM
Temp. at time of pH Analysis	20	0	0		°C	1	3/22/2016 02:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-003

Client Sample ID: Soil-IDW-01-6590
Collection Date: 3/21/2016 8:15:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			EPA 9045C				
RunID: **WETCHEM_160322D**	QC Batch: **R106548**			PrepDate			Analyst: **LR**
pH	9.3	0.10	0.10		pH Units	1	3/22/2016 02:30 PM
Temp. at time of pH Analysis	21	0	0		°C	1	3/22/2016 02:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-004

Client Sample ID: Soil-IDW-01-6657
Collection Date: 3/21/2016 8:30:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			EPA 9045C				
RunID: **WETCHEM_160322D**	QC Batch: **R106548**			PrepDate			Analyst: **LR**
pH	8.2	0.10	0.10		pH Units	1	3/22/2016 02:30 PM
Temp. at time of pH Analysis	21	0	0		°C	1	3/22/2016 02:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 9045_S

Sample ID **N019171-002BDUP**	SampType: **DUP**	TestCode: **9045_S**	Units: **pH Units**	Prep Date:	RunNo: **106548**
Client ID: **ZZZZZZ**	Batch ID: **R106548**	TestNo: **EPA 9045C**		Analysis Date: **3/22/2016**	SeqNo: **2274325**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.160	0.10						8.180	0.245	20	
Temp. at time of pH Analysis	20.600	0						20.50	0.487	0	

Sample ID **N019173-002BDUP**	SampType: **DUP**	TestCode: **9045_S**	Units: **pH Units**	Prep Date:	RunNo: **106548**
Client ID: **ZZZZZZ**	Batch ID: **R106548**	TestNo: **EPA 9045C**		Analysis Date: **3/22/2016**	SeqNo: **2274353**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.400	0.10						8.370	0.358	20	
Temp. at time of pH Analysis	20.600	0						20.50	0.487	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6238
Lab Order:	N019173	**Collection Date:**	3/21/2016 7:45:00 AM
Project:	PGE Topock, 666665.FP.FW	**Matrix:**	SOIL
Lab ID:	N019173-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PERCENT MOISTURE							
			D2216				
RunID: **WETCHEM_160322B**	QC Batch: **R106546**			PrepDate			Analyst: **LR**
Percent Moisture	0.2246	0.1000	0.1000		wt%	1	3/22/2016 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6582
Lab Order:	N019173	**Collection Date:**	3/21/2016 8:00:00 AM
Project:	PGE Topock, 666665.FP.FW	**Matrix:**	SOIL
Lab ID:	N019173-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PERCENT MOISTURE							
			D2216				
RunID: **WETCHEM_160322B**	QC Batch: **R106546**			PrepDate			Analyst: **LR**
Percent Moisture	0.6860	0.1000	0.1000		wt%	1	3/22/2016 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6590
Lab Order:	N019173	**Collection Date:**	3/21/2016 8:15:00 AM
Project:	PGE Topock, 666665.FP.FW	**Matrix:**	SOIL
Lab ID:	N019173-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PERCENT MOISTURE							
			D2216				
RunID: **WETCHEM_160322B**	QC Batch: **R106546**			PrepDate			Analyst: **LR**
Percent Moisture	23.71	0.1000	0.1000		wt%	1	3/22/2016 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N019173
Project: PGE Topock, 666665.FP.FW
Lab ID: N019173-004

Client Sample ID: Soil-IDW-01-6657
Collection Date: 3/21/2016 8:30:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PERCENT MOISTURE							
			D2216				
RunID: **WETCHEM_160322B**	QC Batch: **R106546**			PrepDate			Analyst: **LR**
Percent Moisture	0.9391	0.1000	0.1000		wt%	1	3/22/2016 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: PMOIST

Sample ID **MB-R106546**	SampType: **MBLK**	TestCode: **PMOIST**	Units: **wt%**	Prep Date:	RunNo: **106546**
Client ID: **PBS**	Batch ID: **R106546**	TestNo: **D2216**		Analysis Date: **3/22/2016**	SeqNo: **2273189**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	ND	0.1000									

Sample ID **N019171-001BDUP**	SampType: **DUP**	TestCode: **PMOIST**	Units: **wt%**	Prep Date:	RunNo: **106546**
Client ID: **ZZZZZZ**	Batch ID: **R106546**	TestNo: **D2216**		Analysis Date: **3/22/2016**	SeqNo: **2273212**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	2.582	0.1000						2.559	0.918	30	

Sample ID **N019173-001BDUP**	SampType: **DUP**	TestCode: **PMOIST**	Units: **wt%**	Prep Date:	RunNo: **106546**
Client ID: **ZZZZZZ**	Batch ID: **R106546**	TestNo: **D2216**		Analysis Date: **3/22/2016**	SeqNo: **2273227**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	0.205	0.1000						0.2246	8.98	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SAMPLE RECEIVING ITEMS

CH2MHILL **CHAIN OF CUSTODY RECORD** Page 1 OF 1

Project Name PGE Topock
Location
Project Manager
QC Manager
Project Number 666665.FP.FW
Project 2015-RFISOIL-AOC14
Turnaround Time 7 Days
Shipping Date:
COC Number: ~~AOC14~~ IDW

	Container	Preservatives	Filtered	Holding Time	Hexavalent Chromium (7199)	Metals (6010B/7471A) Title 22 metals	PH (9045)	Dioxins/Furans(SW8290)	SVOCs (8270C)	Pesticides (8081A)	PCBs (8082)	PAHs (8270Sim)	TPH-Extractable (8015B-E)	TPH-Purgable (8015B-P)	VOCs (8260B)	Physical Parameters (1)		Number of Containers	COMMENTS
	8 oz soil jar	4°C	NA	14															
	8 oz soil jar	4°C	NA	180															
	8 oz soil jar	4°C	NA	7															
	3x4oz soil jar	4°C	NA	14															
	8oz soil jar(s)	4°C	NA	14															
	8oz soil jar(s)	4°C	NA	14															
	8oz soil jar(s)	4°C	NA	14															
	8oz soil jar(s)	4°C	NA	14															
	8 oz soil jar	4°C	NA	7															
	4x40ml glass	H2O, -7°C	NA	14															
	4x40ml glass	H2O, -7°C	NA	14															
	1 gal ziplock	none	NA	NA															

	DATE	TIME	Matrix															
ND19173-1	3.21.16	7:45	Soil	X	X	X	X	X	X	X	X	X				Soil-IDW-01-6238	6	
-2	3.21.16	8:00	Soil	X	X	X	X	X	X	X	X	X				Soil-IDW-01-6582	6	
-3	3.21.16	8:15	Soil	X	X	X	X	X	X	X	X	X				Soil-IDW-01-6590	6	
-4	3.21.16	8:30	Soil	X	X	X	X	X	X	X	X	X				Soil-IDW-01-6657	6	

Signatures		Date/Time
Approved by		3.21.16
Sampled by		3.21.16
Relinquished by		3.21.16
Received by		3/21/16 1350
Relinquished by		3/21/16 1524
Received by		3/21/16 15:24

Shipping Details
Method of Shipment: FedEx
On Ice: (yes) / no 3.16
Airbill No: ER#2
Lab Name: Advanced Technology Laboratories
Lab Phone:

ATTN: Sample Custody

Special Instructions:

Report Copy to

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	3/21/2016	Workorder:	N019173
Rep sample Temp (Deg C):	3.1	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☐	No ☐	NA ☑
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: HG 3/22/2016

Reviewed By: 03/22/16

ASSET Laboratories

WORK ORDER Summary

22-Mar-16

WorkOrder: N019173

Client ID: CH2HI01

Project: PGE Topock, 666665.FP.FW **QC Level:** Level IV **Date Received:** 3/21/2016

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N019173-001A	Soil-IDW-01-6238	3/21/2016 7:45:00 AM	4/4/2016	Soil	EPA 3060A	Prep for Hexavalend Chromium	☐	☐	☐	WS
			4/4/2016		EPA 7199	Hexavalent Chromium by IC	☐	☐	☐	WS
N019173-001B			4/4/2016		EPA 3050B	SOPREP TOTAL METALS	☐	☐	☐	WS
			4/4/2016		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WS
			4/4/2016			MERCURY PREP	☐	☐	☐	WS
			4/4/2016		EPA 7471A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WS
			4/4/2016		EPA 9045C	pH	☐	☐	☐	WS
			4/4/2016		D2216	PERCENT MOISTURE	☐	☐	☐	WS
N019173-001C			4/4/2016		EPA 8290	Dioxins and Dibenzofurans	☐	☐	☑	SUB
N019173-001D			4/4/2016		EPA 3550B	ULTRASONIC EXTRACTION: PESTICIDES/PCB	☐	☐	☐	WS
			4/4/2016		EPA 3550B	ULTRASONIC EXTRACTION: 8270C	☐	☐	☐	WS
			4/4/2016		EPA 3550B	ULTRASONIC EXTRACTION: PESTICIDE	☐	☐	☐	WS
			4/4/2016		EPA 3550B	ULTRASONIC EXTRACTION: 8270C - SIM	☐	☐	☐	WS
			4/4/2016		EPA 8081A	ORGANOCHLORINE PESTICIDES BY GC/ECD	☐	☐	☐	WS
			4/4/2016		EPA 8082	PCBs BY GC/ECD	☐	☐	☐	WS
			4/4/2016		EPA 8270C	SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	WS
			4/4/2016		EPA 8270CSIM	SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM	☐	☐	☐	WS
N019173-001E			4/4/2016		EPA 3550B	ULTRASONIC EXTRACTION: EXTRACTABLE FUELS	☐	☐	☐	WS
			4/4/2016		EPA 8015B	DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID	☐	☐	☐	WS

WORK ORDER Summary

22-Mar-16

WorkOrder: N019173

Client ID: CH2HI01

Project: PGE Topock, 666665.FP.FW **QC Level:** Level IV **Date Received:** 3/21/2016

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N019173-002A	Soil-IDW-01-6582	3/21/2016 8:00:00 AM	4/4/2016	Soil	EPA 3060A	Prep for Hexavalend Chromium	☐	☐	☐	WS
			4/4/2016		EPA 7199	Hexavalent Chromium by IC	☐	☐	☐	WS
N019173-002B			4/4/2016		EPA 3050B	SOPREP TOTAL METALS	☐	☐	☐	WS
			4/4/2016		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WS
			4/4/2016			MERCURY PREP	☐	☐	☐	WS
			4/4/2016		EPA 7471A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WS
			4/4/2016		EPA 9045C	pH	☐	☐	☐	WS
			4/4/2016		D2216	PERCENT MOISTURE	☐	☐	☐	WS
N019173-002C			4/4/2016		EPA 8290	Dioxins and Dibenzofurans	☐	☐	☑	SUB
N019173-002D			4/4/2016		EPA 3550B	ULTRASONIC EXTRACTION: PESTICIDES/PCB	☐	☐	☐	WS
			4/4/2016		EPA 3550B	ULTRASONIC EXTRACTION: 8270C	☐	☐	☐	WS
			4/4/2016		EPA 3550B	ULTRASONIC EXTRACTION: PESTICIDE	☐	☐	☐	WS
			4/4/2016		EPA 3550B	ULTRASONIC EXTRACTION: 8270C - SIM	☐	☐	☐	WS
			4/4/2016		EPA 8081A	ORGANOCHLORINE PESTICIDES BY GC/ECD	☐	☐	☐	WS
			4/4/2016		EPA 8082	PCBs BY GC/ECD	☐	☐	☐	WS
			4/4/2016		EPA 8270C	SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	WS
			4/4/2016		EPA 8270CSIM	SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM	☐	☐	☐	WS
N019173-002E			4/4/2016		EPA 3550B	ULTRASONIC EXTRACTION: EXTRACTABLE FUELS	☐	☐	☐	WS
			4/4/2016		EPA 8015B	DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID	☐	☐	☐	WS

WORK ORDER Summary

22-Mar-16

WorkOrder: N019173

Client ID: CH2HI01

Project: PGE Topock, 666665.FP.FW **QC Level:** Level IV **Date Received:** 3/21/2016

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N019173-003A	Soil-IDW-01-6590	3/21/2016 8:15:00 AM	4/4/2016	Soil	EPA 3060A	Prep for Hexavalend Chromium	☐	☐	☐	WS
			4/4/2016		EPA 7199	Hexavalent Chromium by IC	☐	☐	☐	WS
N019173-003B			4/4/2016		EPA 3050B	SOPREP TOTAL METALS	☐	☐	☐	WS
			4/4/2016		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WS
			4/4/2016			MERCURY PREP	☐	☐	☐	WS
			4/4/2016		EPA 7471A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WS
			4/4/2016		EPA 9045C	pH	☐	☐	☐	WS
			4/4/2016		D2216	PERCENT MOISTURE	☐	☐	☐	WS
N019173-003C			4/4/2016		EPA 8290	Dioxins and Dibenzofurans	☐	☐	☑	SUB
N019173-003D			4/4/2016		EPA 3550B	ULTRASONIC EXTRACTION: PESTICIDES/PCB	☐	☐	☐	WS
			4/4/2016		EPA 3550B	ULTRASONIC EXTRACTION: 8270C	☐	☐	☐	WS
			4/4/2016		EPA 3550B	ULTRASONIC EXTRACTION: PESTICIDE	☐	☐	☐	WS
			4/4/2016		EPA 3550B	ULTRASONIC EXTRACTION: 8270C - SIM	☐	☐	☐	WS
			4/4/2016		EPA 8081A	ORGANOCHLORINE PESTICIDES BY GC/ECD	☐	☐	☐	WS
			4/4/2016		EPA 8082	PCBs BY GC/ECD	☐	☐	☐	WS
			4/4/2016		EPA 8270C	SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	WS
			4/4/2016		EPA 8270CSIM	SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM	☐	☐	☐	WS
N019173-003E			4/4/2016		EPA 3550B	ULTRASONIC EXTRACTION: EXTRACTABLE FUELS	☐	☐	☐	WS
			4/4/2016		EPA 8015B	DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID	☐	☐	☐	WS

WORK ORDER Summary

22-Mar-16

WorkOrder: N019173

Client ID: CH2HI01

Project: PGE Topock, 666665.FP.FW **QC Level:** Level IV **Date Received:** 3/21/2016

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N019173-004A	Soil-IDW-01-6657	3/21/2016 8:30:00 AM	4/4/2016	Soil	EPA 3060A	Prep for Hexavalend Chromium	☐	☐	☐	WS
			4/4/2016		EPA 7199	Hexavalent Chromium by IC	☐	☐	☐	WS
N019173-004B			4/4/2016		EPA 3050B	SOPREP TOTAL METALS	☐	☐	☐	WS
			4/4/2016		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WS
			4/4/2016			MERCURY PREP	☐	☐	☐	WS
			4/4/2016		EPA 7471A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WS
			4/4/2016		EPA 9045C	pH	☐	☐	☐	WS
			4/4/2016		D2216	PERCENT MOISTURE	☐	☐	☐	WS
N019173-004C			4/4/2016		EPA 8290	Dioxins and Dibenzofurans	☐	☐	☑	SUB
N019173-004D			4/4/2016		EPA 3550B	ULTRASONIC EXTRACTION: PESTICIDES/PCB	☐	☐	☐	WS
			4/4/2016		EPA 3550B	ULTRASONIC EXTRACTION: 8270C	☐	☐	☐	WS
			4/4/2016		EPA 3550B	ULTRASONIC EXTRACTION: PESTICIDE	☐	☐	☐	WS
			4/4/2016		EPA 3550B	ULTRASONIC EXTRACTION: 8270C - SIM	☐	☐	☐	WS
			4/4/2016		EPA 8081A	ORGANOCHLORINE PESTICIDES BY GC/ECD	☐	☐	☐	WS
			4/4/2016		EPA 8082	PCBs BY GC/ECD	☐	☐	☐	WS
			4/4/2016		EPA 8270C	SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	WS
			4/4/2016		EPA 8270CSIM	SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM	☐	☐	☐	WS
N019173-004E			4/4/2016		EPA 3550B	ULTRASONIC EXTRACTION: EXTRACTABLE FUELS	☐	☐	☐	WS
			4/4/2016		EPA 8015B	DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID	☐	☐	☐	WS

WORK ORDER Summary

22-Mar-16

WorkOrder: N019173

Client ID: CH2HI01

Project: PGE Topock, 666665.FP.FW **QC Level:** Level IV **Date Received:** 3/21/2016

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N019173-005A	FOLDER		4/4/2016		Folder	Folder	☐	☐	☐	LAB

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

APPL, Inc.
908 N. Temperance Ave.
Clovis, CA 93611

TEL: (559) 275-2175
FAX: (209) 275-4422
Acct #:

Field Sampler: SIGNED

22-Mar-16

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: EPA 8290		
N019173-001C / Soil-IDW-01-6238	Soil	3/21/2016 7:45:00 AM	8OZG	1		
N019173-002C / Soil-IDW-01-6582	Soil	3/21/2016 8:00:00 AM	8OZG	1		
N019173-003C / Soil-IDW-01-6590	Soil	3/21/2016 8:15:00 AM	8OZG	1		
N019173-004C / Soil-IDW-01-6657	Soil	3/21/2016 8:30:00 AM	8OZG	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N19173A Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT.

Please analyze for Dioxins/Furans by EPA 8290. CH2M HILL Samples.

GSO#: 531320892

		Date/Time			Date/Time
Relinquished by:	Joanna Rodriguez	3/22/16 17:00	Received by:		
Relinquished by:			Received by:		

CH2M Hill

Project: PGE Topock

Project No.: 666665.FP.FW

ASSET Laboratories Work Order: N019173_Addendum

ANALYTICAL and QC RESULTS

SAMPLE RECEIVING ITEMS

RAW DATA

PRIVILEGED AND CONFIDENTIAL

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ASSET Laboratories Work Order: N019173_Addendum

April 22, 2016

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-00922

Workorder No.: N019173

RE: PGE Topock, 666665.FP.FW

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on March 21, 2016 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

This is an addendum report. Please incorporate with documentation previously submitted.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Glen Gesmundo
QA Manager

CLIENT: CH2M HILL
Project: PGE Topock, 666665.FP.FW
Lab Order: N019173

CASE NARRATIVE

Analytical Comments for EPA 6010B_STLC:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria on QC samples N019173-002B-MS and N019173-002B-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Dilution was necessary for all samples due to sample matrix.

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6582
Lab Order:	N019173	**Collection Date:**	3/21/2016 8:00:00 AM
Project:	PGE Topock, 666665.FP.FW	**Matrix:**	SOIL
Lab ID:	N019173-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC							
	EPA 3010A			**WET/ EPA 6010B**			
RunID: **ICP2_160418B**	QC Batch: **57051**			PrepDate	**4/18/2016**		Analyst: **CEI**
Lead	ND	0.0043	0.25		mg/L	5	4/18/2016 03:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *22-Apr-16*

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6590
Lab Order:	N019173	**Collection Date:**	3/21/2016 8:15:00 AM
Project:	PGE Topock, 666665.FP.FW	**Matrix:**	SOIL
Lab ID:	N019173-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC							
	EPA 3010A			**WET/ EPA 6010B**			
RunID: **ICP2_160418B**	QC Batch: **57051**			PrepDate	**4/18/2016**		Analyst: **CEI**
Chromium	140	0.0010	0.25		mg/L	5	4/18/2016 03:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6657
Lab Order:	N019173	**Collection Date:**	3/21/2016 8:30:00 AM
Project:	PGE Topock, 666665.FP.FW	**Matrix:**	SOIL
Lab ID:	N019173-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC							
	EPA 3010A			**WET/ EPA 6010B**			
RunID: **ICP2_160418B**	QC Batch: **57051**			PrepDate	**4/18/2016**		Analyst: **CEI**
Chromium	180	0.0010	0.25		mg/L	5	4/18/2016 03:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID **MB-57051**	SampType: **MBLK**	TestCode: **6010_ST**	Units: **mg/L**	Prep Date: **4/18/2016**	RunNo: **107001**
Client ID: **PBS**	Batch ID: **57051**	TestNo: **WET/ EPA 60**	**EPA 3010A**	Analysis Date: **4/18/2016**	SeqNo: **2300824**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.050									
Lead	0.002	0.050									

Sample ID **MB-57016-STLC**	SampType: **MBLK**	TestCode: **6010_ST**	Units: **mg/L**	Prep Date: **4/18/2016**	RunNo: **107001**
Client ID: **PBS**	Batch ID: **57051**	TestNo: **WET/ EPA 60**	**EPA 3010A**	Analysis Date: **4/18/2016**	SeqNo: **2300825**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.25									
Lead	ND	0.25									

Sample ID **LCS-57051**	SampType: **LCS**	TestCode: **6010_ST**	Units: **mg/L**	Prep Date: **4/18/2016**	RunNo: **107001**
Client ID: **LCSS**	Batch ID: **57051**	TestNo: **WET/ EPA 60**	**EPA 3010A**	Analysis Date: **4/18/2016**	SeqNo: **2300826**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.472	0.050	0.5000	0	94.3	85	115				
Lead	0.459	0.050	0.5000	0	91.8	85	115				

Sample ID **N019173-002B-MS**	SampType: **MS**	TestCode: **6010_ST**	Units: **mg/L**	Prep Date: **4/18/2016**	RunNo: **107001**
Client ID: **ZZZZZZ**	Batch ID: **57051**	TestNo: **WET/ EPA 60**	**EPA 3010A**	Analysis Date: **4/18/2016**	SeqNo: **2300832**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.700	0.25	0.5000	0.3298	74.1	75	125				S
Lead	0.551	0.25	0.5000	0.2292	64.5	75	125				S

Sample ID **N019173-002B-MSD**	SampType: **MSD**	TestCode: **6010_ST**	Units: **mg/L**	Prep Date: **4/18/2016**	RunNo: **107001**
Client ID: **ZZZZZZ**	Batch ID: **57051**	TestNo: **WET/ EPA 60**	**EPA 3010A**	Analysis Date: **4/18/2016**	SeqNo: **2300833**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID	N019173-002B-MSD	SampType:	MSD	TestCode:	6010_ST	Units:	mg/L	Prep Date:	4/18/2016	RunNo:	107001
Client ID:	ZZZZZZ	Batch ID:	57051	TestNo:	WET/ EPA 60 EPA 3010A			Analysis Date:	4/18/2016	SeqNo:	2300833

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.701	0.25	0.5000	0.3298	74.2	75	125	0.7000	0.121	20	S
Lead	0.557	0.25	0.5000	0.2292	65.7	75	125	0.5515	1.09	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6582
Lab Order:	N019173	**Collection Date:**	3/21/2016 8:00:00 AM
Project:	PGE Topock, 666665.FP.FW	**Matrix:**	SOIL
Lab ID:	N019173-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY TCLP EXTRACTION							
	EPA 3010A			**EPA 1311/ 6010B**			
RunID: **ICP2_160414B**	QC Batch: **57024**			PrepDate	**4/14/2016**		Analyst: **FJ**
Lead	ND	0.00085	0.050		mg/L	1	4/14/2016 04:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6590
Lab Order:	N019173	**Collection Date:**	3/21/2016 8:15:00 AM
Project:	PGE Topock, 666665.FP.FW	**Matrix:**	SOIL
Lab ID:	N019173-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY TCLP EXTRACTION							
	EPA 3010A			**EPA 1311/ 6010B**			
RunID: **ICP2_160414B**	QC Batch: **57024**			PrepDate	**4/14/2016**		Analyst: **FJ**
Chromium	ND	0.00020	0.050		mg/L	1	4/14/2016 04:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6657
Lab Order:	N019173	**Collection Date:**	3/21/2016 8:30:00 AM
Project:	PGE Topock, 666665.FP.FW	**Matrix:**	SOIL
Lab ID:	N019173-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY TCLP EXTRACTION	**EPA 3010A**		**EPA 1311/ 6010B**				
RunID: **ICP2_160414B**	QC Batch: **57024**			PrepDate	**4/14/2016**		Analyst: **FJ**
Chromium	80	0.0010	0.25		mg/L	5	4/14/2016 05:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_TC

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
MB-57024	**MBLK**	**6010_TC**	**mg/L**	**4/14/2016**	**106960**
Client ID: **PBS**	Batch ID: **57024**	TestNo: **EPA 1311/ 60 EPA 3010A**		Analysis Date: **4/14/2016**	SeqNo: **2298757**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.050									
Lead	ND	0.050									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
MB-57015-TCLP	**MBLK**	**6010_TC**	**mg/L**	**4/14/2016**	**106960**
Client ID: **PBS**	Batch ID: **57024**	TestNo: **EPA 1311/ 60 EPA 3010A**		Analysis Date: **4/14/2016**	SeqNo: **2298758**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.008	0.050									
Lead	ND	0.050									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
LCS-57024	**LCS**	**6010_TC**	**mg/L**	**4/14/2016**	**106960**
Client ID: **LCSS**	Batch ID: **57024**	TestNo: **EPA 1311/ 60 EPA 3010A**		Analysis Date: **4/14/2016**	SeqNo: **2298759**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.493	0.050	0.5000	0	98.6	85	115				
Lead	0.484	0.050	0.5000	0	96.8	85	115				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N019173-002B-MS	**MS**	**6010_TC**	**mg/L**	**4/14/2016**	**106960**
Client ID: **ZZZZZZ**	Batch ID: **57024**	TestNo: **EPA 1311/ 60 EPA 3010A**		Analysis Date: **4/14/2016**	SeqNo: **2298763**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.482	0.050	0.5000	0.005820	95.2	75	125				
Lead	0.431	0.050	0.5000	0	86.3	75	125				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N019173-002B-MSD	**MSD**	**6010_TC**	**mg/L**	**4/14/2016**	**106960**
Client ID: **ZZZZZZ**	Batch ID: **57024**	TestNo: **EPA 1311/ 60 EPA 3010A**		Analysis Date: **4/14/2016**	SeqNo: **2298764**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N019173
Project: PGE Topock, 666665.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_TC

Sample ID	N019173-002B-MSD	SampType:	MSD	TestCode:	6010_TC	Units:	mg/L	Prep Date:	4/14/2016	RunNo:	106960
Client ID:	ZZZZZZ	Batch ID:	57024	TestNo:	EPA 1311/ 60 EPA 3010A			Analysis Date:	4/14/2016	SeqNo:	2298764

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.481	0.050	0.5000	0.005820	95.0	75	125	0.4816	0.208	20	
Lead	0.432	0.050	0.5000	0	86.3	75	125	0.4313	0.0995	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SAMPLE RECEIVING ITEMS

CH2MHILL **CHAIN OF CUSTODY RECORD** Page 1 OF 1

Project Name PGE Topock
Location
Project Manager
QC Manager
Project Number 666665.FP.FW
Project 2015-RFISOIL-AOC14
Turnaround Time 7 Days
Shipping Date:
COC Number: ~~AOC14~~ IDW

	Container	8 oz soil jar	8 oz soil jar	8 oz soil jar	3x4oz soil jar	8oz soil jar(s)	8oz soil jar(s)	8oz soil jar(s)	8oz soil jar(s)	8 oz soil jar	4x40ml glass	4x40ml glass	1 gal ziplock			
	Preservatives:	4°C	4°C	4°C	4°C	4°C	4°C	4°C	4°C	4°C	H2O, -7°C	H2O, -7°C	none			
	Filtered:	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
	Holding Time:	14	180	7	14	14	14	14	14	7	14	14	NA			
DATE TIME Matrix		Hexavalent Chromium (7199)	Metals (6010B/7471A) Title 22 metals	PH (9045)	Dioxins/Furans(SW8290)	SVOCs (8270C)	Pesticides (8081A)	PCBs (8082)	PAHs (8270Sim)	TPH-Extractable (8015B-E)	TPH-Purgable (8015B-P)	VOCs (8260B)	Physical Parameters (1)		Number of Containers	COMMENTS
ND19173-1 3.21.16 7:45 Soil		X	X	X	X	X	X	X	X	X				Soil-IDW-01-6238	6	
-2 3.21.16 8:00 Soil		X	X	X	X	X	X	X	X	X				Soil-IDW-01-6582	6	
-3 3.21.16 8:15 Soil		X	X	X	X	X	X	X	X	X				Soil-IDW-01-6590	6	
-4 3.21.16 8:30 Soil		X	X	X	X	X	X	X	X	X				Soil-IDW-01-6657	6	

Signatures **Date/Time**

Approved by		3.21.16
Sampled by		3.21.16
Relinquished by		3.21.16
Received by		3/21/16 1350
Relinquished by		3/21/16 1524
Received by		3/21/16 15:24

Shipping Details
Method of Shipment: FedEx
On Ice: (yes) / no 3.16
Airbill No: ER#2
Lab Name: Advanced Technology Laboratories
Lab Phone:

ATTN: Sample Custody

Special Instructions:

Report Copy to

ASSET LV Sample Control

From: Marlon B. Cartin <marlon@assetlaboratories.com>
Sent: Wednesday, April 13, 2016 4:12 PM
To: Shawn.Duffy@CH2M.com
Cc: 'Sample Control LV'
Subject: N019173

Shawn,

For the record, we add the following tests to the above WO for ASAP TAT;

Sample 2 – TCLP/STLC – Pb
Sample 3 – TCLP/STLC – Cr
Sample 4 – TCLP/STLC – Cr and STLC Cr+6

Thanks,

Marlon Cartin
Project Manager
California: 11060 Artesia Blvd., Ste. C, Cerritos, CA 90703 | **P:** 562.219.7435 | **F:** 562.219.7436
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | **P:** 702.307.2659 Ext. 410 | **F:** 702.307.2691 | **M:** 702.439.0421
www.assetlaboratories.com

ASSET LABORATORIES - Serving Clients with Passion and Professionalism

February 23, 2017

Mark Fesler/RDD
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3273
FAX: (510) 622-9129

Workorder No.: N023002

RE: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

Attention: Mark Fesler/RDD

Enclosed are the results for sample(s) received on February 07, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucas for

Puri Romualdo
Laboratory Director

CLIENT: CH2M HILL
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab Order: N023002

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Subcontracted Analyses:

Dioxins/ Furans was subcontracted to APPL,Inc- Clovis,CA.

Cyanide was subcontracted to Truesdail-Irvine,CA.

Analytical Comments for EPA 6010B_Soil:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes on QC samples N023002-001BMS and N023002-001BMSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 8015B_DRO/ORO_Water:

Matrix Spike(MS) and Matrix Spike Duplicate(MSD) were not performed due to limited sample. LCS/LCSD was used instead to measure precision.

Analytical Comments for EPA 8015B_GRO_Water:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria on QC samples N022994-001AMS and N022994-001AMSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET LABORATORIES
"Serving Clients with Passion and Professionalism"
CALIFORNIA | P:562.219.7435 F:562.219.7436
11110 Artesia Blvd., Ste B, Cerritos, CA 90703
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Analytical Comments for EPA 8082_Soil:

Surrogate Decachlorobiphenyl recovery bias high on sample N023002-004 possibly due to matrix interference. Sample result was non- detect (ND) therefore, reanalysis of the sample was not necessary.

Analytical Comments for EPA 8082_Water:

Matrix Spike(MS) and Matrix Spike Duplicate(MSD) were not performed due to limited sample. LCS/LCSD was used instead to measure precision.

Analytical Comments for EPA 8260B_Water:

Laboratory Control Sample (LCS) on P170214LCS recovery biased low for Carbon disulfide. NELAC standard allows for three analytes in marginal exceedence based on 51-70 analytes on Laboratory Conrol Sample (LCS).

Matrix Spike (MS) is outside recovery criteria for some analytes on QC sample N023072-002AMS possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Methyl Acetate on QC samples N023011-011AMS and N023011-011AMSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 8270C_Soil:

Initial dilution was necessary on sample N023002-002 due to matrix. Sample contains rocks and carbon.

Some analytes for sample N023002-002 and QC sample N023001-001E-MSD were flagged A6L to indicate that concentrations reported are recovered low due to associated internal standard not meeting method criteria possibly due to matrix interference. Sample and QC sample were analyzed with further dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

The analysis of the sample required a dilution such that the surrogate recovery calculation does not provide useful information. The associated blank spike recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes on QC samples N023001-001E-MS and N023001-001E-MSD possibly due to matrix interference. The

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associated Laboratory Control Sample (LCS) recovery was acceptable.

RPD for Matrix Spike(MS) and Matrix Spike Duplicate(MSD) is outside criteria for some analytes ; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

Analytical Comments for EPA 8270C_SIM_Soil;

Initial dilution was necessary on sample N023002-002 due to matrix. Sample contains rocks and carbon.

Some analytes for samples N023002-001 and N023002-002 were flagged A6L to indicate that concentrations reported are recovered low due to associated internal standard not meeting method criteria possibly due to matrix interference. Samples were analyzed with further dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

The analysis of samples N023002-001 and N023002-002 required a dilution such that the surrogate recovery calculation does not provide useful information. The associated blank spike recovery was acceptable.

Some surrogates and target analytes for the Matrix Spike Duplicate (MSD) are outside recovery criteria on QC sample N022966-003A-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

RPD for Matrix Spike(MS) and Matrix Spike Duplicate(MSD) is outside criteria for some analytes ; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

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Date: *23-Feb-17*

CLIENT: CH2M HILL
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab Order: N023002
Contract No: 2017-02-07-17-0

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N023002-001A	AOC4-40-3207	Soil	2/6/2017 2:30:00 PM	2/7/2017	2/23/2017
N023002-001B	AOC4-40-3207	Soil	2/6/2017 2:30:00 PM	2/7/2017	2/23/2017
N023002-001C	AOC4-40-3207	Soil	2/6/2017 2:30:00 PM	2/7/2017	2/23/2017
N023002-001D	AOC4-40-3207	Soil	2/6/2017 2:30:00 PM	2/7/2017	2/23/2017
N023002-002A	AOC4-tar	Soil	2/6/2017 1:00:00 PM	2/7/2017	2/23/2017
N023002-002B	AOC4-tar	Soil	2/6/2017 1:00:00 PM	2/7/2017	2/23/2017
N023002-002C	AOC4-tar	Soil	2/6/2017 1:00:00 PM	2/7/2017	2/23/2017
N023002-002D	AOC4-tar	Soil	2/6/2017 1:00:00 PM	2/7/2017	2/23/2017
N023002-003A	AOC4-M06-10822	Soil	2/7/2017 10:00:00 AM	2/7/2017	2/23/2017
N023002-004A	Soil-IDW-01-6253	Soil	2/6/2017 9:45:00 AM	2/7/2017	2/23/2017
N023002-004B	Soil-IDW-01-6253	Soil	2/6/2017 9:45:00 AM	2/7/2017	2/23/2017
N023002-004C	Soil-IDW-01-6253	Soil	2/6/2017 9:45:00 AM	2/7/2017	2/23/2017
N023002-004D	Soil-IDW-01-6253	Soil	2/6/2017 9:45:00 AM	2/7/2017	2/23/2017
N023002-004E	Soil-IDW-01-6253	Soil	2/6/2017 9:45:00 AM	2/7/2017	2/23/2017
N023002-004F	Soil-IDW-01-6253	Soil	2/6/2017 9:45:00 AM	2/7/2017	2/23/2017
N023002-004G	Soil-IDW-01-6253	Soil	2/6/2017 9:45:00 AM	2/7/2017	2/23/2017
N023002-004H	Soil-IDW-01-6253	Soil	2/6/2017 9:45:00 AM	2/7/2017	2/23/2017
N023002-004I	Soil-IDW-01-6253	Soil	2/6/2017 9:45:00 AM	2/7/2017	2/23/2017
N023002-004J	Soil-IDW-01-6253	Soil	2/6/2017 9:45:00 AM	2/7/2017	2/23/2017
N023002-004K	Soil-IDW-01-6253	Soil	2/6/2017 9:45:00 AM	2/7/2017	2/23/2017
N023002-004L	Soil-IDW-01-6253	Soil	2/6/2017 9:45:00 AM	2/7/2017	2/23/2017
N023002-004M	Soil-IDW-01-6253	Soil	2/6/2017 9:45:00 AM	2/7/2017	2/23/2017
N023002-004N	Soil-IDW-01-6253	Soil	2/6/2017 9:45:00 AM	2/7/2017	2/23/2017
N023002-005A	AOC-EB-02-04-17	Water	2/4/2017 4:00:00 PM	2/7/2017	2/23/2017
N023002-005B	AOC-EB-02-04-17	Water	2/4/2017 4:00:00 PM	2/7/2017	2/23/2017
N023002-005C	AOC-EB-02-04-17	Water	2/4/2017 4:00:00 PM	2/7/2017	2/23/2017
N023002-005D	AOC-EB-02-04-17	Water	2/4/2017 4:00:00 PM	2/7/2017	2/23/2017
N023002-005E	AOC-EB-02-04-17	Water	2/4/2017 4:00:00 PM	2/7/2017	2/23/2017
N023002-005F	AOC-EB-02-04-17	Water	2/4/2017 4:00:00 PM	2/7/2017	2/23/2017

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CLIENT: CH2M HILL
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab Order: N023002
Contract No: 2017-02-07-17-0

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N023002-005G	AOC-EB-02-04-17	Water	2/4/2017 4:00:00 PM	2/7/2017	2/23/2017
N023002-006A	SD-EB-02-05-17	Water	2/5/2017 4:00:00 PM	2/7/2017	2/23/2017
N023002-006B	SD-EB-02-05-17	Water	2/5/2017 4:00:00 PM	2/7/2017	2/23/2017
N023002-006C	SD-EB-02-05-17	Water	2/5/2017 4:00:00 PM	2/7/2017	2/23/2017
N023002-006D	SD-EB-02-05-17	Water	2/5/2017 4:00:00 PM	2/7/2017	2/23/2017
N023002-007A	AOC-TB-02-07-17	Water	2/7/2017 2:00:00 PM	2/7/2017	2/23/2017
N023002-007B	AOC-TB-02-07-17	Water	2/7/2017 2:00:00 PM	2/7/2017	2/23/2017

CLIENT:	CH2M HILL	**Client Sample ID:**	AOC-EB-02-04-17
Lab Order:	N023002	**Collection Date:**	2/4/2017 4:00:00 PM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	WATER
Lab ID:	N023002-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170211A**	QC Batch: **R113447**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.066	0.20		µg/L	1	2/11/2017 01:24 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	CH2M HILL	**Client Sample ID:**	SD-EB-02-05-17
Lab Order:	N023002	**Collection Date:**	2/5/2017 4:00:00 PM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	WATER
Lab ID:	N023002-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_170211A**	QC Batch: **R113447**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.066	0.20		µg/L	1	2/11/2017 01:44 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R113447	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	113447		
Client ID:	PBW	Batch ID:	R113447	TestNo:	EPA 218.6			Analysis Date:	2/11/2017	SeqNo:	2563484		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	ND	0.20											

Sample ID	LCS-R113447	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	113447		
Client ID:	LCSW	Batch ID:	R113447	TestNo:	EPA 218.6			Analysis Date:	2/11/2017	SeqNo:	2563485		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	5.012	0.20	5.000	0	100	90	110						

Sample ID	N022998-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	113447		
Client ID:	ZZZZZZ	Batch ID:	R113447	TestNo:	EPA 218.6			Analysis Date:	2/11/2017	SeqNo:	2563487		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	45.076	1.0	25.00	20.55	98.1	90	110						

Sample ID	N022998-001AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	113447		
Client ID:	ZZZZZZ	Batch ID:	R113447	TestNo:	EPA 218.6			Analysis Date:	2/11/2017	SeqNo:	2563488		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	45.094	1.0	25.00	20.55	98.2	90	110	45.08	0.0399	20			

Sample ID	N022998-002ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	113447		
Client ID:	ZZZZZZ	Batch ID:	R113447	TestNo:	EPA 218.6			Analysis Date:	2/11/2017	SeqNo:	2563490		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	4.404	0.20						4.345	1.34	20			

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N022998-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	113447
Client ID:	ZZZZZZ	Batch ID:	R113447	TestNo:	EPA 218.6			Analysis Date:	2/11/2017	SeqNo:	2563491

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.366	0.20	5.000	4.345	100	90	110				

Sample ID	N022998-004AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	113447
Client ID:	ZZZZZZ	Batch ID:	R113447	TestNo:	EPA 218.6			Analysis Date:	2/11/2017	SeqNo:	2563496

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	215.076	4.0	100.0	120.1	95.0	90	110				

Sample ID	N022998-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	113447
Client ID:	ZZZZZZ	Batch ID:	R113447	TestNo:	EPA 218.6			Analysis Date:	2/11/2017	SeqNo:	2563498

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.004	1.0	5.000	0	100	90	110				

Sample ID	N022998-005AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	113447
Client ID:	ZZZZZZ	Batch ID:	R113447	TestNo:	EPA 218.6			Analysis Date:	2/11/2017	SeqNo:	2563499

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.083	0.20	1.000	0	108	90	110				

Sample ID	N023002-005AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	113447
Client ID:	ZZZZZZ	Batch ID:	R113447	TestNo:	EPA 218.6			Analysis Date:	2/11/2017	SeqNo:	2563501

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.059	0.20	1.000	0	106	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N023002-006AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	113447
Client ID:	ZZZZZZ	Batch ID:	R113447	TestNo:	EPA 218.6			Analysis Date:	2/11/2017	SeqNo:	2563505

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.063	0.20	1.000	0	106	90	110				

Sample ID	N023014-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	113447
Client ID:	ZZZZZZ	Batch ID:	R113447	TestNo:	EPA 218.6			Analysis Date:	2/11/2017	SeqNo:	2563507

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	60469.000	1000	25000	35490	99.9	90	110				

Sample ID	N023014-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	113447
Client ID:	ZZZZZZ	Batch ID:	R113447	TestNo:	EPA 218.6			Analysis Date:	2/11/2017	SeqNo:	2563509

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	60829.500	1000	25000	35850	99.9	90	110				

Sample ID	N023014-004AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	113447
Client ID:	ZZZZZZ	Batch ID:	R113447	TestNo:	EPA 218.6			Analysis Date:	2/11/2017	SeqNo:	2563511

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	274.040	4.0	100.0	173.9	100	90	110				

Sample ID	N023014-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	113447
Client ID:	ZZZZZZ	Batch ID:	R113447	TestNo:	EPA 218.6			Analysis Date:	2/11/2017	SeqNo:	2563515

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1030.470	20	500.0	533.6	99.4	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-001

Client Sample ID: AOC4-40-3207
Collection Date: 2/6/2017 2:30:00 PM
Matrix: SOIL

TOTAL METALS BY ICP

EPA 3050B **EPA 6010B**

RunID: **NV00922-ICP2_170213C** QC Batch: **61204** PrepDate **2/8/2017** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Antimony	ND	0.20	2.2		mg/Kg-dry	1	2/13/2017 04:36 PM
Arsenic	ND	0.24	1.1		mg/Kg-dry	1	2/13/2017 04:36 PM
Barium	330	0.046	1.1		mg/Kg-dry	1	2/13/2017 04:36 PM
Beryllium	ND	0.042	1.1		mg/Kg-dry	1	2/13/2017 04:36 PM
Cadmium	2.1	0.040	1.1		mg/Kg-dry	1	2/13/2017 04:36 PM
Chromium	120	0.044	1.1		mg/Kg-dry	1	2/13/2017 04:36 PM
Cobalt	28	0.040	1.1		mg/Kg-dry	1	2/13/2017 04:36 PM
Copper	12	0.044	2.2		mg/Kg-dry	1	2/13/2017 04:36 PM
Lead	15	0.044	1.1		mg/Kg-dry	1	2/13/2017 04:36 PM
Molybdenum	ND	0.039	1.1		mg/Kg-dry	1	2/13/2017 04:36 PM
Nickel	69	0.046	1.1		mg/Kg-dry	1	2/13/2017 04:36 PM
Selenium	ND	0.17	1.1		mg/Kg-dry	1	2/13/2017 04:36 PM
Silver	ND	0.045	1.1		mg/Kg-dry	1	2/13/2017 04:36 PM
Thallium	ND	0.18	2.2		mg/Kg-dry	1	2/13/2017 04:36 PM
Vanadium	82	0.040	1.1		mg/Kg-dry	1	2/13/2017 04:36 PM
Zinc	60	0.069	1.1		mg/Kg-dry	1	2/13/2017 04:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-002

Client Sample ID: AOC4-tar
Collection Date: 2/6/2017 1:00:00 PM
Matrix: SOIL

TOTAL METALS BY ICP

EPA 3050B **EPA 6010B**

RunID: **NV00922-ICP2_170213C** QC Batch: **61204** PrepDate **2/8/2017** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Antimony	ND	0.19	2.0		mg/Kg-dry	1	2/13/2017 04:16 PM
Arsenic	5.6	0.22	1.0		mg/Kg-dry	1	2/13/2017 04:16 PM
Barium	52	0.043	1.0		mg/Kg-dry	1	2/13/2017 04:16 PM
Beryllium	ND	0.039	1.0		mg/Kg-dry	1	2/13/2017 04:16 PM
Cadmium	ND	0.037	1.0		mg/Kg-dry	1	2/13/2017 04:16 PM
Chromium	75	0.041	1.0		mg/Kg-dry	1	2/13/2017 04:16 PM
Cobalt	4.9	0.037	1.0		mg/Kg-dry	1	2/13/2017 04:16 PM
Copper	7.5	0.041	2.0		mg/Kg-dry	1	2/13/2017 04:16 PM
Lead	19	0.041	1.0		mg/Kg-dry	1	2/13/2017 04:16 PM
Molybdenum	ND	0.036	1.0		mg/Kg-dry	1	2/13/2017 04:16 PM
Nickel	21	0.043	1.0		mg/Kg-dry	1	2/13/2017 04:16 PM
Selenium	ND	0.16	1.0		mg/Kg-dry	1	2/13/2017 04:16 PM
Silver	ND	0.041	1.0		mg/Kg-dry	1	2/13/2017 04:16 PM
Thallium	2.1	0.17	2.0		mg/Kg-dry	1	2/13/2017 04:16 PM
Vanadium	9.4	0.037	1.0		mg/Kg-dry	1	2/13/2017 04:16 PM
Zinc	35	0.064	1.0		mg/Kg-dry	1	2/13/2017 04:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-004

Client Sample ID: Soil-IDW-01-6253
Collection Date: 2/6/2017 9:45:00 AM
Matrix: SOIL

TOTAL METALS BY ICP

EPA 3050B **EPA 6010B**

RunID: **NV00922-ICP2_170213C** QC Batch: **61204** PrepDate **2/8/2017** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Antimony	ND	0.19	2.1		mg/Kg-dry	1	2/13/2017 04:10 PM
Arsenic	3.3	0.22	1.0		mg/Kg-dry	1	2/13/2017 04:10 PM
Barium	99	0.043	1.0		mg/Kg-dry	1	2/13/2017 04:10 PM
Beryllium	ND	0.039	1.0		mg/Kg-dry	1	2/13/2017 04:10 PM
Cadmium	ND	0.037	1.0		mg/Kg-dry	1	2/13/2017 04:10 PM
Chromium	27	0.041	1.0		mg/Kg-dry	1	2/13/2017 04:10 PM
Cobalt	6.4	0.037	1.0		mg/Kg-dry	1	2/13/2017 04:10 PM
Copper	15	0.041	2.1		mg/Kg-dry	1	2/13/2017 04:10 PM
Lead	5.9	0.041	1.0		mg/Kg-dry	1	2/13/2017 04:10 PM
Molybdenum	21	0.036	1.0		mg/Kg-dry	1	2/13/2017 04:10 PM
Nickel	11	0.043	1.0		mg/Kg-dry	1	2/13/2017 04:10 PM
Selenium	ND	0.16	1.0		mg/Kg-dry	1	2/13/2017 04:10 PM
Silver	ND	0.042	1.0		mg/Kg-dry	1	2/13/2017 04:10 PM
Thallium	ND	0.17	2.1		mg/Kg-dry	1	2/13/2017 04:10 PM
Vanadium	24	0.037	1.0		mg/Kg-dry	1	2/13/2017 04:10 PM
Zinc	73	0.064	1.0		mg/Kg-dry	1	2/13/2017 04:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID **MB-61204**	SampType: **MBLK**	TestCode: **6010_SPGE**	Units: **mg/Kg**	Prep Date: **2/8/2017**	RunNo: **113492**
Client ID: **PBS**	Batch ID: **61204**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **2/13/2017**	SeqNo: **2565361**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0									
Arsenic	ND	1.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	1.0									
Cobalt	ND	1.0									
Copper	ND	2.0									
Lead	ND	1.0									
Molybdenum	0.221	1.0									
Nickel	ND	1.0									
Selenium	ND	1.0									
Silver	ND	1.0									
Thallium	ND	2.0									
Vanadium	ND	1.0									
Zinc	ND	1.0									

Sample ID **LCS-61204**	SampType: **LCS**	TestCode: **6010_SPGE**	Units: **mg/Kg**	Prep Date: **2/8/2017**	RunNo: **113492**
Client ID: **LCSS**	Batch ID: **61204**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **2/13/2017**	SeqNo: **2565362**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	24.990	2.0	25.00	0	100	85	115				
Arsenic	25.730	1.0	25.00	0	103	85	115				
Barium	25.081	1.0	25.00	0	100	85	115				
Beryllium	25.322	1.0	25.00	0	101	85	115				
Cadmium	26.274	1.0	25.00	0	105	85	115				
Chromium	25.199	1.0	25.00	0	101	85	115				
Cobalt	26.971	1.0	25.00	0	108	85	115				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID **LCS-61204** SampType: **LCS** TestCode: **6010_SPGE** Units: **mg/Kg** Prep Date: **2/8/2017** RunNo: **113492**
Client ID: **LCSS** Batch ID: **61204** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **2/13/2017** SeqNo: **2565362**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	24.599	2.0	25.00	0	98.4	85	115				
Lead	25.879	1.0	25.00	0	104	85	115				
Molybdenum	25.035	1.0	25.00	0	100	85	115				
Nickel	25.477	1.0	25.00	0	102	85	115				
Selenium	26.050	1.0	25.00	0	104	85	115				
Silver	25.083	1.0	25.00	0	100	85	115				
Thallium	26.379	2.0	25.00	0	106	85	115				
Vanadium	25.351	1.0	25.00	0	101	85	115				
Zinc	26.116	1.0	25.00	0	104	85	115				

Sample ID **N023002-001B-MS** SampType: **MS** TestCode: **6010_SPGE** Units: **mg/Kg-dry** Prep Date: **2/8/2017** RunNo: **113492**
Client ID: **ZZZZZZ** Batch ID: **61204** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **2/13/2017** SeqNo: **2565367**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	27.158	2.2	27.45	0	98.9	75	125				
Arsenic	29.377	1.1	27.45	0.8333	104	75	125				
Barium	359.480	1.1	27.45	331.5	102	75	125				
Beryllium	22.085	1.1	27.45	0	80.5	75	125				
Cadmium	27.260	1.1	27.45	2.067	91.8	75	125				
Chromium	149.645	1.1	27.45	122.7	98.1	75	125				
Cobalt	54.435	1.1	27.45	27.79	97.1	75	125				
Copper	41.823	2.2	27.45	12.07	108	75	125				
Lead	39.532	1.1	27.45	14.68	90.5	75	125				
Molybdenum	24.938	1.1	27.45	0	90.8	75	125				
Nickel	89.471	1.1	27.45	68.82	75.2	75	125				
Selenium	9.108	1.1	27.45	0	33.2	75	125				S
Silver	25.036	1.1	27.45	0	91.2	75	125				
Thallium	20.506	2.2	27.45	0	74.7	75	125				S
Vanadium	111.427	1.1	27.45	81.50	109	75	125				
Zinc	84.531	1.1	27.45	59.83	90.0	75	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID **N023002-001B-MSD** SampType: **MSD** TestCode: **6010_SPGE** Units: **mg/Kg-dry** Prep Date: **2/8/2017** RunNo: **113492**
Client ID: **ZZZZZZ** Batch ID: **61204** TestNo: **EPA 6010B EPA 3050B** Analysis Date: **2/13/2017** SeqNo: **2565368**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	28.272	2.2	27.48	0	103	75	125	27.16	4.02	20	
Arsenic	30.033	1.1	27.48	0.8333	106	75	125	29.38	2.21	20	
Barium	361.773	1.1	27.48	331.5	110	75	125	359.5	0.636	20	
Beryllium	23.268	1.1	27.48	0	84.7	75	125	22.08	5.22	20	
Cadmium	28.447	1.1	27.48	2.067	96.0	75	125	27.26	4.26	20	
Chromium	151.390	1.1	27.48	122.7	104	75	125	149.6	1.16	20	
Cobalt	55.527	1.1	27.48	27.79	101	75	125	54.43	1.99	20	
Copper	43.166	2.2	27.48	12.07	113	75	125	41.82	3.16	20	
Lead	40.243	1.1	27.48	14.68	93.0	75	125	39.53	1.78	20	
Molybdenum	25.943	1.1	27.48	0	94.4	75	125	24.94	3.95	20	
Nickel	91.035	1.1	27.48	68.82	80.9	75	125	89.47	1.73	20	
Selenium	8.973	1.1	27.48	0	32.7	75	125	9.108	1.49	20	S
Silver	26.401	1.1	27.48	0	96.1	75	125	25.04	5.31	20	
Thallium	21.617	2.2	27.48	0	78.7	75	125	20.51	5.28	20	
Vanadium	113.084	1.1	27.48	81.50	115	75	125	111.4	1.48	20	
Zinc	86.034	1.1	27.48	59.83	95.4	75	125	84.53	1.76	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	CH2M HILL	**Client Sample ID:**	AOC-EB-02-04-17
Lab Order:	N023002	**Collection Date:**	2/4/2017 4:00:00 PM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	WATER
Lab ID:	N023002-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_170217E**	QC Batch: **61251**			PrepDate	**2/14/2017**	Analyst: **CEI**	
Aluminum	ND	2.7	50		ug/L	1	2/17/2017 06:04 PM
Boron	ND	38	100		ug/L	1	2/17/2017 06:04 PM
Calcium	ND	28	500		ug/L	1	2/17/2017 06:04 PM
Iron	ND	1.8	20		ug/L	1	2/17/2017 06:04 PM
Magnesium	ND	4.4	100		ug/L	1	2/17/2017 06:04 PM
Potassium	ND	72	500		ug/L	1	2/17/2017 10:26 AM
Sodium	ND	12	500		ug/L	1	2/17/2017 10:26 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	MB-61251	SampType:	MBLK	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	2/14/2017	RunNo:	113589
Client ID:	PBW	Batch ID:	61251	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	2/17/2017	SeqNo:	2570060

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	ND	500									
Sodium	ND	500									

Sample ID	LCS2-61251	SampType:	LCS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	2/14/2017	RunNo:	113589
Client ID:	LCSW	Batch ID:	61251	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	2/17/2017	SeqNo:	2570061

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	19984.221	500	20000	0	99.9	85	115				
Sodium	20185.298	500	20000	0	101	85	115				

Sample ID	N023002-005B-MS2	SampType:	MS	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	2/14/2017	RunNo:	113589
Client ID:	ZZZZZZ	Batch ID:	61251	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	2/17/2017	SeqNo:	2570065

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	19805.656	500	20000	0	99.0	75	125				
Sodium	19753.128	500	20000	0	98.8	75	125				

Sample ID	N023002-005B-MSD	SampType:	MSD	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	2/14/2017	RunNo:	113589
Client ID:	ZZZZZZ	Batch ID:	61251	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	2/17/2017	SeqNo:	2570066

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	20859.213	500	20000	0	104	75	125	19810	5.18	20	
Sodium	20809.034	500	20000	0	104	75	125	19750	5.21	20	

Sample ID	MB-61251	SampType:	MBLK	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	2/14/2017	RunNo:	113593
Client ID:	PBW	Batch ID:	61251	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	2/17/2017	SeqNo:	2570323

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **MB-61251**	SampType: **MBLK**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date: **2/14/2017**	RunNo: **113593**
Client ID: **PBW**	Batch ID: **61251**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **2/17/2017**	SeqNo: **2570323**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	50									
Boron	ND	100									
Calcium	ND	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID **LCS1-61251**	SampType: **LCS**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date: **2/14/2017**	RunNo: **113593**
Client ID: **LCSW**	Batch ID: **61251**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **2/17/2017**	SeqNo: **2570324**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9619.717	50	10000	0	96.2	85	115				
Boron	4627.591	100	5000	0	92.6	85	115				
Calcium	9198.523	500	10000	0	92.0	85	115				
Iron	108.711	20	100.0	0	109	85	115				
Magnesium	9587.540	100	10000	0	95.9	85	115				

Sample ID **N023002-005B-MS1**	SampType: **MS**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date: **2/14/2017**	RunNo: **113593**
Client ID: **ZZZZZZ**	Batch ID: **61251**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **2/17/2017**	SeqNo: **2570328**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9365.486	50	10000	0	93.7	75	125				
Boron	4518.505	100	5000	0	90.4	75	125				
Calcium	8896.387	500	10000	0	89.0	75	125				
Iron	112.238	20	100.0	0	112	75	125				
Magnesium	9257.053	100	10000	0	92.6	75	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	N023002-005B-MSD	SampType:	MSD	TestCode:	6010_WPGE	Units:	ug/L	Prep Date:	2/14/2017	RunNo:	113593
Client ID:	ZZZZZZ	Batch ID:	61251	TestNo:	EPA 6010B	EPA 3010A		Analysis Date:	2/17/2017	SeqNo:	2570329

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9391.239	50	10000	0	93.9	75	125	9365	0.275	20	
Boron	4530.257	100	5000	0	90.6	75	125	4519	0.260	20	
Calcium	8994.958	500	10000	0	89.9	75	125	8896	1.10	20	
Iron	110.564	20	100.0	0	111	75	125	112.2	1.50	20	
Magnesium	9271.676	100	10000	0	92.7	75	125	9257	0.158	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-005

Client Sample ID: AOC-EB-02-04-17
Collection Date: 2/4/2017 4:00:00 PM
Matrix: WATER

TOTAL METALS BY ICPMS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_170213B** QC Batch: **61210** PrepDate **2/8/2017** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Antimony	ND	0.031	0.50		µg/L	1	2/13/2017 03:02 PM
Arsenic	ND	0.025	0.10		µg/L	1	2/13/2017 03:02 PM
Barium	ND	0.070	1.0		µg/L	1	2/13/2017 03:02 PM
Beryllium	ND	0.043	0.50		µg/L	1	2/13/2017 03:02 PM
Cadmium	ND	0.047	0.50		µg/L	1	2/13/2017 03:02 PM
Chromium	ND	0.019	1.0		µg/L	1	2/13/2017 03:02 PM
Cobalt	ND	0.026	0.50		µg/L	1	2/13/2017 03:02 PM
Copper	ND	0.26	1.0		µg/L	1	2/13/2017 03:02 PM
Lead	ND	0.037	1.0		µg/L	1	2/13/2017 03:02 PM
Manganese	ND	0.056	0.50		µg/L	1	2/13/2017 03:02 PM
Molybdenum	ND	0.039	0.50		µg/L	1	2/13/2017 03:02 PM
Nickel	ND	0.040	1.0		µg/L	1	2/13/2017 03:02 PM
Selenium	ND	0.028	0.50		µg/L	1	2/13/2017 03:02 PM
Silver	ND	0.059	0.50		µg/L	1	2/13/2017 03:02 PM
Thallium	ND	0.030	0.50		µg/L	1	2/13/2017 03:02 PM
Vanadium	ND	0.021	1.0		µg/L	1	2/13/2017 03:02 PM
Zinc	ND	0.27	10		µg/L	1	2/13/2017 03:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-006

Client Sample ID: SD-EB-02-05-17
Collection Date: 2/5/2017 4:00:00 PM
Matrix: WATER

TOTAL METALS BY ICPMS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_170213B** QC Batch: **61210** PrepDate **2/8/2017** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Antimony	ND	0.031	0.50		µg/L	1	2/13/2017 03:07 PM
Arsenic	ND	0.025	0.10		µg/L	1	2/13/2017 03:07 PM
Barium	ND	0.070	1.0		µg/L	1	2/13/2017 03:07 PM
Beryllium	ND	0.043	0.50		µg/L	1	2/13/2017 03:07 PM
Cadmium	ND	0.047	0.50		µg/L	1	2/13/2017 03:07 PM
Chromium	ND	0.019	1.0		µg/L	1	2/13/2017 03:07 PM
Cobalt	ND	0.026	0.50		µg/L	1	2/13/2017 03:07 PM
Copper	ND	0.26	1.0		µg/L	1	2/13/2017 03:07 PM
Lead	ND	0.037	1.0		µg/L	1	2/13/2017 03:07 PM
Molybdenum	ND	0.039	0.50		µg/L	1	2/13/2017 03:07 PM
Nickel	ND	0.040	1.0		µg/L	1	2/13/2017 03:07 PM
Selenium	ND	0.028	0.50		µg/L	1	2/13/2017 03:07 PM
Silver	ND	0.059	0.50		µg/L	1	2/13/2017 03:07 PM
Thallium	ND	0.030	0.50		µg/L	1	2/13/2017 03:07 PM
Vanadium	ND	0.021	1.0		µg/L	1	2/13/2017 03:07 PM
Zinc	ND	0.27	10		µg/L	1	2/13/2017 03:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_W

Sample ID **MB-61210**	SampType: **MBLK**	TestCode: **6020_W**	Units: **µg/L**	Prep Date: **2/8/2017**	RunNo: **113471**
Client ID: **PBW**	Batch ID: **61210**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **2/13/2017**	SeqNo: **2564242**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50									
Arsenic	ND	0.10									
Barium	ND	1.0									
Beryllium	ND	0.50									
Cadmium	ND	0.50									
Chromium	ND	1.0									
Cobalt	ND	0.50									
Copper	ND	1.0									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Nickel	ND	1.0									
Selenium	ND	0.50									
Silver	0.272	0.50									
Thallium	0.160	0.50									
Vanadium	ND	1.0									
Zinc	ND	10									

Sample ID **LCS-61210**	SampType: **LCS**	TestCode: **6020_W**	Units: **µg/L**	Prep Date: **2/8/2017**	RunNo: **113471**
Client ID: **LCSW**	Batch ID: **61210**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **2/13/2017**	SeqNo: **2564243**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.670	0.50	10.00	0	96.7	85	115				
Arsenic	9.798	0.10	10.00	0	98.0	85	115				
Barium	100.075	1.0	100.0	0	100	85	115				
Beryllium	9.551	0.50	10.00	0	95.5	85	115				
Cadmium	9.800	0.50	10.00	0	98.0	85	115				
Chromium	9.604	1.0	10.00	0	96.0	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_W

Sample ID	LCS-61210	SampType:	LCS	TestCode:	6020_W	Units:	µg/L	Prep Date:	2/8/2017	RunNo:	113471
Client ID:	LCSW	Batch ID:	61210	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	2/13/2017	SeqNo:	2564243

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cobalt	9.597	0.50	10.00	0	96.0	85	115				
Copper	10.035	1.0	10.00	0	100	85	115				
Lead	9.750	1.0	10.00	0	97.5	85	115				
Manganese	104.314	0.50	100.0	0	104	85	115				
Molybdenum	9.409	0.50	10.00	0	94.1	85	115				
Nickel	9.894	1.0	10.00	0	98.9	85	115				
Selenium	9.187	0.50	10.00	0	91.9	85	115				
Silver	9.319	0.50	10.00	0	93.2	85	115				
Thallium	9.356	0.50	10.00	0	93.6	85	115				
Vanadium	9.593	1.0	10.00	0	95.9	85	115				
Zinc	99.348	10	100.0	0	99.3	85	115				

Sample ID	N022992-001D-DUP	SampType:	DUP	TestCode:	6020_W	Units:	µg/L	Prep Date:	2/8/2017	RunNo:	113471
Client ID:	ZZZZZZ	Batch ID:	61210	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	2/13/2017	SeqNo:	2564247

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	1.317	0.50						1.467	10.7	20	
Arsenic	3.345	0.10						3.476	3.84	20	
Barium	29.386	1.0						31.09	5.64	20	
Beryllium	ND	0.50						0.04528	0	20	
Cadmium	0.260	0.50						0.2636	0	20	
Chromium	2.956	1.0						3.195	7.77	20	
Cobalt	0.635	0.50						0.6463	1.83	20	
Copper	3.114	1.0						3.280	5.21	20	
Lead	2.055	1.0						2.097	2.03	20	
Manganese	63.847	0.50						65.66	2.79	20	
Molybdenum	174.650	0.50						185.7	6.12	20	
Nickel	3.022	1.0						3.126	3.37	20	
Selenium	6.300	0.50						6.798	7.61	20	
Silver	ND	0.50						0	0	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_W

Sample ID	N022992-001D-DUP	SampType:	DUP	TestCode:	6020_W	Units:	µg/L	Prep Date:	2/8/2017	RunNo:	113471
Client ID:	ZZZZZZ	Batch ID:	61210	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	2/13/2017	SeqNo:	2564247

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	0.092	0.50						0.2347	0	20	
Vanadium	7.586	1.0						7.940	4.56	20	
Zinc	136.296	10						141.6	3.79	20	

Sample ID	N022966-013B-MS	SampType:	MS	TestCode:	6020_W	Units:	µg/L	Prep Date:	2/8/2017	RunNo:	113471
Client ID:	ZZZZZZ	Batch ID:	61210	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	2/13/2017	SeqNo:	2564251

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.770	0.50	10.00	0	97.7	75	125				
Arsenic	9.354	0.10	10.00	0	93.5	75	125				
Barium	105.405	1.0	100.0	0	105	75	125				
Beryllium	9.256	0.50	10.00	0	92.6	75	125				
Cadmium	9.585	0.50	10.00	0	95.8	75	125				
Chromium	9.798	1.0	10.00	0	98.0	75	125				
Cobalt	9.679	0.50	10.00	0	96.8	75	125				
Copper	10.379	1.0	10.00	0	104	75	125				
Lead	10.152	1.0	10.00	0	102	75	125				
Manganese	98.925	0.50	100.0	0	98.9	75	125				
Molybdenum	10.160	0.50	10.00	0.1651	100	75	125				
Nickel	10.191	1.0	10.00	0	102	75	125				
Selenium	8.677	0.50	10.00	0	86.8	75	125				
Silver	8.265	0.50	10.00	0	82.7	75	125				
Thallium	10.056	0.50	10.00	0	101	75	125				
Vanadium	9.811	1.0	10.00	0	98.1	75	125				
Zinc	92.706	10	100.0	0	92.7	75	125				

Sample ID	N022966-013B-MSD	SampType:	MSD	TestCode:	6020_W	Units:	µg/L	Prep Date:	2/8/2017	RunNo:	113471
Client ID:	ZZZZZZ	Batch ID:	61210	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	2/13/2017	SeqNo:	2564252

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_W

Sample ID	N022966-013B-MSD	SampType:	MSD	TestCode:	6020_W	Units:	µg/L	Prep Date:	2/8/2017	RunNo:	113471
Client ID:	ZZZZZZ	Batch ID:	61210	TestNo:	EPA 6020		EPA 3010A	Analysis Date:	2/13/2017	SeqNo:	2564252

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.804	0.50	10.00	0	98.0	75	125	9.770	0.349	20	
Arsenic	9.468	0.10	10.00	0	94.7	75	125	9.354	1.21	20	
Barium	106.399	1.0	100.0	0	106	75	125	105.4	0.939	20	
Beryllium	9.234	0.50	10.00	0	92.3	75	125	9.256	0.239	20	
Cadmium	9.536	0.50	10.00	0	95.4	75	125	9.585	0.513	20	
Chromium	9.725	1.0	10.00	0	97.2	75	125	9.798	0.745	20	
Cobalt	9.556	0.50	10.00	0	95.6	75	125	9.679	1.28	20	
Copper	10.310	1.0	10.00	0	103	75	125	10.38	0.663	20	
Lead	10.141	1.0	10.00	0	101	75	125	10.15	0.105	20	
Manganese	97.830	0.50	100.0	0	97.8	75	125	98.93	1.11	20	
Molybdenum	10.264	0.50	10.00	0.1651	101	75	125	10.16	1.01	20	
Nickel	10.231	1.0	10.00	0	102	75	125	10.19	0.395	20	
Selenium	8.332	0.50	10.00	0	83.3	75	125	8.677	4.06	20	
Silver	8.283	0.50	10.00	0	82.8	75	125	8.265	0.223	20	
Thallium	10.040	0.50	10.00	0	100	75	125	10.06	0.155	20	
Vanadium	9.652	1.0	10.00	0	96.5	75	125	9.811	1.64	20	
Zinc	92.757	10	100.0	0	92.8	75	125	92.71	0.0549	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	CH2M HILL	**Client Sample ID:**	AOC4-40-3207
Lab Order:	N023002	**Collection Date:**	2/6/2017 2:30:00 PM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	SOIL
Lab ID:	N023002-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 3060A			**EPA 7199**				
RunID: **NV00922-IC6_170213A**	QC Batch: **61235**			PrepDate	**2/11/2017**		Analyst: **RAB**
Hexavalent Chromium	ND	0.023	0.22		mg/Kg-dry	1	2/13/2017 09:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	CH2M HILL	**Client Sample ID:**	AOC4-tar
Lab Order:	N023002	**Collection Date:**	2/6/2017 1:00:00 PM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	SOIL
Lab ID:	N023002-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 3060A			**EPA 7199**				
RunID: **NV00922-IC6_170213A**	QC Batch: **61235**			PrepDate	**2/11/2017**		Analyst: **RAB**
Hexavalent Chromium	ND	0.021	0.20		mg/Kg-dry	1	2/13/2017 09:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6253
Lab Order:	N023002	**Collection Date:**	2/6/2017 9:45:00 AM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	SOIL
Lab ID:	N023002-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 3060A			**EPA 7199**				
RunID: **NV00922-IC6_170213A**	QC Batch: **61235**			PrepDate	**2/11/2017**		Analyst: **RAB**
Hexavalent Chromium	0.63	0.021	0.21		mg/Kg-dry	1	2/13/2017 09:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID **MB-61235**	SampType: **MBLK**	TestCode: **7199_S_PGE**	Units: **mg/Kg**	Prep Date: **2/11/2017**	RunNo: **113468**
Client ID: **PBS**	Batch ID: **61235**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/13/2017**	SeqNo: **2564193**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **LCS-61235**	SampType: **LCS**	TestCode: **7199_S_PGE**	Units: **mg/Kg**	Prep Date: **2/11/2017**	RunNo: **113468**
Client ID: **LCSS**	Batch ID: **61235**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/13/2017**	SeqNo: **2564194**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3.720	0.20	4.000	0	93.0	80	120				

Sample ID **N023001-001AMS**	SampType: **MS**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/11/2017**	RunNo: **113468**
Client ID: **ZZZZZZ**	Batch ID: **61235**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/13/2017**	SeqNo: **2564199**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3.987	0.21	4.155	0.1430	92.5	75	125				

Sample ID **N023001-001AMSD**	SampType: **MSD**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/11/2017**	RunNo: **113468**
Client ID: **ZZZZZZ**	Batch ID: **61235**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/13/2017**	SeqNo: **2564200**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3.858	0.21	4.155	0.1430	89.4	75	125	3.987	3.30	20	

Sample ID **N023001-001AMS IN**	SampType: **MS**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/11/2017**	RunNo: **113468**
Client ID: **ZZZZZZ**	Batch ID: **61235**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/13/2017**	SeqNo: **2564201**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	576.436	10	681.3	0.1430	84.6	75	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID **N023061-001A-REP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/11/2017**	RunNo: **113468**
Client ID: **ZZZZZZ**	Batch ID: **61235**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/13/2017**	SeqNo: **2564204**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.060	0.22						0.06233	0	20	

Sample ID **N023062-001A-REP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/11/2017**	RunNo: **113468**
Client ID: **ZZZZZZ**	Batch ID: **61235**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/13/2017**	SeqNo: **2564205**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.304	0.22						0.2967	2.45	20	

Sample ID **N023001-003A-REP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/11/2017**	RunNo: **113468**
Client ID: **ZZZZZZ**	Batch ID: **61235**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/13/2017**	SeqNo: **2566399**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20						0	0	20	

Sample ID **N023001-005A-REP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/11/2017**	RunNo: **113468**
Client ID: **ZZZZZZ**	Batch ID: **61235**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/13/2017**	SeqNo: **2566405**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.045	0.21						0.04460	0	20	

Sample ID **N023001-006A-REP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/11/2017**	RunNo: **113468**
Client ID: **ZZZZZZ**	Batch ID: **61235**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/13/2017**	SeqNo: **2566407**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.21						0.02176	0	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID **N023001-007A-REP** SampType: **DUP** TestCode: **7199_S_PGE** Units: **mg/Kg-dry** Prep Date: **2/11/2017** RunNo: **113468**
Client ID: **ZZZZZZ** Batch ID: **61235** TestNo: **EPA 7199** **EPA 3060A** Analysis Date: **2/13/2017** SeqNo: **2566409**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.053	0.22						0.05844	0	20	

Sample ID **N023001-008A-REP** SampType: **DUP** TestCode: **7199_S_PGE** Units: **mg/Kg-dry** Prep Date: **2/11/2017** RunNo: **113468**
Client ID: **ZZZZZZ** Batch ID: **61235** TestNo: **EPA 7199** **EPA 3060A** Analysis Date: **2/13/2017** SeqNo: **2566411**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.051	0.21						0.04364	0	20	

Sample ID **N023001-009A-REP** SampType: **DUP** TestCode: **7199_S_PGE** Units: **mg/Kg-dry** Prep Date: **2/11/2017** RunNo: **113468**
Client ID: **ZZZZZZ** Batch ID: **61235** TestNo: **EPA 7199** **EPA 3060A** Analysis Date: **2/13/2017** SeqNo: **2566413**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.057	0.22						0.06504	0	20	

Sample ID **N023001-010A-REP** SampType: **DUP** TestCode: **7199_S_PGE** Units: **mg/Kg-dry** Prep Date: **2/11/2017** RunNo: **113468**
Client ID: **ZZZZZZ** Batch ID: **61235** TestNo: **EPA 7199** **EPA 3060A** Analysis Date: **2/13/2017** SeqNo: **2566417**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.598	0.22						0.6227	3.98	20	

Sample ID **N023001-011A-REP** SampType: **DUP** TestCode: **7199_S_PGE** Units: **mg/Kg-dry** Prep Date: **2/11/2017** RunNo: **113468**
Client ID: **ZZZZZZ** Batch ID: **61235** TestNo: **EPA 7199** **EPA 3060A** Analysis Date: **2/13/2017** SeqNo: **2566419**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.091	0.22						0.09075	0	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID **N023001-011AMS**	SampType: **MS**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/11/2017**	RunNo: **113468**
Client ID: **ZZZZZZ**	Batch ID: **61235**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/13/2017**	SeqNo: **2566420**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.183	0.22	4.319	0.09075	94.8	75	125				

Sample ID **N023001-011AMSD**	SampType: **MSD**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/11/2017**	RunNo: **113468**
Client ID: **ZZZZZZ**	Batch ID: **61235**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/13/2017**	SeqNo: **2566421**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.235	0.22	4.321	0.09075	95.9	75	125	4.183	1.23	20	

Sample ID **N023001-012A-REP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/11/2017**	RunNo: **113468**
Client ID: **ZZZZZZ**	Batch ID: **61235**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/13/2017**	SeqNo: **2566423**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.060	0.21						0.05676	0	20	

Sample ID **N023001-013A-REP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/11/2017**	RunNo: **113468**
Client ID: **ZZZZZZ**	Batch ID: **61235**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/13/2017**	SeqNo: **2566425**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.038	0.21						0.03336	0	20	

Sample ID **N023001-014A-REP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/11/2017**	RunNo: **113468**
Client ID: **ZZZZZZ**	Batch ID: **61235**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **2/13/2017**	SeqNo: **2566429**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.388	0.21						0.3931	1.40	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID **N023001-015A-REP** SampType: **DUP** TestCode: **7199_S_PGE** Units: **mg/Kg-dry** Prep Date: **2/11/2017** RunNo: **113468**
Client ID: **ZZZZZZ** Batch ID: **61235** TestNo: **EPA 7199** **EPA 3060A** Analysis Date: **2/13/2017** SeqNo: **2566431**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.470	0.21						0.4748	0.980	20	

Sample ID **N023002-001A-REP** SampType: **DUP** TestCode: **7199_S_PGE** Units: **mg/Kg-dry** Prep Date: **2/11/2017** RunNo: **113468**
Client ID: **ZZZZZZ** Batch ID: **61235** TestNo: **EPA 7199** **EPA 3060A** Analysis Date: **2/13/2017** SeqNo: **2566433**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.209	0.22						0.2168	0	20	

Sample ID **N023002-002A-REP** SampType: **DUP** TestCode: **7199_S_PGE** Units: **mg/Kg-dry** Prep Date: **2/11/2017** RunNo: **113468**
Client ID: **ZZZZZZ** Batch ID: **61235** TestNo: **EPA 7199** **EPA 3060A** Analysis Date: **2/13/2017** SeqNo: **2566435**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.194	0.20						0.1922	0	20	

Sample ID **N023002-004A-REP** SampType: **DUP** TestCode: **7199_S_PGE** Units: **mg/Kg-dry** Prep Date: **2/11/2017** RunNo: **113468**
Client ID: **ZZZZZZ** Batch ID: **61235** TestNo: **EPA 7199** **EPA 3060A** Analysis Date: **2/13/2017** SeqNo: **2566437**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.621	0.21						0.6270	0.935	20	

Sample ID **N023001-002A-REP** SampType: **DUP** TestCode: **7199_S_PGE** Units: **mg/Kg-dry** Prep Date: **2/11/2017** RunNo: **113468**
Client ID: **ZZZZZZ** Batch ID: **61235** TestNo: **EPA 7199** **EPA 3060A** Analysis Date: **2/13/2017** SeqNo: **2566440**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.21						0	0	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID	N023001-004A-REP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	2/11/2017	RunNo:	113468
Client ID:	ZZZZZZ	Batch ID:	61235	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	2/13/2017	SeqNo:	2566441

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.21						0	0	20	

Sample ID	N023001-001APS	SampType:	MS	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:		RunNo:	113468
Client ID:	ZZZZZZ	Batch ID:	61235	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	2/13/2017	SeqNo:	2566442

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.334	0.21	4.153	0.1430	101	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	CH2M HILL	**Client Sample ID:**	AOC-EB-02-04-17
Lab Order:	N023002	**Collection Date:**	2/4/2017 4:00:00 PM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	WATER
Lab ID:	N023002-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7470A				
RunID: **NV00922-AA1_170208B**	QC Batch: **61195**			PrepDate	**2/8/2017**		Analyst: **MG**
Mercury	ND	0.087	0.20		µg/L	1	2/8/2017 12:40 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	CH2M HILL	**Client Sample ID:**	SD-EB-02-05-17
Lab Order:	N023002	**Collection Date:**	2/5/2017 4:00:00 PM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	WATER
Lab ID:	N023002-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7470A				
RunID: **NV00922-AA1_170208B**	QC Batch: **61195**			PrepDate	**2/8/2017**		Analyst: **MG**
Mercury	ND	0.087	0.20		µg/L	1	2/8/2017 12:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W_PGE

Sample ID **MB-61195**	SampType: **MBLK**	TestCode: **7470_W_PGE**	Units: **µg/L**	Prep Date: **2/8/2017**	RunNo: **113381**
Client ID: **PBW**	Batch ID: **61195**	TestNo: **EPA 7470A**		Analysis Date: **2/8/2017**	SeqNo: **2559910**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.20									

Sample ID **LCS-61195**	SampType: **LCS**	TestCode: **7470_W_PGE**	Units: **µg/L**	Prep Date: **2/8/2017**	RunNo: **113381**
Client ID: **LCSW**	Batch ID: **61195**	TestNo: **EPA 7470A**		Analysis Date: **2/8/2017**	SeqNo: **2559911**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.105	0.20	5.000	0	102	85	115				

Sample ID **N023002-006B-MS**	SampType: **MS**	TestCode: **7470_W_PGE**	Units: **µg/L**	Prep Date: **2/8/2017**	RunNo: **113381**
Client ID: **ZZZZZZ**	Batch ID: **61195**	TestNo: **EPA 7470A**		Analysis Date: **2/8/2017**	SeqNo: **2559912**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.311	0.20	5.000	0	106	75	125				

Sample ID **N023002-006B-MSD**	SampType: **MSD**	TestCode: **7470_W_PGE**	Units: **µg/L**	Prep Date: **2/8/2017**	RunNo: **113381**
Client ID: **ZZZZZZ**	Batch ID: **61195**	TestNo: **EPA 7470A**		Analysis Date: **2/8/2017**	SeqNo: **2559913**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.233	0.20	5.000	0	105	75	125	5.311	1.48	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	CH2M HILL	**Client Sample ID:**	AOC4-40-3207
Lab Order:	N023002	**Collection Date:**	2/6/2017 2:30:00 PM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	SOIL
Lab ID:	N023002-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7471A				
RunID: **NV00922-AA1_170208A**	QC Batch: **61197**			PrepDate	**2/8/2017**		Analyst: **MG**
Mercury	ND	0.013	0.11		mg/Kg-dry	1	2/8/2017 04:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	CH2M HILL	**Client Sample ID:**	AOC4-tar
Lab Order:	N023002	**Collection Date:**	2/6/2017 1:00:00 PM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	SOIL
Lab ID:	N023002-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7471A				
RunID: **NV00922-AA1_170208A**	QC Batch: **61197**			PrepDate	**2/8/2017**		Analyst: **MG**
Mercury	ND	0.012	0.10		mg/Kg-dry	1	2/8/2017 04:41 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6253
Lab Order:	N023002	**Collection Date:**	2/6/2017 9:45:00 AM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	SOIL
Lab ID:	N023002-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
			EPA 7471A				
RunID: **NV00922-AA1_170208A**	QC Batch: **61197**			PrepDate	**2/8/2017**		Analyst: **MG**
Mercury	ND	0.012	0.10		mg/Kg-dry	1	2/8/2017 04:44 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S_PGE

Sample ID **MB-61197**	SampType: **MBLK**	TestCode: **7471_S_PGE**	Units: **mg/Kg**	Prep Date: **2/8/2017**	RunNo: **113380**
Client ID: **PBS**	Batch ID: **61197**	TestNo: **EPA 7471A**		Analysis Date: **2/8/2017**	SeqNo: **2559798**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.10									

Sample ID **LCS-61197**	SampType: **LCS**	TestCode: **7471_S_PGE**	Units: **mg/Kg**	Prep Date: **2/8/2017**	RunNo: **113380**
Client ID: **LCSS**	Batch ID: **61197**	TestNo: **EPA 7471A**		Analysis Date: **2/8/2017**	SeqNo: **2559799**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.397	0.10	0.4167	0	95.3	75	125				

Sample ID **N023001-011BMS**	SampType: **MS**	TestCode: **7471_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/8/2017**	RunNo: **113380**
Client ID: **ZZZZZZ**	Batch ID: **61197**	TestNo: **EPA 7471A**		Analysis Date: **2/8/2017**	SeqNo: **2559800**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.420	0.11	0.4460	0	94.1	75	125				

Sample ID **N023001-011BMSD**	SampType: **MSD**	TestCode: **7471_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **2/8/2017**	RunNo: **113380**
Client ID: **ZZZZZZ**	Batch ID: **61197**	TestNo: **EPA 7471A**		Analysis Date: **2/8/2017**	SeqNo: **2559801**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.418	0.11	0.4445	0	94.0	75	125	0.4196	0.469	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6253
Lab Order:	N023002	**Collection Date:**	2/6/2017 9:45:00 AM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	SOIL
Lab ID:	N023002-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID							
EPA 3550B			**EPA 8015B**				
RunID: **NV00922-GC3_170216A**	QC Batch: **61268**			PrepDate	**2/15/2017**		Analyst: **FJ**
TPH-Diesel (C9-C25)	25	1.6	10		mg/Kg-dry	1	2/16/2017 10:10 PM
TPH-Oil (C24-C40)	97	1.3	10		mg/Kg-dry	1	2/16/2017 10:10 PM
Surr: Octacosane	89.9	0	25-162		%REC	1	2/16/2017 10:10 PM
Surr: p-Terphenyl	84.5	0	47-142		%REC	1	2/16/2017 10:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015DM_SPGE

Sample ID **LCS-61268_DRO**	SampType: **LCS**	TestCode: **8015DM_SPG**	Units: **mg/Kg**	Prep Date: **2/15/2017**	RunNo: **113654**
Client ID: **LCSS**	Batch ID: **61268**	TestNo: **EPA 8015B**	**EPA 3550B**	Analysis Date: **2/16/2017**	SeqNo: **2574815**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Diesel (C9-C25)	319.167	10	333.3	0	95.8	51	153				
Surr: Octacosane	23.750		26.67		89.1	25	162				
Surr: p-Terphenyl	27.764		26.67		104	47	142				

Sample ID **LCS-61268_ORO**	SampType: **LCS**	TestCode: **8015DM_SPG**	Units: **mg/Kg**	Prep Date: **2/15/2017**	RunNo: **113654**
Client ID: **LCSS**	Batch ID: **61268**	TestNo: **EPA 8015B**	**EPA 3550B**	Analysis Date: **2/16/2017**	SeqNo: **2574816**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Oil (C24-C40)	298.628	10	333.3	0	89.6	60	120				
Surr: Octacosane	24.054		26.67		90.2	25	162				
Surr: p-Terphenyl	23.530		26.67		88.2	47	142				

Sample ID **MB-61268**	SampType: **MBLK**	TestCode: **8015DM_SPG**	Units: **mg/Kg**	Prep Date: **2/15/2017**	RunNo: **113654**
Client ID: **PBS**	Batch ID: **61268**	TestNo: **EPA 8015B**	**EPA 3550B**	Analysis Date: **2/16/2017**	SeqNo: **2574817**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Diesel (C9-C25)	6.538	10									
TPH-Oil (C24-C40)	4.280	10									
Surr: Octacosane	21.925		26.67		82.2	25	162				
Surr: p-Terphenyl	23.486		26.67		88.1	47	142				

Sample ID **N023001-006C-MS**	SampType: **MS**	TestCode: **8015DM_SPG**	Units: **mg/Kg-dry**	Prep Date: **2/15/2017**	RunNo: **113654**
Client ID: **ZZZZZZ**	Batch ID: **61268**	TestNo: **EPA 8015B**	**EPA 3550B**	Analysis Date: **2/16/2017**	SeqNo: **2574819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Diesel (C9-C25)	306.008	10	348.6	7.042	85.8	51	153				
Surr: Octacosane	25.029		27.89		89.7	25	162				
Surr: p-Terphenyl	28.868		27.89		104	47	142				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015DM_SPGE

Sample ID **N023001-006C-MSD** SampType: **MSD** TestCode: **8015DM_SPG** Units: **mg/Kg-dry** Prep Date: **2/15/2017** RunNo: **113654**
Client ID: **ZZZZZZ** Batch ID: **61268** TestNo: **EPA 8015B EPA 3550B** Analysis Date: **2/16/2017** SeqNo: **2574820**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Diesel (C9-C25)	325.488	10	348.6	7.042	91.4	51	153	306.0	6.17	50	
Surr: Octacosane	25.459		27.89		91.3	25	162		0		
Surr: p-Terphenyl	29.030		27.89		104	47	142		0		

Sample ID **N023001-011DMS** SampType: **MS** TestCode: **8015DM_SPG** Units: **mg/Kg-dry** Prep Date: **2/15/2017** RunNo: **113654**
Client ID: **ZZZZZZ** Batch ID: **61268** TestNo: **EPA 8015B EPA 3550B** Analysis Date: **2/16/2017** SeqNo: **2574826**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Oil (C24-C40)	332.133	11	361.3	8.903	89.5	60	120				
Surr: Octacosane	27.716		28.91		95.9	25	162				
Surr: p-Terphenyl	25.433		28.91		88.0	47	142				

Sample ID **N023001-011DMSD** SampType: **MSD** TestCode: **8015DM_SPG** Units: **mg/Kg-dry** Prep Date: **2/15/2017** RunNo: **113654**
Client ID: **ZZZZZZ** Batch ID: **61268** TestNo: **EPA 8015B EPA 3550B** Analysis Date: **2/16/2017** SeqNo: **2574827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Oil (C24-C40)	347.687	11	360.3	8.903	94.0	60	120	332.1	4.58	50	
Surr: Octacosane	26.016		28.83		90.2	25	162		0		
Surr: p-Terphenyl	25.359		28.83		88.0	47	142		0		

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	CH2M HILL	**Client Sample ID:**	AOC-EB-02-04-17
Lab Order:	N023002	**Collection Date:**	2/4/2017 4:00:00 PM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	WATER
Lab ID:	N023002-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID							
EPA 3510C			**EPA 8015B**				
RunID: **NV00922-GC3_170209B**	QC Batch: **61217**				PrepDate	**2/9/2017**	Analyst: **FJ**
TPH-Diesel (C9-C25)	ND	31	53		ug/L	1	2/9/2017 02:45 PM
TPH-Oil (C24-C40)	ND	38	53		ug/L	1	2/9/2017 02:45 PM
Surr: Octacosane	80.7	0	26-152		%REC	1	2/9/2017 02:45 PM
Surr: p-Terphenyl	82.6	0	57-132		%REC	1	2/9/2017 02:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	CH2M HILL	**Client Sample ID:**	SD-EB-02-05-17
Lab Order:	N023002	**Collection Date:**	2/5/2017 4:00:00 PM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	WATER
Lab ID:	N023002-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID							
EPA 3510C			**EPA 8015B**				
RunID: **NV00922-GC3_170209B**	QC Batch: **61217**				PrepDate	**2/9/2017**	Analyst: **FJ**
TPH-Diesel (C9-C25)	ND	31	53		ug/L	1	2/9/2017 03:12 PM
TPH-Oil (C24-C40)	ND	38	53		ug/L	1	2/9/2017 03:12 PM
Surr: Octacosane	84.5	0	26-152		%REC	1	2/9/2017 03:12 PM
Surr: p-Terphenyl	86.3	0	57-132		%REC	1	2/9/2017 03:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015DM_WPGE

Sample ID **LCSD-61217_DRO**	SampType: **LCSD**	TestCode: **8015DM_WP**	Units: **ug/L**	Prep Date: **2/9/2017**	RunNo: **113425**
Client ID: **LCSS02**	Batch ID: **61217**	TestNo: **EPA 8015B**	**EPA 3510C**	Analysis Date: **2/9/2017**	SeqNo: **2562403**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Diesel (C9-C25)	679.913	50	1000	0	68.0	61	143	679.9	0	30	
Surr: Octacosane	67.880		80.00		84.8	26	152		0		
Surr: p-Terphenyl	76.000		80.00		95.0	57	132		0		

Sample ID **MB-61217**	SampType: **MBLK**	TestCode: **8015DM_WP**	Units: **ug/L**	Prep Date: **2/9/2017**	RunNo: **113425**
Client ID: **PBW**	Batch ID: **61217**	TestNo: **EPA 8015B**	**EPA 3510C**	Analysis Date: **2/9/2017**	SeqNo: **2562404**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Diesel (C9-C25)	31.864	50									
TPH-Oil (C24-C40)	ND	50									
Surr: Octacosane	64.014		80.00		80.0	26	152				
Surr: p-Terphenyl	66.576		80.00		83.2	57	132				

Sample ID **LCS-61217_ORO**	SampType: **LCS**	TestCode: **8015DM_WP**	Units: **ug/L**	Prep Date: **2/9/2017**	RunNo: **113425**
Client ID: **LCSW**	Batch ID: **61217**	TestNo: **EPA 8015B**	**EPA 3510C**	Analysis Date: **2/9/2017**	SeqNo: **2562405**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Oil (C24-C40)	928.169	50	1000	0	92.8	50	150				
Surr: Octacosane	73.933		80.00		92.4	26	152				
Surr: p-Terphenyl	75.282		80.00		94.1	57	132				

Sample ID **LCSD-61217_ORO**	SampType: **LCSD**	TestCode: **8015DM_WP**	Units: **ug/L**	Prep Date: **2/9/2017**	RunNo: **113425**
Client ID: **LCSS02**	Batch ID: **61217**	TestNo: **EPA 8015B**	**EPA 3510C**	Analysis Date: **2/9/2017**	SeqNo: **2562406**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Oil (C24-C40)	833.148	50	1000	0	83.3	50	150	928.2	10.8	30	
Surr: Octacosane	63.384		80.00		79.2	26	152		0		
Surr: p-Terphenyl	64.622		80.00		80.8	57	132		0		

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015DM_WPGE

Sample ID	LCS-61217_DRO	SampType:	LCS	TestCode:	8015DM_WP	Units:	ug/L	Prep Date:	2/9/2017	RunNo:	113425
Client ID:	LCSW	Batch ID:	61217	TestNo:	EPA 8015B	EPA 3510C		Analysis Date:	2/9/2017	SeqNo:	2562409

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Diesel (C9-C25)	688.123	50	1000	0	68.8	61	143				
Surr: Octacosane	69.120		80.00		86.4	26	152				
Surr: p-Terphenyl	75.218		80.00		94.0	57	132				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6253
Lab Order:	N023002	**Collection Date:**	2/6/2017 9:45:00 AM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	SOIL
Lab ID:	N023002-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID							
			EPA 8015B				
RunID: **NV00922-GC4_170214A**	QC Batch: **E17VS022**			PrepDate	**2/14/2017**		Analyst: **RB**
TPH-Gasoline (C6-C12)	ND	53	1200		ug/Kg-dry	1	2/14/2017 01:42 PM
Surr: Chlorobenzene - d5	98.4	0	64-148		%REC	1	2/14/2017 01:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GAS_5035PPGE

Sample ID **E170214LCS**	SampType: **LCS**	TestCode: **8015GAS_50**	Units: **ug/Kg**	Prep Date:	RunNo: **113506**
Client ID: **LCSS**	Batch ID: **E17VS022**	TestNo: **EPA 8015B**		Analysis Date: **2/14/2017**	SeqNo: **2565734**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Gasoline (C6-C12)	5107.000	1000	5000	0	102	57	146				
Surr: Chlorobenzene - d5	109232.000		100000		109	64	148				

Sample ID **E170214MB2**	SampType: **MBLK**	TestCode: **8015GAS_50**	Units: **ug/Kg**	Prep Date:	RunNo: **113506**
Client ID: **PBS**	Batch ID: **E17VS022**	TestNo: **EPA 8015B**		Analysis Date: **2/14/2017**	SeqNo: **2565736**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Gasoline (C6-C12)	57.000	1000									
Surr: Chlorobenzene - d5	112117.000		100000		112	64	148				

Sample ID **N023076-001AMS**	SampType: **MS**	TestCode: **8015GAS_50**	Units: **ug/Kg**	Prep Date:	RunNo: **113506**
Client ID: **ZZZZZZ**	Batch ID: **E17VS022**	TestNo: **EPA 8015B**		Analysis Date: **2/14/2017**	SeqNo: **2565739**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Gasoline (C6-C12)	4179.000	1000	5000	165.0	80.3	57	146				
Surr: Chlorobenzene - d5	103083.000		100000		103	64	148				

Sample ID **N023076-001AMSD**	SampType: **MSD**	TestCode: **8015GAS_50**	Units: **ug/Kg**	Prep Date:	RunNo: **113506**
Client ID: **ZZZZZZ**	Batch ID: **E17VS022**	TestNo: **EPA 8015B**		Analysis Date: **2/14/2017**	SeqNo: **2565740**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Gasoline (C6-C12)	4209.000	1000	5000	165.0	80.9	57	146	4179	0.715	50	
Surr: Chlorobenzene - d5	102550.000		100000		103	64	148		0	0	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	CH2M HILL	**Client Sample ID:**	AOC-EB-02-04-17
Lab Order:	N023002	**Collection Date:**	2/4/2017 4:00:00 PM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	WATER
Lab ID:	N023002-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID							
			EPA 8015B				
RunID: **NV00922-GC4_170208A**	QC Batch: **E17VW015**			PrepDate			Analyst: **RB**
TPH-Gasoline (C6-C12)	ND	15	100		ug/L	1	2/8/2017 05:40 PM
Surr: Chlorobenzene - d5	118	0	74-138		%REC	1	2/8/2017 05:40 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	CH2M HILL	**Client Sample ID:**	SD-EB-02-05-17
Lab Order:	N023002	**Collection Date:**	2/5/2017 4:00:00 PM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	WATER
Lab ID:	N023002-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID							
			EPA 8015B				
RunID: **NV00922-GC4_170208A**	QC Batch: **E17VW015**			PrepDate			Analyst: **RB**
TPH-Gasoline (C6-C12)	ND	15	100		ug/L	1	2/8/2017 06:13 PM
Surr: Chlorobenzene - d5	125	0	74-138		%REC	1	2/8/2017 06:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	CH2M HILL	**Client Sample ID:**	AOC-TB-02-07-17
Lab Order:	N023002	**Collection Date:**	2/7/2017 2:00:00 PM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	WATER
Lab ID:	N023002-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID							
			EPA 8015B				
RunID: **NV00922-GC4_170208A**	QC Batch: **E17VW015**			PrepDate			Analyst: **RB**
TPH-Gasoline (C6-C12)	ND	15	100		ug/L	1	2/8/2017 06:48 PM
Surr: Chlorobenzene - d5	129	0	74-138		%REC	1	2/8/2017 06:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GAS_WPGE

Sample ID **E170208LCS** SampType: **LCS** TestCode: **8015GAS_W** Units: **ug/L** Prep Date: RunNo: **113372**
Client ID: **LCSW** Batch ID: **E17VW015** TestNo: **EPA 8015B** Analysis Date: **2/8/2017** SeqNo: **2559927**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Gasoline (C6-C12)	958.000	100	1000	0	95.8	67	136				
Surr: Chlorobenzene - d5	58273.000		50000		117	74	138				

Sample ID **E170208MB2** SampType: **MBLK** TestCode: **8015GAS_W** Units: **ug/L** Prep Date: RunNo: **113372**
Client ID: **PBW** Batch ID: **E17VW015** TestNo: **EPA 8015B** Analysis Date: **2/8/2017** SeqNo: **2559929**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Gasoline (C6-C12)	28.000	100									
Surr: Chlorobenzene - d5	62703.000		50000		125	74	138				

Sample ID **N022994-001AMS** SampType: **MS** TestCode: **8015GAS_W** Units: **ug/L** Prep Date: RunNo: **113372**
Client ID: **ZZZZZZ** Batch ID: **E17VW015** TestNo: **EPA 8015B** Analysis Date: **2/8/2017** SeqNo: **2559931**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Gasoline (C6-C12)	893.000	100	1000	286.0	60.7	67	136				S
Surr: Chlorobenzene - d5	50674.000		50000		101	74	138				

Sample ID **N022994-001AMSD** SampType: **MSD** TestCode: **8015GAS_W** Units: **ug/L** Prep Date: RunNo: **113372**
Client ID: **ZZZZZZ** Batch ID: **E17VW015** TestNo: **EPA 8015B** Analysis Date: **2/8/2017** SeqNo: **2559932**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Gasoline (C6-C12)	832.000	100	1000	286.0	54.6	67	136	893.0	7.07	30	S
Surr: Chlorobenzene - d5	48971.000		50000		97.9	74	138		0		

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-005

Client Sample ID: AOC-EB-02-04-17
Collection Date: 2/4/2017 4:00:00 PM
Matrix: WATER

ORGANOCHLORINE PESTICIDES BY GC/ECD

EPA 3510C **EPA 8081A**

RunID: **NV00922-GC7_170210B** QC Batch: **61219** PrepDate **2/9/2017** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
4,4´-DDD	ND	0.0075	0.052		µg/L	1	2/10/2017 11:50 AM
4,4´-DDE	ND	0.0083	0.052		µg/L	1	2/10/2017 11:50 AM
4,4´-DDT	ND	0.0092	0.052		µg/L	1	2/10/2017 11:50 AM
Aldrin	ND	0.0077	0.026		µg/L	1	2/10/2017 11:50 AM
alpha-BHC	ND	0.0039	0.026		µg/L	1	2/10/2017 11:50 AM
alpha-Chlordane	ND	0.0056	0.026		µg/L	1	2/10/2017 11:50 AM
beta-BHC	ND	0.0048	0.026		µg/L	1	2/10/2017 11:50 AM
delta-BHC	ND	0.0039	0.026		µg/L	1	2/10/2017 11:50 AM
Dieldrin	ND	0.0083	0.052		µg/L	1	2/10/2017 11:50 AM
Endosulfan I	ND	0.0048	0.026		µg/L	1	2/10/2017 11:50 AM
Endosulfan II	ND	0.0065	0.052		µg/L	1	2/10/2017 11:50 AM
Endosulfan sulfate	ND	0.0061	0.052		µg/L	1	2/10/2017 11:50 AM
Endrin	ND	0.0089	0.052		µg/L	1	2/10/2017 11:50 AM
Endrin aldehyde	ND	0.0058	0.052		µg/L	1	2/10/2017 11:50 AM
Endrin ketone	ND	0.0071	0.052		µg/L	1	2/10/2017 11:50 AM
gamma-BHC	ND	0.0043	0.026		µg/L	1	2/10/2017 11:50 AM
gamma-Chlordane	ND	0.010	0.026		µg/L	1	2/10/2017 11:50 AM
Heptachlor	ND	0.0078	0.026		µg/L	1	2/10/2017 11:50 AM
Heptachlor epoxide	ND	0.0052	0.026		µg/L	1	2/10/2017 11:50 AM
Methoxychlor	ND	0.055	0.26		µg/L	1	2/10/2017 11:50 AM
Toxaphene	ND	0.17	2.6		µg/L	1	2/10/2017 11:50 AM
Surr: Tetrachloro-m-xylene	58.4	0	33-138		%REC	1	2/10/2017 11:50 AM
Surr: Decachlorobiphenyl	59.2	0	29-135		%REC	1	2/10/2017 11:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_W_PGE

Sample ID **LCS-61219_OCP**	SampType: **LCS**	TestCode: **8081_W_PGE**	Units: **µg/L**	Prep Date: **2/9/2017**	RunNo: **113444**
Client ID: **LCSW**	Batch ID: **61219**	TestNo: **EPA 8081A**	**EPA 3510C**	Analysis Date: **2/10/2017**	SeqNo: **2563620**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	0.215	0.050	0.2500	0	86.1	50	139				
4,4´-DDE	0.213	0.050	0.2500	0	85.0	48	137				
4,4´-DDT	0.195	0.050	0.2500	0	78.2	47	138				
Aldrin	0.192	0.025	0.2500	0	77.0	42	138				
alpha-BHC	0.224	0.025	0.2500	0	89.5	60	128				
alpha-Chlordane	0.207	0.025	0.2500	0	82.9	63	123				
beta-BHC	0.207	0.025	0.2500	0	82.7	66	126				
delta-BHC	0.219	0.025	0.2500	0	87.7	46	136				
Dieldrin	0.216	0.050	0.2500	0	86.4	62	129				
Endosulfan I	0.213	0.025	0.2500	0	85.1	49	120				
Endosulfan II	0.236	0.050	0.2500	0	94.4	42	130				
Endosulfan sulfate	0.225	0.050	0.2500	0	90.1	54	137				
Endrin	0.228	0.050	0.2500	0	91.2	56	134				
Endrin aldehyde	0.201	0.050	0.2500	0	80.6	56	137				
Endrin ketone	0.241	0.050	0.2500	0	96.6	74	128				
gamma-BHC	0.214	0.025	0.2500	0	85.6	30	146				
gamma-Chlordane	0.210	0.025	0.2500	0	83.8	67	120				
Heptachlor	0.203	0.025	0.2500	0	81.2	51	128				
Heptachlor epoxide	0.214	0.025	0.2500	0	85.6	62	131				
Methoxychlor	0.191	0.25	0.2500	0	76.3	56	150				
Surr: Tetrachloro-m-xylene	0.173		0.2500		69.4	33	138				
Surr: Decachlorobiphenyl	0.165		0.2500		66.0	29	135				

Sample ID **MB-61219**	SampType: **MBLK**	TestCode: **8081_W_PGE**	Units: **µg/L**	Prep Date: **2/9/2017**	RunNo: **113444**
Client ID: **PBW**	Batch ID: **61219**	TestNo: **EPA 8081A**	**EPA 3510C**	Analysis Date: **2/10/2017**	SeqNo: **2563621**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_W_PGE

Sample ID **MB-61219**	SampType: **MBLK**	TestCode: **8081_W_PGE**	Units: **µg/L**	Prep Date: **2/9/2017**	RunNo: **113444**
Client ID: **PBW**	Batch ID: **61219**	TestNo: **EPA 8081A**	**EPA 3510C**	Analysis Date: **2/10/2017**	SeqNo: **2563621**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDE	ND	0.050									
4,4´-DDT	ND	0.050									
Aldrin	ND	0.025									
alpha-BHC	ND	0.025									
alpha-Chlordane	ND	0.025									
beta-BHC	ND	0.025									
delta-BHC	ND	0.025									
Dieldrin	ND	0.050									
Endosulfan I	ND	0.025									
Endosulfan II	ND	0.050									
Endosulfan sulfate	ND	0.050									
Endrin	ND	0.050									
Endrin aldehyde	ND	0.050									
Endrin ketone	ND	0.050									
gamma-BHC	ND	0.025									
gamma-Chlordane	ND	0.025									
Heptachlor	ND	0.025									
Heptachlor epoxide	ND	0.025									
Methoxychlor	ND	0.25									
Toxaphene	ND	2.5									
Surr: Tetrachloro-m-xylene	0.157		0.2500		62.6	33	138				
Surr: Decachlorobiphenyl	0.150		0.2500		60.0	29	135				

Sample ID **N023002-005E-MS**	SampType: **MS**	TestCode: **8081_W_PGE**	Units: **µg/L**	Prep Date: **2/9/2017**	RunNo: **113444**
Client ID: **ZZZZZZ**	Batch ID: **61219**	TestNo: **EPA 8081A**	**EPA 3510C**	Analysis Date: **2/10/2017**	SeqNo: **2563623**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	0.212	0.052	0.2577	0	82.4	50	139				
4,4´-DDE	0.209	0.052	0.2577	0	81.1	48	137				
4,4´-DDT	0.191	0.052	0.2577	0	73.9	47	138				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_W_PGE

Sample ID **N023002-005E-MS** SampType: **MS** TestCode: **8081_W_PGE** Units: **µg/L** Prep Date: **2/9/2017** RunNo: **113444**
Client ID: **ZZZZZZ** Batch ID: **61219** TestNo: **EPA 8081A** **EPA 3510C** Analysis Date: **2/10/2017** SeqNo: **2563623**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aldrin	0.202	0.026	0.2577	0	78.3	42	138				
alpha-BHC	0.216	0.026	0.2577	0	83.9	60	128				
alpha-Chlordane	0.207	0.026	0.2577	0	80.4	63	123				
beta-BHC	0.216	0.026	0.2577	0	83.7	66	126				
delta-BHC	0.214	0.026	0.2577	0	83.0	46	136				
Dieldrin	0.211	0.052	0.2577	0	81.7	62	129				
Endosulfan I	0.207	0.026	0.2577	0	80.3	49	120				
Endosulfan II	0.227	0.052	0.2577	0	87.9	42	130				
Endosulfan sulfate	0.221	0.052	0.2577	0	85.8	54	137				
Endrin	0.221	0.052	0.2577	0	85.8	56	134				
Endrin aldehyde	0.202	0.052	0.2577	0	78.5	56	137				
Endrin ketone	0.236	0.052	0.2577	0	91.7	74	128				
gamma-BHC	0.207	0.026	0.2577	0	80.3	30	146				
gamma-Chlordane	0.208	0.026	0.2577	0	80.8	67	120				
Heptachlor	0.209	0.026	0.2577	0	81.0	51	128				
Heptachlor epoxide	0.205	0.026	0.2577	0	79.7	62	131				
Methoxychlor	0.192	0.26	0.2577	0	74.6	56	150				
Surr: Tetrachloro-m-xylene	0.169		0.2577		65.6	33	138				
Surr: Decachlorobiphenyl	0.128		0.2577		49.7	29	135				

Sample ID **N023002-005E-MSD** SampType: **MSD** TestCode: **8081_W_PGE** Units: **µg/L** Prep Date: **2/9/2017** RunNo: **113444**
Client ID: **ZZZZZZ** Batch ID: **61219** TestNo: **EPA 8081A** **EPA 3510C** Analysis Date: **2/10/2017** SeqNo: **2563624**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	0.182	0.050	0.2500	0	72.8	50	139	0.2123	15.4	30	
4,4´-DDE	0.180	0.050	0.2500	0	72.1	48	137	0.2090	14.8	30	
4,4´-DDT	0.166	0.050	0.2500	0	66.3	47	138	0.1906	14.0	30	
Aldrin	0.181	0.025	0.2500	0	72.3	42	138	0.2017	10.9	30	
alpha-BHC	0.196	0.025	0.2500	0	78.6	60	128	0.2163	9.61	30	
alpha-Chlordane	0.181	0.025	0.2500	0	72.5	63	123	0.2072	13.4	30	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_W_PGE

Sample ID **N023002-005E-MSD** SampType: **MSD** TestCode: **8081_W_PGE** Units: **µg/L** Prep Date: **2/9/2017** RunNo: **113444**
Client ID: **ZZZZZZ** Batch ID: **61219** TestNo: **EPA 8081A EPA 3510C** Analysis Date: **2/10/2017** SeqNo: **2563624**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
beta-BHC	0.184	0.025	0.2500	0	73.7	66	126	0.2158	15.8	30	
delta-BHC	0.187	0.025	0.2500	0	74.9	46	136	0.2140	13.4	30	
Dieldrin	0.185	0.050	0.2500	0	74.2	62	129	0.2105	12.7	30	
Endosulfan I	0.184	0.025	0.2500	0	73.6	49	120	0.2069	11.7	30	
Endosulfan II	0.202	0.050	0.2500	0	80.8	42	130	0.2265	11.4	30	
Endosulfan sulfate	0.193	0.050	0.2500	0	77.1	54	137	0.2210	13.7	30	
Endrin	0.192	0.050	0.2500	0	76.7	56	134	0.2210	14.2	30	
Endrin aldehyde	0.175	0.050	0.2500	0	70.1	56	137	0.2023	14.4	30	
Endrin ketone	0.209	0.050	0.2500	0	83.4	74	128	0.2363	12.5	30	
gamma-BHC	0.185	0.025	0.2500	0	74.1	30	146	0.2070	11.1	30	
gamma-Chlordane	0.183	0.025	0.2500	0	73.2	67	120	0.2083	12.9	30	
Heptachlor	0.185	0.025	0.2500	0	74.1	51	128	0.2087	11.9	30	
Heptachlor epoxide	0.186	0.025	0.2500	0	74.6	62	131	0.2054	9.68	30	
Methoxychlor	0.164	0.25	0.2500	0	65.4	56	150	0.1922	0	30	
Surr: Tetrachloro-m-xylene	0.154		0.2500		61.7	33	138		0	30	
Surr: Decachlorobiphenyl	0.129		0.2500		51.8	29	135		0	30	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-001

Client Sample ID: AOC4-40-3207
Collection Date: 2/6/2017 2:30:00 PM
Matrix: SOIL

PCBS BY GC/ECD

EPA 3550B **EPA 8082**

RunID: **NV00922-GC7_170210C** QC Batch: **61221** PrepDate **2/9/2017** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Aroclor 1016	ND	5.5	18		ug/Kg-dry	1	2/11/2017 12:01 AM
Aroclor 1221	ND	5.9	36		ug/Kg-dry	1	2/11/2017 12:01 AM
Aroclor 1232	ND	12	18		ug/Kg-dry	1	2/11/2017 12:01 AM
Aroclor 1242	ND	8.9	18		ug/Kg-dry	1	2/11/2017 12:01 AM
Aroclor 1248	ND	3.1	18		ug/Kg-dry	1	2/11/2017 12:01 AM
Aroclor 1254	1700	55	180		ug/Kg-dry	10	2/13/2017 03:35 PM
Aroclor 1260	1500	35	180		ug/Kg-dry	10	2/13/2017 03:35 PM
Surr: Decachlorobiphenyl	93.2	0	26-125		%REC	1	2/11/2017 12:01 AM
Surr: Tetrachloro-m-xylene	78.1	0	48-121		%REC	1	2/11/2017 12:01 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	CH2M HILL	**Client Sample ID:**	AOC4-tar
Lab Order:	N023002	**Collection Date:**	2/6/2017 1:00:00 PM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	SOIL
Lab ID:	N023002-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PCBS BY GC/ECD							
	EPA 3550B			**EPA 8082**			
RunID: **NV00922-GC7_170210C**	QC Batch: **61221**			PrepDate	**2/9/2017**		Analyst: **MDM**
Aroclor 1016	ND	10	34		ug/Kg-dry	2	2/11/2017 12:46 AM
Aroclor 1221	ND	11	67		ug/Kg-dry	2	2/11/2017 12:46 AM
Aroclor 1232	ND	23	34		ug/Kg-dry	2	2/11/2017 12:46 AM
Aroclor 1242	ND	17	34		ug/Kg-dry	2	2/11/2017 12:46 AM
Aroclor 1248	ND	5.7	34		ug/Kg-dry	2	2/11/2017 12:46 AM
Aroclor 1254	ND	10	34		ug/Kg-dry	2	2/11/2017 12:46 AM
Aroclor 1260	ND	6.5	34		ug/Kg-dry	2	2/11/2017 12:46 AM
Surr: Decachlorobiphenyl	93.6	0	26-125		%REC	2	2/11/2017 12:46 AM
Surr: Tetrachloro-m-xylene	113	0	48-121		%REC	2	2/11/2017 12:46 AM

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-004

Client Sample ID: Soil-IDW-01-6253
Collection Date: 2/6/2017 9:45:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PCBS BY GC/ECD							
	EPA 3550B			**EPA 8082**			
RunID: **NV00922-GC7_170210C**	QC Batch: **61221**			PrepDate	**2/9/2017**		Analyst: **MDM**
Aroclor 1016	ND	5.1	17		ug/Kg-dry	1	2/11/2017 12:24 AM
Aroclor 1221	ND	5.6	34		ug/Kg-dry	1	2/11/2017 12:24 AM
Aroclor 1232	ND	12	17		ug/Kg-dry	1	2/11/2017 12:24 AM
Aroclor 1242	ND	8.4	17		ug/Kg-dry	1	2/11/2017 12:24 AM
Aroclor 1248	ND	2.9	17		ug/Kg-dry	1	2/11/2017 12:24 AM
Aroclor 1254	ND	5.1	17		ug/Kg-dry	1	2/11/2017 12:24 AM
Aroclor 1260	ND	3.3	17		ug/Kg-dry	1	2/11/2017 12:24 AM
Surr: Decachlorobiphenyl	128	0	26-125	S	%REC	1	2/11/2017 12:24 AM
Surr: Tetrachloro-m-xylene	75.0	0	48-121		%REC	1	2/11/2017 12:24 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_S_PGE

Sample ID **LCS-61221**	SampType: **LCS**	TestCode: **8082_S_PGE**	Units: **ug/Kg**	Prep Date: **2/9/2017**	RunNo: **113454**
Client ID: **LCSS**	Batch ID: **61221**	TestNo: **EPA 8082**	**EPA 3550B**	Analysis Date: **2/10/2017**	SeqNo: **2563675**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	144.119	16	166.7	0	86.5	41	138				
Aroclor 1260	185.521	16	166.7	0	111	61	131				
Surr: Decachlorobiphenyl	16.454		16.67		98.7	26	125				
Surr: Tetrachloro-m-xylene	12.692		16.67		76.1	48	121				

Sample ID **MB-61221**	SampType: **MBLK**	TestCode: **8082_S_PGE**	Units: **ug/Kg**	Prep Date: **2/9/2017**	RunNo: **113454**
Client ID: **PBS**	Batch ID: **61221**	TestNo: **EPA 8082**	**EPA 3550B**	Analysis Date: **2/10/2017**	SeqNo: **2563676**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	16									
Aroclor 1221	ND	33									
Aroclor 1232	ND	16									
Aroclor 1242	ND	16									
Aroclor 1248	ND	16									
Aroclor 1254	ND	16									
Aroclor 1260	ND	16									
Surr: Decachlorobiphenyl	17.704		16.67		106	26	125				
Surr: Tetrachloro-m-xylene	14.790		16.67		88.7	48	121				

Sample ID **N022966-001A-MS**	SampType: **MS**	TestCode: **8082_S_PGE**	Units: **ug/Kg-dry**	Prep Date: **2/9/2017**	RunNo: **113454**
Client ID: **ZZZZZZ**	Batch ID: **61221**	TestNo: **EPA 8082**	**EPA 3550B**	Analysis Date: **2/11/2017**	SeqNo: **2563689**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	159.004	17	173.4	0	91.7	41	138				
Aroclor 1260	197.811	17	173.4	0	114	61	131				
Surr: Decachlorobiphenyl	14.977		17.34		86.4	26	125				
Surr: Tetrachloro-m-xylene	13.313		17.34		76.8	48	121				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_S_PGE

Sample ID **N022966-001A-MSD** SampType: **MSD** TestCode: **8082_S_PGE** Units: **ug/Kg-dry** Prep Date: **2/9/2017** RunNo: **113454**
Client ID: **ZZZZZZ** Batch ID: **61221** TestNo: **EPA 8082** **EPA 3550B** Analysis Date: **2/11/2017** SeqNo: **2563690**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	164.092	17	173.5	0	94.6	41	138	159.0	3.15	20	
Aroclor 1260	195.992	17	173.5	0	113	61	131	197.8	0.923	20	
Surr: Decachlorobiphenyl	16.893		17.35		97.4	26	125		0		
Surr: Tetrachloro-m-xylene	13.381		17.35		77.1	48	121		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-005

Client Sample ID: AOC-EB-02-04-17
Collection Date: 2/4/2017 4:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PCBS BY GC/ECD							
	EPA 3510C			**EPA 8082**			
RunID: **NV00922-GC7_170209B**	QC Batch: **61219**				PrepDate	**2/9/2017**	Analyst: **MDM**
Aroclor 1016	ND	0.059	0.26		µg/L	1	2/9/2017 09:51 PM
Aroclor 1221	ND	0.096	0.52		µg/L	1	2/9/2017 09:51 PM
Aroclor 1232	ND	0.038	0.26		µg/L	1	2/9/2017 09:51 PM
Aroclor 1242	ND	0.13	0.26		µg/L	1	2/9/2017 09:51 PM
Aroclor 1248	ND	0.042	0.26		µg/L	1	2/9/2017 09:51 PM
Aroclor 1254	ND	0.086	0.26		µg/L	1	2/9/2017 09:51 PM
Aroclor 1260	ND	0.053	0.26		µg/L	1	2/9/2017 09:51 PM
Surr: Decachlorobiphenyl	74.9	0	29-133		%REC	1	2/9/2017 09:51 PM
Surr: Tetrachloro-m-xylene	61.9	0	50-120		%REC	1	2/9/2017 09:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-006

Client Sample ID: SD-EB-02-05-17
Collection Date: 2/5/2017 4:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PCBS BY GC/ECD							
	EPA 3510C			**EPA 8082**			
RunID: **NV00922-GC7_170209B**	QC Batch: **61219**				PrepDate	**2/9/2017**	Analyst: **MDM**
Aroclor 1016	ND	0.060	0.27		µg/L	1	2/9/2017 10:14 PM
Aroclor 1221	ND	0.098	0.53		µg/L	1	2/9/2017 10:14 PM
Aroclor 1232	ND	0.039	0.27		µg/L	1	2/9/2017 10:14 PM
Aroclor 1242	ND	0.14	0.27		µg/L	1	2/9/2017 10:14 PM
Aroclor 1248	ND	0.043	0.27		µg/L	1	2/9/2017 10:14 PM
Aroclor 1254	ND	0.088	0.27		µg/L	1	2/9/2017 10:14 PM
Aroclor 1260	ND	0.054	0.27		µg/L	1	2/9/2017 10:14 PM
Surr: Decachlorobiphenyl	63.5	0	29-133		%REC	1	2/9/2017 10:14 PM
Surr: Tetrachloro-m-xylene	66.6	0	50-120		%REC	1	2/9/2017 10:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_W_PGE

Sample ID **LCS-61219_PCB**	SampType: **LCS**	TestCode: **8082_W_PGE**	Units: **µg/L**	Prep Date: **2/9/2017**	RunNo: **113429**
Client ID: **LCSW**	Batch ID: **61219**	TestNo: **EPA 8082**	**EPA 3510C**	Analysis Date: **2/9/2017**	SeqNo: **2562433**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	1.908	0.25	2.500	0	76.3	40	144				
Aroclor 1260	2.304	0.25	2.500	0	92.2	45	145				
Surr: Decachlorobiphenyl	0.192		0.2500		76.9	29	133				
Surr: Tetrachloro-m-xylene	0.163		0.2500		65.0	50	120				

Sample ID **LCSD-61219_PCB**	SampType: **LCSD**	TestCode: **8082_W_PGE**	Units: **µg/L**	Prep Date: **2/9/2017**	RunNo: **113429**
Client ID: **LCSS02**	Batch ID: **61219**	TestNo: **EPA 8082**	**EPA 3510C**	Analysis Date: **2/9/2017**	SeqNo: **2562434**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	1.929	0.25	2.500	0	77.2	40	144	1.908	1.11	30	
Aroclor 1260	2.334	0.25	2.500	0	93.4	45	145	2.304	1.31	30	
Surr: Decachlorobiphenyl	0.203		0.2500		81.2	29	133		0		
Surr: Tetrachloro-m-xylene	0.157		0.2500		62.6	50	120		0		

Sample ID **MB-61219**	SampType: **MBLK**	TestCode: **8082_W_PGE**	Units: **µg/L**	Prep Date: **2/9/2017**	RunNo: **113429**
Client ID: **PBW**	Batch ID: **61219**	TestNo: **EPA 8082**	**EPA 3510C**	Analysis Date: **2/9/2017**	SeqNo: **2562435**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.25									
Aroclor 1221	ND	0.50									
Aroclor 1232	ND	0.25									
Aroclor 1242	ND	0.25									
Aroclor 1248	ND	0.25									
Aroclor 1254	ND	0.25									
Aroclor 1260	ND	0.25									
Surr: Decachlorobiphenyl	0.178		0.2500		71.0	29	133				
Surr: Tetrachloro-m-xylene	0.156		0.2500		62.3	50	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-005

Client Sample ID: AOC-EB-02-04-17
Collection Date: 2/4/2017 4:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
EPA 8260B							
RunID: **MS8_170217B**	QC Batch: **R17VW024**				PrepDate		Analyst: **RB**
Cyclohexane	ND	0.14	0.50		ug/L	1	2/17/2017 07:29 PM
Methyl Acetate	ND	0.18	0.50		ug/L	1	2/17/2017 07:29 PM
Methylcyclohexane	ND	0.22	0.50		ug/L	1	2/17/2017 07:29 PM
Surr: 1,2-Dichloroethane-d4	97.8	0	72-119		%REC	1	2/17/2017 07:29 PM
Surr: 4-Bromofluorobenzene	102	0	76-119		%REC	1	2/17/2017 07:29 PM
Surr: Dibromofluoromethane	99.8	0	85-115		%REC	1	2/17/2017 07:29 PM
Surr: Toluene-d8	105	0	81-120		%REC	1	2/17/2017 07:29 PM
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
EPA 8260B							
RunID: **NV00922-MS5_170214A**	QC Batch: **P17VW021**				PrepDate		Analyst: **RB**
1,1,1,2-Tetrachloroethane	ND	0.089	0.50		ug/L	1	2/14/2017 12:10 PM
1,1,1-Trichloroethane	ND	0.15	1.0		ug/L	1	2/14/2017 12:10 PM
1,1,2,2-Tetrachloroethane	ND	0.14	0.50		ug/L	1	2/14/2017 12:10 PM
1,1,2-Trichloroethane	ND	0.15	1.0		ug/L	1	2/14/2017 12:10 PM
1,1-Dichloroethane	ND	0.13	1.0		ug/L	1	2/14/2017 12:10 PM
1,1-Dichloroethene	ND	0.15	1.0		ug/L	1	2/14/2017 12:10 PM
1,1-Dichloropropene	ND	0.12	1.0		ug/L	1	2/14/2017 12:10 PM
1,2,3-Trichlorobenzene	ND	0.16	1.0		ug/L	1	2/14/2017 12:10 PM
1,2,3-Trichloropropane	ND	0.097	1.0		ug/L	1	2/14/2017 12:10 PM
1,2,4-Trichlorobenzene	ND	0.13	1.0		ug/L	1	2/14/2017 12:10 PM
1,2,4-Trimethylbenzene	ND	0.094	1.0		ug/L	1	2/14/2017 12:10 PM
1,2-Dibromo-3-chloropropane	ND	0.36	2.0		ug/L	1	2/14/2017 12:10 PM
1,2-Dibromoethane	ND	0.18	1.0		ug/L	1	2/14/2017 12:10 PM
1,2-Dichlorobenzene	ND	0.14	1.0		ug/L	1	2/14/2017 12:10 PM
1,2-Dichloroethane	ND	0.13	0.50		ug/L	1	2/14/2017 12:10 PM
1,2-Dichloropropane	ND	0.14	1.0		ug/L	1	2/14/2017 12:10 PM
1,3,5-Trimethylbenzene	ND	0.11	1.0		ug/L	1	2/14/2017 12:10 PM
1,3-Dichlorobenzene	ND	0.11	1.0		ug/L	1	2/14/2017 12:10 PM
1,3-Dichloropropane	ND	0.13	1.0		ug/L	1	2/14/2017 12:10 PM
1,4-Dichlorobenzene	ND	0.13	0.50		ug/L	1	2/14/2017 12:10 PM
2,2-Dichloropropane	ND	0.16	1.0		ug/L	1	2/14/2017 12:10 PM
2-Butanone	ND	1.9	10		ug/L	1	2/14/2017 12:10 PM
2-Chlorotoluene	ND	0.14	1.0		ug/L	1	2/14/2017 12:10 PM
2-Hexanone	ND	1.7	5.0		ug/L	1	2/14/2017 12:10 PM
4-Chlorotoluene	ND	0.14	1.0		ug/L	1	2/14/2017 12:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-005

Client Sample ID: AOC-EB-02-04-17
Collection Date: 2/4/2017 4:00:00 PM
Matrix: WATER

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **NV00922-MS5_170214A** QC Batch: **P17VW021** PrepDate Analyst: **RB**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
4-Isopropyltoluene	ND	0.13	1.0		ug/L	1	2/14/2017 12:10 PM
4-Methyl-2-pentanone	ND	1.4	10		ug/L	1	2/14/2017 12:10 PM
Acetone	ND	4.3	10		ug/L	1	2/14/2017 12:10 PM
Acrolein	ND	1.9	20		ug/L	1	2/14/2017 12:10 PM
Acrylonitrile	ND	2.5	20		ug/L	1	2/14/2017 12:10 PM
Benzene	ND	0.14	0.50		ug/L	1	2/14/2017 12:10 PM
Bromobenzene	ND	0.13	1.0		ug/L	1	2/14/2017 12:10 PM
Bromochloromethane	ND	0.15	1.0		ug/L	1	2/14/2017 12:10 PM
Bromodichloromethane	ND	0.10	0.50		ug/L	1	2/14/2017 12:10 PM
Bromoform	ND	0.34	1.0		ug/L	1	2/14/2017 12:10 PM
Bromomethane	ND	0.12	1.0		ug/L	1	2/14/2017 12:10 PM
Carbon disulfide	ND	0.14	1.0		ug/L	1	2/14/2017 12:10 PM
Carbon tetrachloride	ND	0.13	0.50		ug/L	1	2/14/2017 12:10 PM
Chlorobenzene	ND	0.13	0.50		ug/L	1	2/14/2017 12:10 PM
Chloroethane	ND	0.19	1.0		ug/L	1	2/14/2017 12:10 PM
Chloroform	ND	0.18	1.0		ug/L	1	2/14/2017 12:10 PM
Chloromethane	ND	0.22	1.0		ug/L	1	2/14/2017 12:10 PM
cis-1,2-Dichloroethene	ND	0.20	1.0		ug/L	1	2/14/2017 12:10 PM
cis-1,3-Dichloropropene	ND	0.14	0.50		ug/L	1	2/14/2017 12:10 PM
Dibromochloromethane	ND	0.12	0.50		ug/L	1	2/14/2017 12:10 PM
Dibromomethane	ND	0.12	1.0		ug/L	1	2/14/2017 12:10 PM
Dichlorodifluoromethane	ND	0.17	1.0		ug/L	1	2/14/2017 12:10 PM
Ethylbenzene	ND	0.14	1.0		ug/L	1	2/14/2017 12:10 PM
Freon-113	ND	0.19	1.0		ug/L	1	2/14/2017 12:10 PM
Hexachlorobutadiene	ND	0.15	0.50		ug/L	1	2/14/2017 12:10 PM
Isopropylbenzene	ND	0.11	1.0		ug/L	1	2/14/2017 12:10 PM
m,p-Xylene	ND	0.23	1.0		ug/L	1	2/14/2017 12:10 PM
Methylene chloride	ND	0.26	1.0		ug/L	1	2/14/2017 12:10 PM
MTBE	ND	0.13	1.0		ug/L	1	2/14/2017 12:10 PM
n-Butylbenzene	ND	0.15	1.0		ug/L	1	2/14/2017 12:10 PM
n-Propylbenzene	ND	0.16	1.0		ug/L	1	2/14/2017 12:10 PM
Naphthalene	ND	0.094	1.0		ug/L	1	2/14/2017 12:10 PM
o-Xylene	ND	0.13	1.0		ug/L	1	2/14/2017 12:10 PM
sec-Butylbenzene	ND	0.12	1.0		ug/L	1	2/14/2017 12:10 PM
Styrene	ND	0.14	1.0		ug/L	1	2/14/2017 12:10 PM
tert-Butylbenzene	ND	0.11	1.0		ug/L	1	2/14/2017 12:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-005

Client Sample ID: AOC-EB-02-04-17
Collection Date: 2/4/2017 4:00:00 PM
Matrix: WATER

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **NV00922-MS5_170214A** QC Batch: **P17VW021** PrepDate Analyst: **RB**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Tetrachloroethene	ND	0.13	1.0		ug/L	1	2/14/2017 12:10 PM
Toluene	ND	0.14	0.50		ug/L	1	2/14/2017 12:10 PM
trans-1,2-Dichloroethene	ND	0.20	1.0		ug/L	1	2/14/2017 12:10 PM
trans-1,3-Dichloropropene	ND	0.13	1.0		ug/L	1	2/14/2017 12:10 PM
Trichloroethene	ND	0.14	1.0		ug/L	1	2/14/2017 12:10 PM
Trichlorofluoromethane	ND	0.13	1.0		ug/L	1	2/14/2017 12:10 PM
Vinyl chloride	ND	0.15	0.50		ug/L	1	2/14/2017 12:10 PM
Xylenes, Total	ND	1.5	2.0		ug/L	1	2/14/2017 12:10 PM
Surr: 1,2-Dichloroethane-d4	89.0	0	72-119		%REC	1	2/14/2017 12:10 PM
Surr: 4-Bromofluorobenzene	99.2	0	76-119		%REC	1	2/14/2017 12:10 PM
Surr: Dibromofluoromethane	96.0	0	85-115		%REC	1	2/14/2017 12:10 PM
Surr: Toluene-d8	103	0	81-120		%REC	1	2/14/2017 12:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-007

Client Sample ID: AOC-TB-02-07-17
Collection Date: 2/7/2017 2:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
EPA 8260B							
RunID: **MS8_170217B**	QC Batch: **R17VW024**				PrepDate		Analyst: **RB**
Cyclohexane	ND	0.14	0.50		ug/L	1	2/17/2017 07:55 PM
Methyl Acetate	ND	0.18	0.50		ug/L	1	2/17/2017 07:55 PM
Methylcyclohexane	ND	0.22	0.50		ug/L	1	2/17/2017 07:55 PM
Surr: 1,2-Dichloroethane-d4	92.7	0	72-119		%REC	1	2/17/2017 07:55 PM
Surr: 4-Bromofluorobenzene	93.4	0	76-119		%REC	1	2/17/2017 07:55 PM
Surr: Dibromofluoromethane	96.0	0	85-115		%REC	1	2/17/2017 07:55 PM
Surr: Toluene-d8	96.6	0	81-120		%REC	1	2/17/2017 07:55 PM
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
EPA 8260B							
RunID: **NV00922-MS5_170214A**	QC Batch: **P17VW021**				PrepDate		Analyst: **RB**
1,1,1,2-Tetrachloroethane	ND	0.089	0.50		ug/L	1	2/14/2017 12:33 PM
1,1,1-Trichloroethane	ND	0.15	1.0		ug/L	1	2/14/2017 12:33 PM
1,1,2,2-Tetrachloroethane	ND	0.14	0.50		ug/L	1	2/14/2017 12:33 PM
1,1,2-Trichloroethane	ND	0.15	1.0		ug/L	1	2/14/2017 12:33 PM
1,1-Dichloroethane	ND	0.13	1.0		ug/L	1	2/14/2017 12:33 PM
1,1-Dichloroethene	ND	0.15	1.0		ug/L	1	2/14/2017 12:33 PM
1,1-Dichloropropene	ND	0.12	1.0		ug/L	1	2/14/2017 12:33 PM
1,2,3-Trichlorobenzene	ND	0.16	1.0		ug/L	1	2/14/2017 12:33 PM
1,2,3-Trichloropropane	ND	0.097	1.0		ug/L	1	2/14/2017 12:33 PM
1,2,4-Trichlorobenzene	ND	0.13	1.0		ug/L	1	2/14/2017 12:33 PM
1,2,4-Trimethylbenzene	ND	0.094	1.0		ug/L	1	2/14/2017 12:33 PM
1,2-Dibromo-3-chloropropane	ND	0.36	2.0		ug/L	1	2/14/2017 12:33 PM
1,2-Dibromoethane	ND	0.18	1.0		ug/L	1	2/14/2017 12:33 PM
1,2-Dichlorobenzene	ND	0.14	1.0		ug/L	1	2/14/2017 12:33 PM
1,2-Dichloroethane	ND	0.13	0.50		ug/L	1	2/14/2017 12:33 PM
1,2-Dichloropropane	ND	0.14	1.0		ug/L	1	2/14/2017 12:33 PM
1,3,5-Trimethylbenzene	ND	0.11	1.0		ug/L	1	2/14/2017 12:33 PM
1,3-Dichlorobenzene	ND	0.11	1.0		ug/L	1	2/14/2017 12:33 PM
1,3-Dichloropropane	ND	0.13	1.0		ug/L	1	2/14/2017 12:33 PM
1,4-Dichlorobenzene	ND	0.13	0.50		ug/L	1	2/14/2017 12:33 PM
2,2-Dichloropropane	ND	0.16	1.0		ug/L	1	2/14/2017 12:33 PM
2-Butanone	ND	1.9	10		ug/L	1	2/14/2017 12:33 PM
2-Chlorotoluene	ND	0.14	1.0		ug/L	1	2/14/2017 12:33 PM
2-Hexanone	ND	1.7	5.0		ug/L	1	2/14/2017 12:33 PM
4-Chlorotoluene	ND	0.14	1.0		ug/L	1	2/14/2017 12:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-007

Client Sample ID: AOC-TB-02-07-17
Collection Date: 2/7/2017 2:00:00 PM
Matrix: WATER

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **NV00922-MS5_170214A** QC Batch: **P17VW021** PrepDate Analyst: **RB**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
4-Isopropyltoluene	ND	0.13	1.0		ug/L	1	2/14/2017 12:33 PM
4-Methyl-2-pentanone	ND	1.4	10		ug/L	1	2/14/2017 12:33 PM
Acetone	ND	4.3	10		ug/L	1	2/14/2017 12:33 PM
Acrolein	ND	1.9	20		ug/L	1	2/14/2017 12:33 PM
Acrylonitrile	ND	2.5	20		ug/L	1	2/14/2017 12:33 PM
Benzene	ND	0.14	0.50		ug/L	1	2/14/2017 12:33 PM
Bromobenzene	ND	0.13	1.0		ug/L	1	2/14/2017 12:33 PM
Bromochloromethane	ND	0.15	1.0		ug/L	1	2/14/2017 12:33 PM
Bromodichloromethane	ND	0.10	0.50		ug/L	1	2/14/2017 12:33 PM
Bromoform	ND	0.34	1.0		ug/L	1	2/14/2017 12:33 PM
Bromomethane	ND	0.12	1.0		ug/L	1	2/14/2017 12:33 PM
Carbon disulfide	ND	0.14	1.0		ug/L	1	2/14/2017 12:33 PM
Carbon tetrachloride	ND	0.13	0.50		ug/L	1	2/14/2017 12:33 PM
Chlorobenzene	ND	0.13	0.50		ug/L	1	2/14/2017 12:33 PM
Chloroethane	ND	0.19	1.0		ug/L	1	2/14/2017 12:33 PM
Chloroform	ND	0.18	1.0		ug/L	1	2/14/2017 12:33 PM
Chloromethane	ND	0.22	1.0		ug/L	1	2/14/2017 12:33 PM
cis-1,2-Dichloroethene	ND	0.20	1.0		ug/L	1	2/14/2017 12:33 PM
cis-1,3-Dichloropropene	ND	0.14	0.50		ug/L	1	2/14/2017 12:33 PM
Dibromochloromethane	ND	0.12	0.50		ug/L	1	2/14/2017 12:33 PM
Dibromomethane	ND	0.12	1.0		ug/L	1	2/14/2017 12:33 PM
Dichlorodifluoromethane	ND	0.17	1.0		ug/L	1	2/14/2017 12:33 PM
Ethylbenzene	ND	0.14	1.0		ug/L	1	2/14/2017 12:33 PM
Freon-113	ND	0.19	1.0		ug/L	1	2/14/2017 12:33 PM
Hexachlorobutadiene	ND	0.15	0.50		ug/L	1	2/14/2017 12:33 PM
Isopropylbenzene	ND	0.11	1.0		ug/L	1	2/14/2017 12:33 PM
m,p-Xylene	ND	0.23	1.0		ug/L	1	2/14/2017 12:33 PM
Methylene chloride	ND	0.26	1.0		ug/L	1	2/14/2017 12:33 PM
MTBE	ND	0.13	1.0		ug/L	1	2/14/2017 12:33 PM
n-Butylbenzene	ND	0.15	1.0		ug/L	1	2/14/2017 12:33 PM
n-Propylbenzene	ND	0.16	1.0		ug/L	1	2/14/2017 12:33 PM
Naphthalene	ND	0.094	1.0		ug/L	1	2/14/2017 12:33 PM
o-Xylene	ND	0.13	1.0		ug/L	1	2/14/2017 12:33 PM
sec-Butylbenzene	ND	0.12	1.0		ug/L	1	2/14/2017 12:33 PM
Styrene	ND	0.14	1.0		ug/L	1	2/14/2017 12:33 PM
tert-Butylbenzene	ND	0.11	1.0		ug/L	1	2/14/2017 12:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-007

Client Sample ID: AOC-TB-02-07-17
Collection Date: 2/7/2017 2:00:00 PM
Matrix: WATER

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **NV00922-MS5_170214A** QC Batch: **P17VW021** PrepDate Analyst: **RB**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Tetrachloroethene	ND	0.13	1.0		ug/L	1	2/14/2017 12:33 PM
Toluene	ND	0.14	0.50		ug/L	1	2/14/2017 12:33 PM
trans-1,2-Dichloroethene	ND	0.20	1.0		ug/L	1	2/14/2017 12:33 PM
trans-1,3-Dichloropropene	ND	0.13	1.0		ug/L	1	2/14/2017 12:33 PM
Trichloroethene	ND	0.14	1.0		ug/L	1	2/14/2017 12:33 PM
Trichlorofluoromethane	ND	0.13	1.0		ug/L	1	2/14/2017 12:33 PM
Vinyl chloride	ND	0.15	0.50		ug/L	1	2/14/2017 12:33 PM
Xylenes, Total	ND	1.5	2.0		ug/L	1	2/14/2017 12:33 PM
Surr: 1,2-Dichloroethane-d4	92.0	0	72-119		%REC	1	2/14/2017 12:33 PM
Surr: 4-Bromofluorobenzene	98.0	0	76-119		%REC	1	2/14/2017 12:33 PM
Surr: Dibromofluoromethane	98.1	0	85-115		%REC	1	2/14/2017 12:33 PM
Surr: Toluene-d8	102	0	81-120		%REC	1	2/14/2017 12:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LLADDPGE

Sample ID **R170217LCS** SampType: **LCS** TestCode: **8260_WP_LL** Units: **ug/L** Prep Date: RunNo: **113624**
Client ID: **LCSW** Batch ID: **R17VW024** TestNo: **EPA 8260B** Analysis Date: **2/17/2017** SeqNo: **2572645**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyclohexane	17.870	0.50	20.00	0	89.4	70	130				
Methyl Acetate	15.650	0.50	20.00	0	78.2	70	130				
Methylcyclohexane	19.300	0.50	20.00	0	96.5	70	130				
Surr: 1,2-Dichloroethane-d4	24.030		25.00		96.1	72	119				
Surr: 4-Bromofluorobenzene	25.240		25.00		101	76	119				
Surr: Toluene-d8	24.690		25.00		98.8	81	120				
Surr: Dibromofluoromethane	24.750		25.00		99.0	85	115				

Sample ID **R170217MB3** SampType: **MBLK** TestCode: **8260_WP_LL** Units: **ug/L** Prep Date: RunNo: **113624**
Client ID: **PBW** Batch ID: **R17VW024** TestNo: **EPA 8260B** Analysis Date: **2/17/2017** SeqNo: **2572649**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyclohexane	ND	0.50									
Methyl Acetate	ND	0.50									
Methylcyclohexane	ND	0.50									
Surr: 1,2-Dichloroethane-d4	23.500		25.00		94.0	72	119				
Surr: 4-Bromofluorobenzene	23.410		25.00		93.6	76	119				
Surr: Toluene-d8	23.740		25.00		95.0	81	120				
Surr: Dibromofluoromethane	28.530		25.00		114	85	115				

Sample ID **N023011-011AMS** SampType: **MS** TestCode: **8260_WP_LL** Units: **ug/L** Prep Date: RunNo: **113624**
Client ID: **ZZZZZZ** Batch ID: **R17VW024** TestNo: **EPA 8260B** Analysis Date: **2/17/2017** SeqNo: **2572653**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyclohexane	23.730	0.50	20.00	0	119	70	130				
Methyl Acetate	12.380	0.50	20.00	0	61.9	70	130				S
Methylcyclohexane	20.660	0.50	20.00	0	103	70	130				
Surr: 1,2-Dichloroethane-d4	22.990		25.00		92.0	72	119				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LLADDPGE

Sample ID **N023011-011AMS** SampType: **MS** TestCode: **8260_WP_LL** Units: **ug/L** Prep Date: RunNo: **113624**
Client ID: **ZZZZZZ** Batch ID: **R17VW024** TestNo: **EPA 8260B** Analysis Date: **2/17/2017** SeqNo: **2572653**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	25.750		25.00		103	76	119				
Surr: Toluene-d8	25.110		25.00		100	81	120				
Surr: Dibromofluoromethane	24.300		25.00		97.2	85	115				

Sample ID **N023011-011AMSD** SampType: **MSD** TestCode: **8260_WP_LL** Units: **ug/L** Prep Date: RunNo: **113624**
Client ID: **ZZZZZZ** Batch ID: **R17VW024** TestNo: **EPA 8260B** Analysis Date: **2/17/2017** SeqNo: **2572654**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyclohexane	19.460	0.50	20.00	0	97.3	70	130	23.73	19.8	20	
Methyl Acetate	11.620	0.50	20.00	0	58.1	70	130	12.38	6.33	20	S
Methylcyclohexane	21.840	0.50	20.00	0	109	70	130	20.66	5.55	20	
Surr: 1,2-Dichloroethane-d4	22.470		25.00		89.9	72	119		0		
Surr: 4-Bromofluorobenzene	25.370		25.00		101	76	119		0		
Surr: Toluene-d8	24.520		25.00		98.1	81	120		0		
Surr: Dibromofluoromethane	23.660		25.00		94.6	85	115		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LLPGE

Sample ID **P170214LCS** SampType: **LCS** TestCode: **8260_WP_LL** Units: **ug/L** Prep Date: RunNo: **113498**
Client ID: **LCSW** Batch ID: **P17VW021** TestNo: **EPA 8260B** Analysis Date: **2/14/2017** SeqNo: **2566014**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	19.670	0.50	20.00	0	98.4	81	129				
1,1,1-Trichloroethane	18.570	1.0	20.00	0	92.8	67	132				
1,1,2,2-Tetrachloroethane	17.960	0.50	20.00	0	89.8	63	128				
1,1,2-Trichloroethane	17.810	1.0	20.00	0	89.0	75	125				
1,1-Dichloroethane	17.310	1.0	20.00	0	86.6	69	133				
1,1-Dichloroethene	17.190	1.0	20.00	0	86.0	68	130				
1,1-Dichloropropene	19.880	1.0	20.00	0	99.4	73	132				
1,2,3-Trichlorobenzene	16.490	1.0	20.00	0	82.5	67	137				
1,2,3-Trichloropropane	17.100	1.0	20.00	0	85.5	73	124				
1,2,4-Trichlorobenzene	16.690	1.0	20.00	0	83.4	66	134				
1,2,4-Trimethylbenzene	20.510	1.0	20.00	0	103	74	132				
1,2-Dibromo-3-chloropropane	18.620	2.0	20.00	0	93.1	50	132				
1,2-Dibromoethane	19.300	1.0	20.00	0	96.5	80	121				
1,2-Dichlorobenzene	19.600	1.0	20.00	0	98.0	71	122				
1,2-Dichloroethane	18.030	0.50	20.00	0	90.2	69	132				
1,2-Dichloropropane	18.450	1.0	20.00	0	92.2	75	125				
1,3,5-Trimethylbenzene	20.140	1.0	20.00	0	101	74	131				
1,3-Dichlorobenzene	19.560	1.0	20.00	0	97.8	75	124				
1,3-Dichloropropane	19.610	1.0	20.00	0	98.0	73	126				
1,4-Dichlorobenzene	19.150	0.50	20.00	0	95.8	74	123				
2,2-Dichloropropane	19.370	1.0	20.00	0	96.9	69	137				
2-Butanone	131.180	10	200.0	0	65.6	49	136				
2-Chlorotoluene	18.320	1.0	20.00	0	91.6	73	126				
2-Hexanone	151.140	5.0	200.0	0	75.6	70	130				
4-Chlorotoluene	18.910	1.0	20.00	0	94.6	74	128				
4-Isopropyltoluene	21.450	1.0	20.00	0	107	73	130				
4-Methyl-2-pentanone	159.960	10	200.0	0	80.0	58	134				
Acetone	151.620	10	200.0	0	75.8	40	135				
Acrolein	187.750	20	200.0	0	93.9	75	125				
Acrylonitrile	173.470	20	200.0	0	86.7	75	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LLPGE

Sample ID **P170214LCS**	SampType: **LCS**	TestCode: **8260_WP_LL**	Units: **ug/L**	Prep Date:	RunNo: **113498**
Client ID: **LCSW**	Batch ID: **P17VW021**	TestNo: **EPA 8260B**		Analysis Date: **2/14/2017**	SeqNo: **2566014**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	18.790	0.50	20.00	0	94.0	81	122				
Bromobenzene	17.990	1.0	20.00	0	90.0	76	124				
Bromochloromethane	17.800	1.0	20.00	0	89.0	65	129				
Bromodichloromethane	19.250	0.50	20.00	0	96.2	76	121				
Bromoform	17.690	1.0	20.00	0	88.4	69	128				
Bromomethane	15.820	1.0	20.00	0	79.1	53	141				
Carbon disulfide	14.500	1.0	20.00	0	72.5	75	125				S
Carbon tetrachloride	19.820	0.50	20.00	0	99.1	66	138				
Chlorobenzene	19.680	0.50	20.00	0	98.4	81	122				
Chloroethane	18.410	1.0	20.00	0	92.0	58	133				
Chloroform	17.870	1.0	20.00	0	89.4	69	128				
Chloromethane	15.970	1.0	20.00	0	79.8	56	131				
cis-1,2-Dichloroethene	17.690	1.0	20.00	0	88.4	72	126				
cis-1,3-Dichloropropene	20.160	0.50	20.00	0	101	69	131				
Dibromochloromethane	20.810	0.50	20.00	0	104	66	133				
Dibromomethane	17.740	1.0	20.00	0	88.7	76	125				
Dichlorodifluoromethane	21.950	1.0	20.00	0	110	53	153				
Ethylbenzene	19.310	1.0	20.00	0	96.6	73	127				
Freon-113	15.020	1.0	20.00	0	75.1	75	125				
Hexachlorobutadiene	20.820	0.50	20.00	0	104	67	131				
Isopropylbenzene	16.340	1.0	20.00	0	81.7	75	127				
m,p-Xylene	39.140	1.0	40.00	0	97.9	76	128				
Methylene chloride	16.650	1.0	20.00	0	83.3	63	137				
MTBE	16.310	1.0	20.00	0	81.6	65	123				
n-Butylbenzene	17.060	1.0	20.00	0	85.3	69	137				
n-Propylbenzene	20.260	1.0	20.00	0	101	72	129				
Naphthalene	17.410	1.0	20.00	0	87.1	54	138				
o-Xylene	20.100	1.0	20.00	0	101	80	121				
sec-Butylbenzene	20.970	1.0	20.00	0	105	72	127				
Styrene	19.870	1.0	20.00	0	99.4	65	134				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LLPGE

Sample ID **P170214LCS** SampType: **LCS** TestCode: **8260_WP_LL** Units: **ug/L** Prep Date: RunNo: **113498**
Client ID: **LCSW** Batch ID: **P17VW021** TestNo: **EPA 8260B** Analysis Date: **2/14/2017** SeqNo: **2566014**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
tert-Butylbenzene	20.570	1.0	20.00	0	103	70	129				
Tetrachloroethene	19.670	1.0	20.00	0	98.4	66	128				
Toluene	18.040	0.50	20.00	0	90.2	77	122				
trans-1,2-Dichloroethene	17.940	1.0	20.00	0	89.7	63	137				
trans-1,3-Dichloropropene	19.310	1.0	20.00	0	96.6	59	135				
Trichloroethene	19.530	1.0	20.00	0	97.6	70	127				
Trichlorofluoromethane	19.500	1.0	20.00	0	97.5	57	129				
Vinyl chloride	17.900	0.50	20.00	0	89.5	50	134				
Xylenes, Total	59.240	2.0	60.00	0	98.7	75	125				
Surr: 1,2-Dichloroethane-d4	22.620		25.00		90.5	72	119				
Surr: 4-Bromofluorobenzene	24.860		25.00		99.4	76	119				
Surr: Dibromofluoromethane	23.400		25.00		93.6	85	115				
Surr: Toluene-d8	24.850		25.00		99.4	81	120				

Sample ID **P170214MB3** SampType: **MBLK** TestCode: **8260_WP_LL** Units: **ug/L** Prep Date: RunNo: **113498**
Client ID: **PBW** Batch ID: **P17VW021** TestNo: **EPA 8260B** Analysis Date: **2/14/2017** SeqNo: **2566015**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	0.50									
1,1,1-Trichloroethane	ND	1.0									
1,1,2,2-Tetrachloroethane	ND	0.50									
1,1,2-Trichloroethane	ND	1.0									
1,1-Dichloroethane	ND	1.0									
1,1-Dichloroethene	ND	1.0									
1,1-Dichloropropene	ND	1.0									
1,2,3-Trichlorobenzene	ND	1.0									
1,2,3-Trichloropropane	ND	1.0									
1,2,4-Trichlorobenzene	ND	1.0									
1,2,4-Trimethylbenzene	ND	1.0									
1,2-Dibromo-3-chloropropane	ND	2.0									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LLPGE

Sample ID **P170214MB3** SampType: **MBLK** TestCode: **8260_WP_LL** Units: **ug/L** Prep Date: RunNo: **113498**
Client ID: **PBW** Batch ID: **P17VW021** TestNo: **EPA 8260B** Analysis Date: **2/14/2017** SeqNo: **2566015**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	1.0									
1,2-Dichlorobenzene	ND	1.0									
1,2-Dichloroethane	ND	0.50									
1,2-Dichloropropane	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									
1,3-Dichlorobenzene	ND	1.0									
1,3-Dichloropropane	ND	1.0									
1,4-Dichlorobenzene	ND	0.50									
2,2-Dichloropropane	ND	1.0									
2-Butanone	ND	10									
2-Chlorotoluene	ND	1.0									
2-Hexanone	ND	5.0									
4-Chlorotoluene	ND	1.0									
4-Isopropyltoluene	ND	1.0									
4-Methyl-2-pentanone	ND	10									
Acetone	ND	10									
Acrolein	ND	20									
Acrylonitrile	ND	20									
Benzene	ND	0.50									
Bromobenzene	ND	1.0									
Bromochloromethane	ND	1.0									
Bromodichloromethane	ND	0.50									
Bromoform	ND	1.0									
Bromomethane	ND	1.0									
Carbon disulfide	ND	1.0									
Carbon tetrachloride	ND	0.50									
Chlorobenzene	ND	0.50									
Chloroethane	ND	1.0									
Chloroform	ND	1.0									
Chloromethane	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LLPGE

Sample ID **P170214MB3** SampType: **MBLK** TestCode: **8260_WP_LL** Units: **ug/L** Prep Date: RunNo: **113498**
Client ID: **PBW** Batch ID: **P17VW021** TestNo: **EPA 8260B** Analysis Date: **2/14/2017** SeqNo: **2566015**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
cis-1,2-Dichloroethene	ND	1.0									
cis-1,3-Dichloropropene	ND	0.50									
Dibromochloromethane	ND	0.50									
Dibromomethane	ND	1.0									
Dichlorodifluoromethane	ND	1.0									
Ethylbenzene	ND	1.0									
Freon-113	ND	1.0									
Hexachlorobutadiene	ND	0.50									
Isopropylbenzene	ND	1.0									
m,p-Xylene	ND	1.0									
Methylene chloride	0.710	1.0									
MTBE	ND	1.0									
n-Butylbenzene	ND	1.0									
n-Propylbenzene	ND	1.0									
Naphthalene	ND	1.0									
o-Xylene	ND	1.0									
sec-Butylbenzene	ND	1.0									
Styrene	ND	1.0									
tert-Butylbenzene	ND	1.0									
Tetrachloroethene	ND	1.0									
Toluene	ND	0.50									
trans-1,2-Dichloroethene	ND	1.0									
trans-1,3-Dichloropropene	ND	1.0									
Trichloroethene	ND	1.0									
Trichlorofluoromethane	ND	1.0									
Vinyl chloride	ND	0.50									
Xylenes, Total	ND	2.0									
Surr: 1,2-Dichloroethane-d4	24.290		25.00		97.2	72	119				
Surr: 4-Bromofluorobenzene	25.140		25.00		101	76	119				
Surr: Dibromofluoromethane	25.310		25.00		101	85	115				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LLPGE

Sample ID **P170214MB3**	SampType: **MBLK**	TestCode: **8260_WP_LL**	Units: **ug/L**	Prep Date:	RunNo: **113498**
Client ID: **PBW**	Batch ID: **P17VW021**	TestNo: **EPA 8260B**		Analysis Date: **2/14/2017**	SeqNo: **2566015**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Toluene-d8	25.850		25.00		103	81	120				

Sample ID **N023072-002AMS**	SampType: **MS**	TestCode: **8260_WP_LL**	Units: **ug/L**	Prep Date:	RunNo: **113498**
Client ID: **ZZZZZZ**	Batch ID: **P17VW021**	TestNo: **EPA 8260B**		Analysis Date: **2/14/2017**	SeqNo: **2566023**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	18.630	0.50	20.00	0	93.2	81	129				
1,1,1-Trichloroethane	18.350	1.0	20.00	0	91.8	67	132				
1,1,2,2-Tetrachloroethane	16.890	0.50	20.00	0	84.4	63	128				
1,1,2-Trichloroethane	17.440	1.0	20.00	0	87.2	75	125				
1,1-Dichloroethane	17.170	1.0	20.00	0	85.9	69	133				
1,1-Dichloroethene	17.590	1.0	20.00	0	88.0	68	130				
1,1-Dichloropropene	19.540	1.0	20.00	0	97.7	73	132				
1,2,3-Trichlorobenzene	17.000	1.0	20.00	0	85.0	67	137				
1,2,3-Trichloropropane	15.950	1.0	20.00	0	79.8	73	124				
1,2,4-Trichlorobenzene	16.240	1.0	20.00	0	81.2	66	134				
1,2,4-Trimethylbenzene	19.890	1.0	20.00	0	99.4	74	132				
1,2-Dibromo-3-chloropropane	18.130	2.0	20.00	0	90.7	50	132				
1,2-Dibromoethane	18.490	1.0	20.00	0	92.5	80	121				
1,2-Dichlorobenzene	19.040	1.0	20.00	0	95.2	71	122				
1,2-Dichloroethane	17.370	0.50	20.00	0	86.9	69	132				
1,2-Dichloropropane	17.500	1.0	20.00	0	87.5	75	125				
1,3,5-Trimethylbenzene	19.390	1.0	20.00	0	97.0	74	131				
1,3-Dichlorobenzene	18.390	1.0	20.00	0	92.0	75	124				
1,3-Dichloropropane	19.130	1.0	20.00	0	95.7	73	126				
1,4-Dichlorobenzene	18.660	0.50	20.00	0	93.3	74	123				
2,2-Dichloropropane	18.610	1.0	20.00	0	93.0	69	137				
2-Butanone	125.790	10	200.0	0	62.9	49	136				
2-Chlorotoluene	17.720	1.0	20.00	0	88.6	73	126				
2-Hexanone	135.220	5.0	200.0	0	67.6	70	130				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LLPGE

Sample ID	N023072-002AMS	SampType:	MS	TestCode:	8260_WP_LL	Units:	ug/L	Prep Date:		RunNo:	113498
Client ID:	ZZZZZZ	Batch ID:	P17VW021	TestNo:	EPA 8260B			Analysis Date:	2/14/2017	SeqNo:	2566023

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Chlorotoluene	18.260	1.0	20.00	0	91.3	74	128				
4-Isopropyltoluene	21.100	1.0	20.00	0	106	73	130				
4-Methyl-2-pentanone	150.120	10	200.0	0	75.1	58	134				
Acetone	164.290	10	200.0	14.76	74.8	40	135				
Acrolein	195.850	20	200.0	0	97.9	75	125				
Acrylonitrile	186.780	20	200.0	0	93.4	75	125				
Benzene	18.300	0.50	20.00	0	91.5	81	122				
Bromobenzene	17.270	1.0	20.00	0	86.4	76	124				
Bromochloromethane	18.310	1.0	20.00	0.7700	87.7	65	129				
Bromodichloromethane	33.990	0.50	20.00	15.61	91.9	76	121				
Bromoform	48.080	1.0	20.00	29.85	91.2	69	128				
Bromomethane	15.940	1.0	20.00	0	79.7	53	141				
Carbon disulfide	14.860	1.0	20.00	0	74.3	75	125				S
Carbon tetrachloride	19.660	0.50	20.00	0	98.3	66	138				
Chlorobenzene	19.040	0.50	20.00	0	95.2	81	122				
Chloroethane	19.210	1.0	20.00	0	96.0	58	133				
Chloroform	22.680	1.0	20.00	5.120	87.8	69	128				
Chloromethane	17.950	1.0	20.00	0	89.8	56	131				
cis-1,2-Dichloroethene	17.690	1.0	20.00	0	88.4	72	126				
cis-1,3-Dichloropropene	18.420	0.50	20.00	0	92.1	69	131				
Dibromochloromethane	61.170	0.50	20.00	38.52	113	66	133				
Dibromomethane	17.380	1.0	20.00	0	86.9	76	125				
Dichlorodifluoromethane	22.720	1.0	20.00	0	114	53	153				
Ethylbenzene	18.950	1.0	20.00	0	94.8	73	127				
Freon-113	14.990	1.0	20.00	0	75.0	75	125				S
Hexachlorobutadiene	20.860	0.50	20.00	0	104	67	131				
Isopropylbenzene	15.500	1.0	20.00	0	77.5	75	127				
m,p-Xylene	37.610	1.0	40.00	0	94.0	76	128				
Methylene chloride	84.460	1.0	20.00	69.00	77.3	63	137				
MTBE	16.010	1.0	20.00	0	80.1	65	123				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LLPGE

Sample ID **N023072-002AMS** SampType: **MS** TestCode: **8260_WP_LL** Units: **ug/L** Prep Date: RunNo: **113498**
Client ID: **ZZZZZZ** Batch ID: **P17VW021** TestNo: **EPA 8260B** Analysis Date: **2/14/2017** SeqNo: **2566023**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
n-Butylbenzene	16.280	1.0	20.00	0	81.4	69	137				
n-Propylbenzene	18.980	1.0	20.00	0	94.9	72	129				
Naphthalene	16.950	1.0	20.00	0	84.8	54	138				
o-Xylene	19.630	1.0	20.00	0	98.2	80	121				
sec-Butylbenzene	19.810	1.0	20.00	0	99.0	72	127				
Styrene	18.550	1.0	20.00	0	92.8	65	134				
tert-Butylbenzene	19.500	1.0	20.00	0	97.5	70	129				
Tetrachloroethene	19.420	1.0	20.00	0	97.1	66	128				
Toluene	17.590	0.50	20.00	0	88.0	77	122				
trans-1,2-Dichloroethene	17.820	1.0	20.00	0	89.1	63	137				
trans-1,3-Dichloropropene	18.160	1.0	20.00	0	90.8	59	135				
Trichloroethene	19.000	1.0	20.00	0	95.0	70	127				
Trichlorofluoromethane	20.170	1.0	20.00	0	101	57	129				
Vinyl chloride	17.800	0.50	20.00	0	89.0	50	134				
Xylenes, Total	57.240	2.0	60.00	0	95.4	75	125				
Surr: 1,2-Dichloroethane-d4	23.480		25.00		93.9	72	119				
Surr: 4-Bromofluorobenzene	25.850		25.00		103	76	119				
Surr: Dibromofluoromethane	24.990		25.00		100	85	115				
Surr: Toluene-d8	25.710		25.00		103	81	120				

Sample ID **N023072-002AMSD** SampType: **MSD** TestCode: **8260_WP_LL** Units: **ug/L** Prep Date: RunNo: **113498**
Client ID: **ZZZZZZ** Batch ID: **P17VW021** TestNo: **EPA 8260B** Analysis Date: **2/14/2017** SeqNo: **2566024**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	20.910	0.50	20.00	0	105	81	129	18.63	11.5	20	
1,1,1-Trichloroethane	20.760	1.0	20.00	0	104	67	132	18.35	12.3	20	
1,1,2,2-Tetrachloroethane	18.060	0.50	20.00	0	90.3	63	128	16.89	6.70	20	
1,1,2-Trichloroethane	19.400	1.0	20.00	0	97.0	75	125	17.44	10.6	20	
1,1-Dichloroethane	19.620	1.0	20.00	0	98.1	69	133	17.17	13.3	20	
1,1-Dichloroethene	19.950	1.0	20.00	0	99.8	68	130	17.59	12.6	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LLPGE

Sample ID **N023072-002AMSD** SampType: **MSD** TestCode: **8260_WP_LL** Units: **ug/L** Prep Date: RunNo: **113498**
Client ID: **ZZZZZZ** Batch ID: **P17VW021** TestNo: **EPA 8260B** Analysis Date: **2/14/2017** SeqNo: **2566024**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloropropene	21.170	1.0	20.00	0	106	73	132	19.54	8.01	20	
1,2,3-Trichlorobenzene	17.670	1.0	20.00	0	88.4	67	137	17.00	3.87	20	
1,2,3-Trichloropropane	17.420	1.0	20.00	0	87.1	73	124	15.95	8.81	20	
1,2,4-Trichlorobenzene	17.420	1.0	20.00	0	87.1	66	134	16.24	7.01	20	
1,2,4-Trimethylbenzene	21.260	1.0	20.00	0	106	74	132	19.89	6.66	20	
1,2-Dibromo-3-chloropropane	19.540	2.0	20.00	0	97.7	50	132	18.13	7.49	20	
1,2-Dibromoethane	20.570	1.0	20.00	0	103	80	121	18.49	10.7	20	
1,2-Dichlorobenzene	20.600	1.0	20.00	0	103	71	122	19.04	7.87	20	
1,2-Dichloroethane	19.390	0.50	20.00	0	97.0	69	132	17.37	11.0	20	
1,2-Dichloropropane	19.670	1.0	20.00	0	98.4	75	125	17.50	11.7	20	
1,3,5-Trimethylbenzene	20.930	1.0	20.00	0	105	74	131	19.39	7.64	20	
1,3-Dichlorobenzene	20.210	1.0	20.00	0	101	75	124	18.39	9.43	20	
1,3-Dichloropropane	20.500	1.0	20.00	0	103	73	126	19.13	6.91	20	
1,4-Dichlorobenzene	20.290	0.50	20.00	0	101	74	123	18.66	8.37	20	
2,2-Dichloropropane	19.980	1.0	20.00	0	99.9	69	137	18.61	7.10	20	
2-Butanone	142.640	10	200.0	0	71.3	49	136	125.8	12.6	20	
2-Chlorotoluene	18.890	1.0	20.00	0	94.4	73	126	17.72	6.39	20	
2-Hexanone	158.750	5.0	200.0	0	79.4	70	130	135.2	16.0	20	
4-Chlorotoluene	19.700	1.0	20.00	0	98.5	74	128	18.26	7.59	20	
4-Isopropyltoluene	22.690	1.0	20.00	0	113	73	130	21.10	7.26	20	
4-Methyl-2-pentanone	167.030	10	200.0	0	83.5	58	134	150.1	10.7	20	
Acetone	189.080	10	200.0	14.76	87.2	40	135	164.3	14.0	20	
Acrolein	205.770	20	200.0	0	103	75	125	195.8	4.94	20	
Acrylonitrile	192.860	20	200.0	0	96.4	75	125	186.8	3.20	20	
Benzene	19.980	0.50	20.00	0	99.9	81	122	18.30	8.78	20	
Bromobenzene	18.740	1.0	20.00	0	93.7	76	124	17.27	8.16	20	
Bromochloromethane	21.050	1.0	20.00	0.7700	101	65	129	18.31	13.9	20	
Bromodichloromethane	35.880	0.50	20.00	15.61	101	76	121	33.99	5.41	20	
Bromoform	49.480	1.0	20.00	29.85	98.2	69	128	48.08	2.87	20	
Bromomethane	17.690	1.0	20.00	0	88.4	53	141	15.94	10.4	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LLPGE

Sample ID **N023072-002AMSD** SampType: **MSD** TestCode: **8260_WP_LL** Units: **ug/L** Prep Date: RunNo: **113498**
Client ID: **ZZZZZZ** Batch ID: **P17VW021** TestNo: **EPA 8260B** Analysis Date: **2/14/2017** SeqNo: **2566024**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon disulfide	17.020	1.0	20.00	0	85.1	75	125	14.86	13.6	20	
Carbon tetrachloride	22.200	0.50	20.00	0	111	66	138	19.66	12.1	20	
Chlorobenzene	20.790	0.50	20.00	0	104	81	122	19.04	8.79	20	
Chloroethane	22.220	1.0	20.00	0	111	58	133	19.21	14.5	20	
Chloroform	24.780	1.0	20.00	5.120	98.3	69	128	22.68	8.85	20	
Chloromethane	19.180	1.0	20.00	0	95.9	56	131	17.95	6.63	20	
cis-1,2-Dichloroethene	20.230	1.0	20.00	0	101	72	126	17.69	13.4	20	
cis-1,3-Dichloropropene	21.140	0.50	20.00	0	106	69	131	18.42	13.8	20	
Dibromochloromethane	62.270	0.50	20.00	38.52	119	66	133	61.17	1.78	20	
Dibromomethane	19.140	1.0	20.00	0	95.7	76	125	17.38	9.64	20	
Dichlorodifluoromethane	25.100	1.0	20.00	0	126	53	153	22.72	9.95	20	
Ethylbenzene	20.340	1.0	20.00	0	102	73	127	18.95	7.08	20	
Freon-113	17.430	1.0	20.00	0	87.2	75	125	14.99	15.1	20	
Hexachlorobutadiene	22.370	0.50	20.00	0	112	67	131	20.86	6.99	20	
Isopropylbenzene	16.630	1.0	20.00	0	83.2	75	127	15.50	7.03	20	
m,p-Xylene	40.910	1.0	40.00	0	102	76	128	37.61	8.41	20	
Methylene chloride	86.890	1.0	20.00	69.00	89.4	63	137	84.46	2.84	20	
MTBE	18.030	1.0	20.00	0	90.2	65	123	16.01	11.9	20	
n-Butylbenzene	17.860	1.0	20.00	0	89.3	69	137	16.28	9.26	20	
n-Propylbenzene	20.580	1.0	20.00	0	103	72	129	18.98	8.09	20	
Naphthalene	18.970	1.0	20.00	0	94.8	54	138	16.95	11.2	20	
o-Xylene	21.000	1.0	20.00	0	105	80	121	19.63	6.74	20	
sec-Butylbenzene	21.490	1.0	20.00	0	107	72	127	19.81	8.14	20	
Styrene	20.020	1.0	20.00	0	100	65	134	18.55	7.62	20	
tert-Butylbenzene	21.200	1.0	20.00	0	106	70	129	19.50	8.35	20	
Tetrachloroethene	21.200	1.0	20.00	0	106	66	128	19.42	8.76	20	
Toluene	19.220	0.50	20.00	0	96.1	77	122	17.59	8.86	20	
trans-1,2-Dichloroethene	19.950	1.0	20.00	0	99.8	63	137	17.82	11.3	20	
trans-1,3-Dichloropropene	20.510	1.0	20.00	0	103	59	135	18.16	12.2	20	
Trichloroethene	21.020	1.0	20.00	0	105	70	127	19.00	10.1	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LLPGE

Sample ID **N023072-002AMSD** SampType: **MSD** TestCode: **8260_WP_LL** Units: **ug/L** Prep Date: RunNo: **113498**
Client ID: **ZZZZZZ** Batch ID: **P17VW021** TestNo: **EPA 8260B** Analysis Date: **2/14/2017** SeqNo: **2566024**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichlorofluoromethane	23.290	1.0	20.00	0	116	57	129	20.17	14.4	20	
Vinyl chloride	19.340	0.50	20.00	0	96.7	50	134	17.80	8.29	20	
Xylenes, Total	61.910	2.0	60.00	0	103	75	125	57.24	7.84	20	
Surr: 1,2-Dichloroethane-d4	24.900		25.00		99.6	72	119		0		
Surr: 4-Bromofluorobenzene	25.520		25.00		102	76	119		0		
Surr: Dibromofluoromethane	26.350		25.00		105	85	115		0		
Surr: Toluene-d8	25.750		25.00		103	81	120		0		

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-002

Client Sample ID: AOC4-tar
Collection Date: 2/6/2017 1:00:00 PM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS
EPA 3550B **EPA 8270C**

RunID: **NV00922-MS3_170213B** QC Batch: **61238** PrepDate **2/13/2017** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,2,4-Trichlorobenzene	ND	430	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
1,2,4-Trichlorobenzene	ND	870000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
1,2,4-Trichlorobenzene	ND	4300	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
1,2,4-Trichlorobenzene	ND	87000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
1,2-Dichlorobenzene	ND	840000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
1,2-Dichlorobenzene	ND	420	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
1,2-Dichlorobenzene	ND	4200	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
1,2-Dichlorobenzene	ND	84000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
1,3-Dichlorobenzene	ND	5000	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
1,3-Dichlorobenzene	ND	100000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
1,3-Dichlorobenzene	ND	1000000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
1,3-Dichlorobenzene	ND	500	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
1,4-Dichlorobenzene	ND	850000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
1,4-Dichlorobenzene	ND	85000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
1,4-Dichlorobenzene	ND	420	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
1,4-Dichlorobenzene	ND	4200	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
2,4,5-Trichlorophenol	ND	83000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
2,4,5-Trichlorophenol	ND	830000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
2,4,5-Trichlorophenol	ND	420	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
2,4,5-Trichlorophenol	ND	4200	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
2,4,6-Trichlorophenol	ND	800000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
2,4,6-Trichlorophenol	ND	400	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
2,4,6-Trichlorophenol	ND	80000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
2,4,6-Trichlorophenol	ND	4000	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
2,4-Dichlorophenol	ND	410	17000		ug/Kg-dry	10	2/14/2017 03:22 AM
2,4-Dichlorophenol	ND	820000	34000000		ug/Kg-dry	20000	2/14/2017 05:13 PM
2,4-Dichlorophenol	ND	82000	3400000		ug/Kg-dry	2000	2/14/2017 05:40 PM
2,4-Dichlorophenol	ND	4100	170000		ug/Kg-dry	100	2/14/2017 02:56 AM
2,4-Dimethylphenol	ND	9200	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
2,4-Dimethylphenol	ND	1800000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
2,4-Dimethylphenol	ND	180000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
2,4-Dimethylphenol	ND	920	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
2,4-Dinitrophenol	ND	540000	34000000		ug/Kg-dry	20000	2/14/2017 05:13 PM
2,4-Dinitrophenol	ND	2700	170000		ug/Kg-dry	100	2/14/2017 02:56 AM
2,4-Dinitrophenol	ND	54000	3400000		ug/Kg-dry	2000	2/14/2017 05:40 PM
2,4-Dinitrophenol	ND	270	17000		ug/Kg-dry	10	2/14/2017 03:22 AM

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
E Value above quantitation range
ND Not Detected at the Reporting Limit
Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-002

Client Sample ID: AOC4-tar
Collection Date: 2/6/2017 1:00:00 PM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **NV00922-MS3_170213B** QC Batch: **61238** PrepDate **2/13/2017** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
2,4-Dinitrotoluene	ND	900000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
2,4-Dinitrotoluene	ND	450	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
2,4-Dinitrotoluene	ND	4500	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
2,4-Dinitrotoluene	ND	90000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
2,6-Dinitrotoluene	ND	4400	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
2,6-Dinitrotoluene	ND	880000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
2,6-Dinitrotoluene	ND	88000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
2,6-Dinitrotoluene	ND	440	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
2-Chloronaphthalene	ND	4600	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
2-Chloronaphthalene	ND	91000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
2-Chloronaphthalene	ND	460	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
2-Chloronaphthalene	ND	910000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
2-Chlorophenol	ND	870000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
2-Chlorophenol	ND	87000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
2-Chlorophenol	ND	440	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
2-Chlorophenol	ND	4400	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
2-Methylnaphthalene	ND	340000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
2-Methylnaphthalene	ND	1700	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
2-Methylnaphthalene	ND	17000	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
2-Methylnaphthalene	ND	3400000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
2-Methylphenol	ND	4900	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
2-Methylphenol	ND	980000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
2-Methylphenol	ND	98000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
2-Methylphenol	ND	490	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
2-Nitroaniline	ND	1100000	34000000		ug/Kg-dry	20000	2/14/2017 05:13 PM
2-Nitroaniline	ND	110000	3400000		ug/Kg-dry	2000	2/14/2017 05:40 PM
2-Nitroaniline	ND	5400	170000		ug/Kg-dry	100	2/14/2017 02:56 AM
2-Nitroaniline	ND	540	17000		ug/Kg-dry	10	2/14/2017 03:22 AM
2-Nitrophenol	ND	460	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
2-Nitrophenol	ND	92000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
2-Nitrophenol	ND	920000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
2-Nitrophenol	ND	4600	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
3,3´-Dichlorobenzidine	ND	50000	1300000		ug/Kg-dry	2000	2/14/2017 05:40 PM
3,3´-Dichlorobenzidine	ND	250	6700	A6L	ug/Kg-dry	10	2/14/2017 03:22 AM
3,3´-Dichlorobenzidine	ND	500000	13000000		ug/Kg-dry	20000	2/14/2017 05:13 PM
3,3´-Dichlorobenzidine	ND	2500	67000	A6L	ug/Kg-dry	100	2/14/2017 02:56 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-002

Client Sample ID: AOC4-tar
Collection Date: 2/6/2017 1:00:00 PM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **NV00922-MS3_170213B** QC Batch: **61238** PrepDate **2/13/2017** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
3-Nitroaniline	ND	990000	34000000		ug/Kg-dry	20000	2/14/2017 05:13 PM
3-Nitroaniline	ND	99000	3400000		ug/Kg-dry	2000	2/14/2017 05:40 PM
3-Nitroaniline	ND	4900	170000		ug/Kg-dry	100	2/14/2017 02:56 AM
3-Nitroaniline	ND	490	17000		ug/Kg-dry	10	2/14/2017 03:22 AM
4,6-Dinitro-2-methylphenol	ND	1100000	34000000		ug/Kg-dry	20000	2/14/2017 05:13 PM
4,6-Dinitro-2-methylphenol	ND	5300	170000	A6L	ug/Kg-dry	100	2/14/2017 02:56 AM
4,6-Dinitro-2-methylphenol	ND	110000	3400000		ug/Kg-dry	2000	2/14/2017 05:40 PM
4,6-Dinitro-2-methylphenol	ND	530	17000	A6L	ug/Kg-dry	10	2/14/2017 03:22 AM
4-Bromophenyl-phenylether	ND	91000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
4-Bromophenyl-phenylether	ND	910000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
4-Bromophenyl-phenylether	ND	4600	34000	A6L	ug/Kg-dry	100	2/14/2017 02:56 AM
4-Bromophenyl-phenylether	ND	460	3400	A6L	ug/Kg-dry	10	2/14/2017 03:22 AM
4-Chloro-3-methylphenol	ND	830000	13000000		ug/Kg-dry	20000	2/14/2017 05:13 PM
4-Chloro-3-methylphenol	ND	4100	67000		ug/Kg-dry	100	2/14/2017 02:56 AM
4-Chloro-3-methylphenol	ND	83000	1300000		ug/Kg-dry	2000	2/14/2017 05:40 PM
4-Chloro-3-methylphenol	ND	410	6700		ug/Kg-dry	10	2/14/2017 03:22 AM
4-Chloroaniline	ND	450	6700		ug/Kg-dry	10	2/14/2017 03:22 AM
4-Chloroaniline	ND	890000	13000000		ug/Kg-dry	20000	2/14/2017 05:13 PM
4-Chloroaniline	ND	4500	67000		ug/Kg-dry	100	2/14/2017 02:56 AM
4-Chloroaniline	ND	89000	1300000		ug/Kg-dry	2000	2/14/2017 05:40 PM
4-Chlorophenyl-phenylether	ND	460	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
4-Chlorophenyl-phenylether	ND	920000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
4-Chlorophenyl-phenylether	ND	4600	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
4-Chlorophenyl-phenylether	ND	92000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
4-Methylphenol	ND	74000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
4-Methylphenol	ND	370	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
4-Methylphenol	ND	740000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
4-Methylphenol	ND	3700	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
4-Nitroaniline	ND	940000	34000000		ug/Kg-dry	20000	2/14/2017 05:13 PM
4-Nitroaniline	ND	4700	170000		ug/Kg-dry	100	2/14/2017 02:56 AM
4-Nitroaniline	ND	470	17000		ug/Kg-dry	10	2/14/2017 03:22 AM
4-Nitroaniline	ND	94000	3400000		ug/Kg-dry	2000	2/14/2017 05:40 PM
4-Nitrophenol	ND	360	17000		ug/Kg-dry	10	2/14/2017 03:22 AM
4-Nitrophenol	ND	72000	3400000		ug/Kg-dry	2000	2/14/2017 05:40 PM
4-Nitrophenol	ND	3600	170000		ug/Kg-dry	100	2/14/2017 02:56 AM
4-Nitrophenol	ND	720000	34000000		ug/Kg-dry	20000	2/14/2017 05:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-002

Client Sample ID: AOC4-tar
Collection Date: 2/6/2017 1:00:00 PM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **NV00922-MS3_170213B** QC Batch: **61238** PrepDate **2/13/2017** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Acenaphthene	ND	830000	6700000	DO	ug/Kg-dry	20000	2/14/2017 05:13 PM
Acenaphthene	43000	410	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
Acenaphthene	58000	4100	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
Acenaphthene	ND	83000	670000	DO	ug/Kg-dry	2000	2/14/2017 05:40 PM
Acenaphthylene	4800	380	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
Acenaphthylene	ND	76000	670000	DO	ug/Kg-dry	2000	2/14/2017 05:40 PM
Acenaphthylene	ND	3800	34000	DO	ug/Kg-dry	100	2/14/2017 02:56 AM
Acenaphthylene	ND	760000	6700000	DO	ug/Kg-dry	20000	2/14/2017 05:13 PM
Anthracene	2700000	130000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Anthracene	1700000	660	3400	EA6L	ug/Kg-dry	10	2/14/2017 03:22 AM
Anthracene	1300000	6600	34000	EA6L	ug/Kg-dry	100	2/14/2017 02:56 AM
Anthracene	ND	1300000	6700000	DO	ug/Kg-dry	20000	2/14/2017 05:13 PM
Benzo(a)anthracene	7400000	1500000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Benzo(a)anthracene	3300000	770	3400	EA6L	ug/Kg-dry	10	2/14/2017 03:22 AM
Benzo(a)anthracene	8800000	7700	34000	EA6L	ug/Kg-dry	100	2/14/2017 02:56 AM
Benzo(a)anthracene	6900000	150000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Benzo(a)pyrene	ND	1300000	6700000	DO	ug/Kg-dry	20000	2/14/2017 05:13 PM
Benzo(a)pyrene	3000000	130000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Benzo(a)pyrene	600000	650	3400	EA6L	ug/Kg-dry	10	2/14/2017 03:22 AM
Benzo(a)pyrene	2400000	6500	34000	EA6L	ug/Kg-dry	100	2/14/2017 02:56 AM
Benzo(b)fluoranthene	ND	830000	6700000	DO	ug/Kg-dry	20000	2/14/2017 05:13 PM
Benzo(b)fluoranthene	1100000	410	3400	EA6L	ug/Kg-dry	10	2/14/2017 03:22 AM
Benzo(b)fluoranthene	6700000	83000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Benzo(b)fluoranthene	7100000	4100	34000	EA6L	ug/Kg-dry	100	2/14/2017 02:56 AM
Benzo(g,h,i)perylene	ND	97000	670000	DO	ug/Kg-dry	2000	2/14/2017 05:40 PM
Benzo(g,h,i)perylene	ND	970000	6700000	DO	ug/Kg-dry	20000	2/14/2017 05:13 PM
Benzo(g,h,i)perylene	480000	490	3400	EA6L	ug/Kg-dry	10	2/14/2017 03:22 AM
Benzo(g,h,i)perylene	470000	4900	34000	A6L	ug/Kg-dry	100	2/14/2017 02:56 AM
Benzo(k)fluoranthene	2900000	120000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Benzo(k)fluoranthene	1100000	5800	34000	EA6L	ug/Kg-dry	100	2/14/2017 02:56 AM
Benzo(k)fluoranthene	ND	1200000	6700000	DO	ug/Kg-dry	20000	2/14/2017 05:13 PM
Benzo(k)fluoranthene	410000	580	3400	EA6L	ug/Kg-dry	10	2/14/2017 03:22 AM
Benzoic acid	ND	12000	170000		ug/Kg-dry	100	2/14/2017 02:56 AM
Benzoic acid	ND	230000	3400000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Benzoic acid	ND	1200	17000		ug/Kg-dry	10	2/14/2017 03:22 AM
Benzoic acid	ND	2300000	34000000		ug/Kg-dry	20000	2/14/2017 05:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-002

Client Sample ID: AOC4-tar
Collection Date: 2/6/2017 1:00:00 PM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS
EPA 3550B **EPA 8270C**

RunID: **NV00922-MS3_170213B** QC Batch: **61238** PrepDate **2/13/2017** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Benzyl alcohol	ND	1400000	13000000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Benzyl alcohol	ND	690	6700		ug/Kg-dry	10	2/14/2017 03:22 AM
Benzyl alcohol	ND	140000	1300000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Benzyl alcohol	ND	6900	67000		ug/Kg-dry	100	2/14/2017 02:56 AM
Bis(2-chloroethoxy)methane	ND	130000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Bis(2-chloroethoxy)methane	ND	1300000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Bis(2-chloroethoxy)methane	ND	650	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
Bis(2-chloroethoxy)methane	ND	6500	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
Bis(2-chloroethyl)ether	ND	6300	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
Bis(2-chloroethyl)ether	ND	130000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Bis(2-chloroethyl)ether	ND	1300000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Bis(2-chloroethyl)ether	ND	630	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
Bis(2-chloroisopropyl)ether	ND	580	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
Bis(2-chloroisopropyl)ether	ND	5800	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
Bis(2-chloroisopropyl)ether	ND	1200000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Bis(2-chloroisopropyl)ether	ND	120000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Bis(2-ethylhexyl)phthalate	ND	8200	34000	A6L	ug/Kg-dry	100	2/14/2017 02:56 AM
Bis(2-ethylhexyl)phthalate	ND	160000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Bis(2-ethylhexyl)phthalate	ND	820	3400	A6L	ug/Kg-dry	10	2/14/2017 03:22 AM
Bis(2-ethylhexyl)phthalate	ND	1600000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Butylbenzylphthalate	ND	6900	34000	A6L	ug/Kg-dry	100	2/14/2017 02:56 AM
Butylbenzylphthalate	ND	1400000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Butylbenzylphthalate	ND	140000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Butylbenzylphthalate	ND	690	3400	A6L	ug/Kg-dry	10	2/14/2017 03:22 AM
Chrysene	3100000	8100	34000	EA6L	ug/Kg-dry	100	2/14/2017 02:56 AM
Chrysene	6800000	1600000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Chrysene	6900000	160000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Chrysene	2900000	810	3400	EA6L	ug/Kg-dry	10	2/14/2017 03:22 AM
Di-n-butylphthalate	ND	4200	34000	A6L	ug/Kg-dry	100	2/14/2017 02:56 AM
Di-n-butylphthalate	ND	830000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Di-n-butylphthalate	ND	420	3400	A6L	ug/Kg-dry	10	2/14/2017 03:22 AM
Di-n-butylphthalate	ND	83000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Di-n-octylphthalate	ND	1000000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Di-n-octylphthalate	ND	100000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Di-n-octylphthalate	ND	520	3400	A6L	ug/Kg-dry	10	2/14/2017 03:22 AM
Di-n-octylphthalate	ND	5200	34000	A6L	ug/Kg-dry	100	2/14/2017 02:56 AM

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
E Value above quantitation range
ND Not Detected at the Reporting Limit
Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-002

Client Sample ID: AOC4-tar
Collection Date: 2/6/2017 1:00:00 PM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **NV00922-MS3_170213B** QC Batch: **61238** PrepDate **2/13/2017** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Dibenz(a,h)anthracene	210000	9500	34000	A6L	ug/Kg-dry	100	2/14/2017 02:56 AM
Dibenz(a,h)anthracene	ND	190000	670000	DO	ug/Kg-dry	2000	2/14/2017 05:40 PM
Dibenz(a,h)anthracene	180000	950	3400	EA6L	ug/Kg-dry	10	2/14/2017 03:22 AM
Dibenz(a,h)anthracene	ND	1900000	6700000	DO	ug/Kg-dry	20000	2/14/2017 05:13 PM
Dibenzofuran	ND	810000	6700000	DO	ug/Kg-dry	20000	2/14/2017 05:13 PM
Dibenzofuran	ND	81000	670000	DO	ug/Kg-dry	2000	2/14/2017 05:40 PM
Dibenzofuran	87000	400	3400	E	ug/Kg-dry	10	2/14/2017 03:22 AM
Dibenzofuran	130000	4000	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
Diethylphthalate	ND	4500	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
Diethylphthalate	ND	90000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Diethylphthalate	ND	900000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Diethylphthalate	ND	450	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
Dimethylphthalate	ND	87000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Dimethylphthalate	ND	870000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Dimethylphthalate	ND	4400	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
Dimethylphthalate	ND	440	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
Fluoranthene	11000000	6300	34000	EA6L	ug/Kg-dry	100	2/14/2017 02:56 AM
Fluoranthene	27000000	1300000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Fluoranthene	17000000	630	3400	EA6L	ug/Kg-dry	10	2/14/2017 03:22 AM
Fluoranthene	17000000	130000	670000	E	ug/Kg-dry	2000	2/14/2017 05:40 PM
Fluorene	ND	92000	670000	DO	ug/Kg-dry	2000	2/14/2017 05:40 PM
Fluorene	ND	920000	6700000	DO	ug/Kg-dry	20000	2/14/2017 05:13 PM
Fluorene	34000	460	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
Fluorene	53000	4600	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
Hexachlorobenzene	ND	960000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Hexachlorobenzene	ND	480	3400	A6L	ug/Kg-dry	10	2/14/2017 03:22 AM
Hexachlorobenzene	ND	4800	34000	A6L	ug/Kg-dry	100	2/14/2017 02:56 AM
Hexachlorobenzene	ND	96000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Hexachlorobutadiene	ND	120000	1300000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Hexachlorobutadiene	ND	620	6700		ug/Kg-dry	10	2/14/2017 03:22 AM
Hexachlorobutadiene	ND	1200000	13000000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Hexachlorobutadiene	ND	6200	67000		ug/Kg-dry	100	2/14/2017 02:56 AM
Hexachloroethane	ND	860000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Hexachloroethane	ND	430	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
Hexachloroethane	ND	4300	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
Hexachloroethane	ND	86000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-002

Client Sample ID: AOC4-tar
Collection Date: 2/6/2017 1:00:00 PM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **NV00922-MS3_170213B** QC Batch: **61238** PrepDate **2/13/2017** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Indeno(1,2,3-cd)pyrene	570000	4000	34000	A6L	ug/Kg-dry	100	2/14/2017 02:56 AM
Indeno(1,2,3-cd)pyrene	ND	80000	670000	DO	ug/Kg-dry	2000	2/14/2017 05:40 PM
Indeno(1,2,3-cd)pyrene	ND	800000	6700000	DO	ug/Kg-dry	20000	2/14/2017 05:13 PM
Indeno(1,2,3-cd)pyrene	420000	400	3400	EA6L	ug/Kg-dry	10	2/14/2017 03:22 AM
Isophorone	ND	120000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Isophorone	ND	6000	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
Isophorone	ND	1200000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Isophorone	ND	600	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
N-Nitrosodi-n-propylamine	ND	4700	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
N-Nitrosodi-n-propylamine	ND	470	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
N-Nitrosodi-n-propylamine	ND	94000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
N-Nitrosodi-n-propylamine	ND	940000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
N-Nitrosodiphenylamine	ND	4900	34000	A6L	ug/Kg-dry	100	2/14/2017 02:56 AM
N-Nitrosodiphenylamine	ND	98000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
N-Nitrosodiphenylamine	ND	980000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
N-Nitrosodiphenylamine	ND	490	3400	A6L	ug/Kg-dry	10	2/14/2017 03:22 AM
Naphthalene	ND	990000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Naphthalene	ND	490	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
Naphthalene	ND	99000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Naphthalene	ND	4900	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
Nitrobenzene	ND	5800	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
Nitrobenzene	ND	1200000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Nitrobenzene	ND	580	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
Nitrobenzene	ND	120000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Pentachlorophenol	ND	70000	3400000		ug/Kg-dry	2000	2/14/2017 05:40 PM
Pentachlorophenol	ND	3500	170000	A6L	ug/Kg-dry	100	2/14/2017 02:56 AM
Pentachlorophenol	ND	350	17000	A6L	ug/Kg-dry	10	2/14/2017 03:22 AM
Pentachlorophenol	ND	700000	34000000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Phenanthrene	21000000	1700000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Phenanthrene	14000000	170000	670000	E	ug/Kg-dry	2000	2/14/2017 05:40 PM
Phenanthrene	36000000	850	3400	EA6L	ug/Kg-dry	10	2/14/2017 03:22 AM
Phenanthrene	11000000	8500	34000	EA6L	ug/Kg-dry	100	2/14/2017 02:56 AM
Phenol	ND	390	3400		ug/Kg-dry	10	2/14/2017 03:22 AM
Phenol	ND	3900	34000		ug/Kg-dry	100	2/14/2017 02:56 AM
Phenol	ND	770000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Phenol	ND	77000	670000		ug/Kg-dry	2000	2/14/2017 05:40 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-002

Client Sample ID: AOC4-tar
Collection Date: 2/6/2017 1:00:00 PM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3550B **EPA 8270C**

RunID: **NV00922-MS3_170213B** QC Batch: **61238** PrepDate **2/13/2017** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Pyrene	10000000	480	3400	EA6L	ug/Kg-dry	10	2/14/2017 03:22 AM
Pyrene	14000000	96000	670000	E	ug/Kg-dry	2000	2/14/2017 05:40 PM
Pyrene	7000000	4800	34000	EA6L	ug/Kg-dry	100	2/14/2017 02:56 AM
Pyrene	20000000	960000	6700000		ug/Kg-dry	20000	2/14/2017 05:13 PM
Surr: 1,2-Dichlorobenzene-d4	0	0	25-110	SDO	%REC	2000	2/14/2017 05:40 PM
Surr: 1,2-Dichlorobenzene-d4	0	0	25-110	SDO	%REC	20000	2/14/2017 05:13 PM
Surr: 1,2-Dichlorobenzene-d4	81.1	0	25-110		%REC	100	2/14/2017 02:56 AM
Surr: 1,2-Dichlorobenzene-d4	76.5	0	25-110		%REC	10	2/14/2017 03:22 AM
Surr: 2,4,6-Tribromophenol	14.5	0	36-126	S	%REC	10	2/14/2017 03:22 AM
Surr: 2,4,6-Tribromophenol	0	0	36-126	SDO	%REC	20000	2/14/2017 05:13 PM
Surr: 2,4,6-Tribromophenol	46.0	0	36-126		%REC	100	2/14/2017 02:56 AM
Surr: 2,4,6-Tribromophenol	0	0	36-126	SDO	%REC	2000	2/14/2017 05:40 PM
Surr: 2-Chlorophenol-d4	75.7	0	30-100		%REC	10	2/14/2017 03:22 AM
Surr: 2-Chlorophenol-d4	0	0	30-100	SDO	%REC	20000	2/14/2017 05:13 PM
Surr: 2-Chlorophenol-d4	0	0	30-100	SDO	%REC	2000	2/14/2017 05:40 PM
Surr: 2-Chlorophenol-d4	66.1	0	30-100		%REC	100	2/14/2017 02:56 AM
Surr: 2-Fluorobiphenyl	93.8	0	43-125		%REC	10	2/14/2017 03:22 AM
Surr: 2-Fluorobiphenyl	94.1	0	43-125		%REC	100	2/14/2017 02:56 AM
Surr: 2-Fluorobiphenyl	0	0	43-125	SDO	%REC	20000	2/14/2017 05:13 PM
Surr: 2-Fluorobiphenyl	20.0	0	43-125	SDO	%REC	2000	2/14/2017 05:40 PM
Surr: 2-Fluorophenol	54.1	0	37-125		%REC	100	2/14/2017 02:56 AM
Surr: 2-Fluorophenol	0	0	37-125	SDO	%REC	2000	2/14/2017 05:40 PM
Surr: 2-Fluorophenol	0	0	37-125	SDO	%REC	20000	2/14/2017 05:13 PM
Surr: 2-Fluorophenol	76.7	0	37-125		%REC	10	2/14/2017 03:22 AM
Surr: 4-Terphenyl-d14	380	0	32-125	SDO	%REC	2000	2/14/2017 05:40 PM
Surr: 4-Terphenyl-d14	31.0	0	32-125	SA6L	%REC	100	2/14/2017 02:56 AM
Surr: 4-Terphenyl-d14	567	0	32-125	SA6L	%REC	10	2/14/2017 03:22 AM
Surr: 4-Terphenyl-d14	0	0	32-125	SDO	%REC	20000	2/14/2017 05:13 PM
Surr: Nitrobenzene-d5	0	0	37-125	SDO	%REC	2000	2/14/2017 05:40 PM
Surr: Nitrobenzene-d5	0	0	37-125	SDO	%REC	20000	2/14/2017 05:13 PM
Surr: Nitrobenzene-d5	79.3	0	37-125		%REC	10	2/14/2017 03:22 AM
Surr: Nitrobenzene-d5	65.1	0	37-125		%REC	100	2/14/2017 02:56 AM
Surr: Phenol-d5	0	0	40-125	SDO	%REC	20000	2/14/2017 05:13 PM
Surr: Phenol-d5	0	0	40-125	SDO	%REC	2000	2/14/2017 05:40 PM
Surr: Phenol-d5	61.0	0	40-125		%REC	10	2/14/2017 03:22 AM
Surr: Phenol-d5	0	0	40-125	SDO	%REC	100	2/14/2017 02:56 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **LCS-61238** SampType: **LCS** TestCode: **8270_S_PGE** Units: **ug/Kg** Prep Date: **2/13/2017** RunNo: **113487**
Client ID: **LCSS** Batch ID: **61238** TestNo: **EPA 8270C** **EPA 3550B** Analysis Date: **2/13/2017** SeqNo: **2565124**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	2034.000	330	3330	0	61.1	44	125				
1,2-Dichlorobenzene	2172.667	330	3330	0	65.2	45	125				
1,3-Dichlorobenzene	2038.333	330	3330	0	61.2	39	125				
1,4-Dichlorobenzene	2107.333	330	3330	0	63.3	35	125				
2,4,5-Trichlorophenol	3074.000	330	3330	0	92.3	49	125				
2,4,6-Trichlorophenol	2696.333	330	3330	0	81.0	43	125				
2,4-Dichlorophenol	2548.667	1600	3330	0	76.5	45	125				
2,4-Dimethylphenol	2756.667	330	3330	0	82.8	32	125				
2,4-Dinitrophenol	2629.667	1600	3330	0	79.0	25	132				
2,4-Dinitrotoluene	2570.667	330	3330	0	77.2	48	125				
2,6-Dinitrotoluene	2494.333	330	3330	0	74.9	48	125				
2-Chloronaphthalene	2312.000	330	3330	0	69.4	45	125				
2-Chlorophenol	2774.667	330	3330	0	83.3	44	125				
2-Methylnaphthalene	2292.000	330	3330	0	68.8	47	125				
2-Methylphenol	3051.333	330	3330	0	91.6	40	125				
2-Nitroaniline	3584.667	1600	3330	0	108	44	125				
2-Nitrophenol	2502.667	330	3330	0	75.2	42	125				
3,3´-Dichlorobenzidine	2939.000	660	6660	0	44.1	25	128				
3-Nitroaniline	3083.333	1600	3330	0	92.6	27	125				
4,6-Dinitro-2-methylphenol	2978.667	1600	3330	0	89.4	29	137				
4-Bromophenyl-phenylether	2725.667	330	3330	0	81.9	46	125				
4-Chloro-3-methylphenol	2927.333	660	3330	0	87.9	46	125				
4-Chloroaniline	2212.667	660	3330	0	66.4	10	125				
4-Chlorophenyl-phenylether	2756.667	330	3330	0	82.8	47	125				
4-Methylphenol	2712.333	330	3330	0	81.5	41	125				
4-Nitroaniline	3421.667	1600	3330	0	103	34	125				
4-Nitrophenol	3157.333	1600	3330	0	94.8	25	138				
Acenaphthene	2757.667	330	3330	0	82.8	46	125				
Acenaphthylene	2727.667	330	3330	0	81.9	44	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID	LCS-61238	SampType:	LCS	TestCode:	8270_S_PGE	Units:	ug/Kg	Prep Date:	2/13/2017	RunNo:	113487
Client ID:	LCSS	Batch ID:	61238	TestNo:	EPA 8270C	EPA 3550B		Analysis Date:	2/13/2017	SeqNo:	2565124

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Anthracene	2932.667	330	3330	0	88.1	53	125				
Benzo(a)anthracene	3109.000	330	3330	0	93.4	52	125				
Benzo(a)pyrene	2967.000	330	3330	0	89.1	50	125				
Benzo(b)fluoranthene	3087.000	330	3330	0	92.7	45	125				
Benzo(g,h,i)perylene	2836.667	330	3330	0	85.2	38	126				
Benzo(k)fluoranthene	2858.667	330	3330	0	85.8	45	125				
Benzoic acid	2507.000	1600	3330	0	75.3	25	125				
Benzyl alcohol	2592.333	660	3330	0	77.8	25	125				
Bis(2-chloroethoxy)methane	2915.333	330	3330	0	87.5	43	125				
Bis(2-chloroethyl)ether	2873.667	330	3330	0	86.3	38	125				
Bis(2-chloroisopropyl)ether	2534.000	330	3330	0	76.1	25	125				
Bis(2-ethylhexyl)phthalate	3120.000	330	3330	0	93.7	47	127				
Butylbenzylphthalate	3330.333	330	3330	0	100	49	125				
Chrysene	3030.333	330	3330	0	91.0	53	125				
Di-n-butylphthalate	3090.667	330	3330	0	92.8	56	125				
Di-n-octylphthalate	3373.333	330	3330	0	101	41	132				
Dibenz(a,h)anthracene	3022.667	330	3330	0	90.8	41	125				
Dibenzofuran	2363.667	330	3330	0	71.0	51	125				
Diethylphthalate	3111.333	330	3330	0	93.4	50	125				
Dimethylphthalate	3223.333	330	3330	0	96.8	49	125				
Fluoranthene	2603.333	330	3330	0	78.2	54	125				
Fluorene	2967.333	330	3330	0	89.1	49	125				
Hexachlorobenzene	2388.000	330	3330	0	71.7	47	125				
Hexachlorobutadiene	2280.667	660	3330	0	68.5	40	125				
Hexachloroethane	2267.667	330	3330	0	68.1	34	125				
Indeno(1,2,3-cd)pyrene	2968.667	330	3330	0	89.1	38	125				
Isophorone	3144.000	330	3330	0	94.4	43	125				
N-Nitrosodi-n-propylamine	3098.667	330	3330	0	93.1	40	125				
N-Nitrosodiphenylamine	3197.333	330	3330	0	96.0	49	125				
Naphthalene	2665.667	330	3330	0	80.1	40	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **LCS-61238** SampType: **LCS** TestCode: **8270_S_PGE** Units: **ug/Kg** Prep Date: **2/13/2017** RunNo: **113487**
Client ID: **LCSS** Batch ID: **61238** TestNo: **EPA 8270C** **EPA 3550B** Analysis Date: **2/13/2017** SeqNo: **2565124**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrobenzene	2542.333	330	3330	0	76.3	41	125				
Pentachlorophenol	3164.667	1600	3330	0	95.0	25	125				
Phenanthrene	2891.000	330	3330	0	86.8	50	125				
Phenol	2993.000	330	3330	0	89.9	39	125				
Pyrene	2800.333	330	3330	0	84.1	46	125				
Surr: 1,2-Dichlorobenzene-d4	2513.667		3330		75.5	25	110				
Surr: 2,4,6-Tribromophenol	3089.333		3330		92.8	36	126				
Surr: 2-Chlorophenol-d4	2695.333		3330		80.9	30	100				
Surr: 2-Fluorobiphenyl	2616.333		3330		78.6	43	125				
Surr: 2-Fluorophenol	3011.000		3330		90.4	37	125				
Surr: 4-Terphenyl-d14	2952.000		3330		88.6	32	125				
Surr: Nitrobenzene-d5	2845.333		3330		85.4	37	125				
Surr: Phenol-d5	2948.000		3330		88.5	40	125				

Sample ID **MB-61238** SampType: **MBLK** TestCode: **8270_S_PGE** Units: **ug/Kg** Prep Date: **2/13/2017** RunNo: **113487**
Client ID: **PBS** Batch ID: **61238** TestNo: **EPA 8270C** **EPA 3550B** Analysis Date: **2/13/2017** SeqNo: **2565125**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	330									
1,2-Dichlorobenzene	ND	330									
1,3-Dichlorobenzene	ND	330									
1,4-Dichlorobenzene	ND	330									
2,4,5-Trichlorophenol	ND	330									
2,4,6-Trichlorophenol	ND	330									
2,4-Dichlorophenol	ND	1600									
2,4-Dimethylphenol	ND	330									
2,4-Dinitrophenol	ND	1600									
2,4-Dinitrotoluene	ND	330									
2,6-Dinitrotoluene	ND	330									
2-Chloronaphthalene	ND	330									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID	MB-61238	SampType:	MBLK	TestCode:	8270_S_PGE	Units:	ug/Kg	Prep Date:	2/13/2017	RunNo:	113487
Client ID:	PBS	Batch ID:	61238	TestNo:	EPA 8270C	EPA 3550B		Analysis Date:	2/13/2017	SeqNo:	2565125

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Chlorophenol	ND	330									
2-Methylnaphthalene	ND	330									
2-Methylphenol	ND	330									
2-Nitroaniline	ND	1600									
2-Nitrophenol	ND	330									
3,3´-Dichlorobenzidine	ND	660									
3-Nitroaniline	ND	1600									
4,6-Dinitro-2-methylphenol	ND	1600									
4-Bromophenyl-phenylether	ND	330									
4-Chloro-3-methylphenol	ND	660									
4-Chloroaniline	ND	660									
4-Chlorophenyl-phenylether	ND	330									
4-Methylphenol	ND	330									
4-Nitroaniline	ND	1600									
4-Nitrophenol	ND	1600									
Acenaphthene	ND	330									
Acenaphthylene	ND	330									
Anthracene	ND	330									
Benzo(a)anthracene	ND	330									
Benzo(a)pyrene	ND	330									
Benzo(b)fluoranthene	ND	330									
Benzo(g,h,i)perylene	ND	330									
Benzo(k)fluoranthene	ND	330									
Benzoic acid	ND	1600									
Benzyl alcohol	ND	660									
Bis(2-chloroethoxy)methane	ND	330									
Bis(2-chloroethyl)ether	ND	330									
Bis(2-chloroisopropyl)ether	ND	330									
Bis(2-ethylhexyl)phthalate	ND	330									
Butylbenzylphthalate	ND	330									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **MB-61238**	SampType: **MBLK**	TestCode: **8270_S_PGE**	Units: **ug/Kg**	Prep Date: **2/13/2017**	RunNo: **113487**
Client ID: **PBS**	Batch ID: **61238**	TestNo: **EPA 8270C**	**EPA 3550B**	Analysis Date: **2/13/2017**	SeqNo: **2565125**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chrysene	ND	330									
Di-n-butylphthalate	ND	330									
Di-n-octylphthalate	ND	330									
Dibenz(a,h)anthracene	ND	330									
Dibenzofuran	ND	330									
Diethylphthalate	ND	330									
Dimethylphthalate	ND	330									
Fluoranthene	ND	330									
Fluorene	ND	330									
Hexachlorobenzene	ND	330									
Hexachlorobutadiene	ND	660									
Hexachloroethane	ND	330									
Indeno(1,2,3-cd)pyrene	ND	330									
Isophorone	ND	330									
N-Nitrosodi-n-propylamine	ND	330									
N-Nitrosodiphenylamine	ND	330									
Naphthalene	ND	330									
Nitrobenzene	ND	330									
Pentachlorophenol	ND	1600									
Phenanthrene	ND	330									
Phenol	ND	330									
Pyrene	ND	330									
Surr: 1,2-Dichlorobenzene-d4	2699.667		3330		81.1	25	110				
Surr: 2,4,6-Tribromophenol	2695.667		3330		81.0	36	126				
Surr: 2-Chlorophenol-d4	2834.000		3330		85.1	30	100				
Surr: 2-Fluorobiphenyl	2636.667		3330		79.2	43	125				
Surr: 2-Fluorophenol	3084.333		3330		92.6	37	125				
Surr: 4-Terphenyl-d14	2906.000		3330		87.3	32	125				
Surr: Nitrobenzene-d5	2997.667		3330		90.0	37	125				
Surr: Phenol-d5	3022.333		3330		90.8	40	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N023001-001E-MS** SampType: **MS** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **2/13/2017** RunNo: **113487**
Client ID: **ZZZZZZ** Batch ID: **61238** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **2/13/2017** SeqNo: **2565438**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	2570.595	3400	3466	0	74.2	44	125				
1,2-Dichlorobenzene	2445.708	3400	3466	0	70.6	45	125				
1,3-Dichlorobenzene	2206.341	3400	3466	0	63.7	39	125				
1,4-Dichlorobenzene	2272.253	3400	3466	0	65.6	35	125				
2,4,5-Trichlorophenol	3108.304	3400	3466	0	89.7	49	125				
2,4,6-Trichlorophenol	2955.664	3400	3466	0	85.3	43	125				
2,4-Dichlorophenol	2886.282	17000	3466	0	83.3	45	125				
2,4-Dimethylphenol	3729.271	3400	3466	0	108	32	125				
2,4-Dinitrophenol	ND	17000	3466	0	0	25	132				S
2,4-Dinitrotoluene	2702.420	3400	3466	0	78.0	48	125				
2,6-Dinitrotoluene	2778.740	3400	3466	0	80.2	48	125				
2-Chloronaphthalene	2962.602	3400	3466	0	85.5	45	125				
2-Chlorophenol	3156.871	3400	3466	0	91.1	44	125				
2-Methylnaphthalene	2903.627	3400	3466	0	83.8	47	125				
2-Methylphenol	4048.427	3400	3466	0	117	40	125				
2-Nitroaniline	3469.089	17000	3466	0	100	44	125				
2-Nitrophenol	2927.911	3400	3466	0	84.5	42	125				
3,3´-Dichlorobenzidine	2619.162	6900	6931	0	37.8	25	128				
3-Nitroaniline	3035.453	17000	3466	0	87.6	27	125				
4,6-Dinitro-2-methylphenol	1710.261	17000	3466	0	49.3	29	137				
4-Bromophenyl-phenylether	3444.805	3400	3466	0	99.4	46	125				
4-Chloro-3-methylphenol	2900.158	6900	3466	0	83.7	46	125				
4-Chloroaniline	2997.293	6900	3466	0	86.5	10	125				
4-Chlorophenyl-phenylether	3590.507	3400	3466	0	104	47	125				
4-Methylphenol	3562.754	3400	3466	0	103	41	125				
4-Nitroaniline	3101.366	17000	3466	0	89.5	34	125				
4-Nitrophenol	1727.606	17000	3466	0	49.8	25	138				
Acenaphthene	3885.380	3400	3466	0	112	46	125				
Acenaphthylene	3739.678	3400	3466	0	108	44	125				
Anthracene	3999.860	3400	3466	0	115	53	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N023001-001E-MS** SampType: **MS** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **2/13/2017** RunNo: **113487**
Client ID: **ZZZZZZ** Batch ID: **61238** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **2/13/2017** SeqNo: **2565438**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)anthracene	3815.998	3400	3466	0	110	52	125				
Benzo(a)pyrene	3139.525	3400	3466	0	90.6	50	125				
Benzo(b)fluoranthene	2962.602	3400	3466	0	85.5	45	125				
Benzo(g,h,i)perylene	2331.228	3400	3466	0	67.3	38	126				
Benzo(k)fluoranthene	3763.961	3400	3466	0	109	45	125				
Benzoic acid	10088.111	17000	3466	0	291	25	125				S
Benzyl alcohol	2702.420	6900	3466	0	78.0	25	125				
Bis(2-chloroethoxy)methane	3646.012	3400	3466	0	105	43	125				
Bis(2-chloroethyl)ether	3247.067	3400	3466	0	93.7	38	125				
Bis(2-chloroisopropyl)ether	3417.053	3400	3466	0	98.6	25	125				
Bis(2-ethylhexyl)phthalate	3777.838	3400	3466	0	109	47	127				
Butylbenzylphthalate	3687.642	3400	3466	0	106	49	125				
Chrysene	3510.718	3400	3466	0	101	53	125				
Di-n-butylphthalate	4294.732	3400	3466	0	124	56	125				
Di-n-octylphthalate	3954.761	3400	3466	0	114	41	132				
Dibenz(a,h)anthracene	2685.075	3400	3466	0	77.5	41	125				
Dibenzofuran	3427.460	3400	3466	0	98.9	51	125				
Diethylphthalate	3718.863	3400	3466	0	107	50	125				
Dimethylphthalate	4048.427	3400	3466	0	117	49	125				
Fluoranthene	3892.318	3400	3466	0	112	54	125				
Fluorene	3836.812	3400	3466	0	111	49	125				
Hexachlorobenzene	2959.133	3400	3466	0	85.4	47	125				
Hexachlorobutadiene	2785.678	6900	3466	0	80.4	40	125				
Hexachloroethane	2452.646	3400	3466	0	70.8	34	125				
Indeno(1,2,3-cd)pyrene	2671.198	3400	3466	0	77.1	38	125				
Isophorone	3753.554	3400	3466	0	108	43	125				
N-Nitrosodi-n-propylamine	3684.172	3400	3466	0	106	40	125				
N-Nitrosodiphenylamine	3985.983	3400	3466	0	115	49	125				
Naphthalene	3340.733	3400	3466	0	96.4	40	125				
Nitrobenzene	2903.627	3400	3466	0	83.8	41	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N023001-001E-MS** SampType: **MS** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **2/13/2017** RunNo: **113487**
Client ID: **ZZZZZZ** Batch ID: **61238** TestNo: **EPA 8270C** **EPA 3550B** Analysis Date: **2/13/2017** SeqNo: **2565438**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pentachlorophenol	12634.422	17000	3466	0	365	25	125				S
Phenanthrene	4194.129	3400	3466	0	121	50	125				
Phenol	2858.529	3400	3466	0	82.5	39	125				
Pyrene	3892.318	3400	3466	0	112	46	125				
Surr: 1,2-Dichlorobenzene-d4	2837.715		3466		81.9	25	110				
Surr: 2,4,6-Tribromophenol	3084.020		3466		89.0	36	126				
Surr: 2-Chlorophenol-d4	3094.427		3466		89.3	30	100				
Surr: 2-Fluorobiphenyl	3552.347		3466		103	43	125				
Surr: 2-Fluorophenol	3070.144		3466		88.6	37	125				
Surr: 4-Terphenyl-d14	3524.594		3466		102	32	125				
Surr: Nitrobenzene-d5	3285.227		3466		94.8	37	125				
Surr: Phenol-d5	3198.500		3466		92.3	40	125				

Sample ID **N023001-001E-MSD** SampType: **MSD** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **2/13/2017** RunNo: **113487**
Client ID: **ZZZZZZ** Batch ID: **61238** TestNo: **EPA 8270C** **EPA 3550B** Analysis Date: **2/13/2017** SeqNo: **2565439**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	1969.785	3400	3464	0	56.9	44	125	2571	0	30	
1,2-Dichlorobenzene	1938.574	3400	3464	0	56.0	45	125	2446	0	30	
1,3-Dichlorobenzene	1747.838	3400	3464	0	50.5	39	125	2206	0	30	
1,4-Dichlorobenzene	1775.581	3400	3464	0	51.3	35	125	2272	0	30	
2,4,5-Trichlorophenol	2205.605	3400	3464	0	63.7	49	125	3108	0	30	
2,4,6-Trichlorophenol	2035.676	3400	3464	0	58.8	43	125	2956	0	30	
2,4-Dichlorophenol	1921.234	17000	3464	0	55.5	45	125	2886	0	30	
2,4-Dimethylphenol	2729.263	3400	3464	0	78.8	32	125	3729	0	30	
2,4-Dinitrophenol	ND	17000	3464	0	0	25	132	0	0	30	S
2,4-Dinitrotoluene	1831.068	3400	3464	0	52.9	48	125	2702	0	30	
2,6-Dinitrotoluene	2042.612	3400	3464	0	59.0	48	125	2779	0	30	
2-Chloronaphthalene	2271.496	3400	3464	0	65.6	45	125	2963	0	30	
2-Chlorophenol	2476.104	3400	3464	0	71.5	44	125	3157	0	30	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N023001-001E-MSD** SampType: **MSD** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **2/13/2017** RunNo: **113487**
Client ID: **ZZZZZZ** Batch ID: **61238** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **2/13/2017** SeqNo: **2565439**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	2226.412	3400	3464	0	64.3	47	125	2904	0	30	
2-Methylphenol	3166.222	3400	3464	0	91.4	40	125	4048	0	30	
2-Nitroaniline	2451.828	17000	3464	0	70.8	44	125	3469	0	30	
2-Nitrophenol	2243.752	3400	3464	0	64.8	42	125	2928	0	30	
3,3´-Dichlorobenzidine	1886.555	6900	6929	0	27.2	25	128	2619	0	30	
3-Nitroaniline	2143.182	17000	3464	0	61.9	27	125	3035	0	30	
4,6-Dinitro-2-methylphenol	1002.232	17000	3464	0	28.9	29	137	1710	0	30	S
4-Bromophenyl-phenylether	2538.526	3400	3464	0	73.3	46	125	3445	0	30	
4-Chloro-3-methylphenol	2007.933	6900	3464	0	58.0	46	125	2900	0	30	
4-Chloroaniline	2295.771	6900	3464	0	66.3	10	125	2997	0	30	
4-Chlorophenyl-phenylether	2639.096	3400	3464	0	76.2	47	125	3591	0	30	
4-Methylphenol	2670.308	3400	3464	0	77.1	41	125	3563	0	30	
4-Nitroaniline	2091.163	17000	3464	0	60.4	34	125	3101	0	30	
4-Nitrophenol	1307.410	17000	3464	0	37.7	25	138	1728	0	30	
Acenaphthene	2906.127	3400	3464	0	83.9	46	125	3885	0	30	
Acenaphthylene	2798.621	3400	3464	0	80.8	44	125	3740	0	30	
Anthracene	2871.448	3400	3464	0	82.9	53	125	4000	0	30	
Benzo(a)anthracene	2725.795	3400	3464	0	78.7	52	125	3816	0	30	
Benzo(a)pyrene	2302.707	3400	3464	0	66.5	50	125	3140	0	30	
Benzo(b)fluoranthene	2094.631	3400	3464	0	60.5	45	125	2963	0	30	
Benzo(g,h,i)perylene	1543.230	3400	3464	0	44.5	38	126	2331	0	30	
Benzo(k)fluoranthene	2656.436	3400	3464	0	76.7	45	125	3764	0	30	
Benzoic acid	9807.312	17000	3464	0	283	25	125	10090	0	30	S
Benzyl alcohol	2059.952	6900	3464	0	59.5	25	125	2702	0	30	
Bis(2-chloroethoxy)methane	2815.961	3400	3464	0	81.3	43	125	3646	0	30	
Bis(2-chloroethyl)ether	2739.666	3400	3464	0	79.1	38	125	3247	0	30	
Bis(2-chloroisopropyl)ether	2750.070	3400	3464	0	79.4	25	125	3417	0	30	
Bis(2-ethylhexyl)phthalate	2666.840	3400	3464	0	77.0	47	127	3778	0	30	
Butylbenzylphthalate	2573.206	3400	3464	0	74.3	49	125	3688	0	30	
Chrysene	2562.802	3400	3464	0	74.0	53	125	3511	0	30	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N023001-001E-MSD** SampType: **MSD** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **2/13/2017** RunNo: **113487**
Client ID: **ZZZZZZ** Batch ID: **61238** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **2/13/2017** SeqNo: **2565439**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Di-n-butylphthalate	3114.203	3400	3464	0	89.9	56	125	4295	0	30	
Di-n-octylphthalate	2833.301	3400	3464	0	81.8	41	132	3955	0	30	
Dibenz(a,h)anthracene	1824.132	3400	3464	0	52.7	41	125	2685	0	30	
Dibenzofuran	2562.802	3400	3464	0	74.0	51	125	3427	0	30	
Diethylphthalate	2757.006	3400	3464	0	79.6	50	125	3719	0	30	
Dimethylphthalate	2996.293	3400	3464	0	86.5	49	125	4048	0	30	
Fluoranthene	2725.795	3400	3464	0	78.7	54	125	3892	0	30	
Fluorene	2847.172	3400	3464	0	82.2	49	125	3837	0	30	
Hexachlorobenzene	2153.586	3400	3464	0	62.2	47	125	2959	0	30	
Hexachlorobutadiene	2195.201	6900	3464	0	63.4	40	125	2786	0	30	
Hexachloroethane	1924.702	3400	3464	0	55.6	34	125	2453	0	30	
Indeno(1,2,3-cd)pyrene	1869.215	3400	3464	0	54.0	38	125	2671	0	30	
Isophorone	2871.448	3400	3464	0	82.9	43	125	3754	0	30	
N-Nitrosodi-n-propylamine	2916.531	3400	3464	0	84.2	40	125	3684	0	30	
N-Nitrosodiphenylamine	2892.255	3400	3464	0	83.5	49	125	3986	0	30	
Naphthalene	2659.904	3400	3464	0	76.8	40	125	3341	0	30	
Nitrobenzene	2389.405	3400	3464	0	69.0	41	125	2904	0	30	
Pentachlorophenol	12224.461	17000	3464	0	353	25	125	12630	0	30	S
Phenanthrene	3010.165	3400	3464	0	86.9	50	125	4194	0	30	
Phenol	2313.111	3400	3464	0	66.8	39	125	2859	0	30	
Pyrene	2770.878	3400	3464	0	80.0	46	125	3892	0	30	
Surr: 1,2-Dichlorobenzene-d4	2479.572		3464		71.6	25	110		0		
Surr: 2,4,6-Tribromophenol	2434.488		3464		70.3	36	126		0		
Surr: 2-Chlorophenol-d4	2659.904		3464		76.8	30	100		0		
Surr: 2-Fluorobiphenyl	3017.101		3464		87.1	43	125		0		
Surr: 2-Fluorophenol	2594.013		3464		74.9	37	125		0		
Surr: 4-Terphenyl-d14	2854.108		3464		82.4	32	125		0		
Surr: Nitrobenzene-d5	2850.640		3464		82.3	37	125		0		
Surr: Phenol-d5	2684.180		3464		77.5	40	125		0		

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N023001-001E-MS** SampType: **MS** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **2/13/2017** RunNo: **113487**
Client ID: **ZZZZZZ** Batch ID: **61238** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **2/14/2017** SeqNo: **2565443**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	2013.112	340	3466	0	58.1	44	125				
1,2-Dichlorobenzene	2091.167	340	3466	0	60.3	45	125				
1,3-Dichlorobenzene	1941.302	340	3466	0	56.0	39	125				
1,4-Dichlorobenzene	2005.827	340	3466	0	57.9	35	125				
2,4,5-Trichlorophenol	3275.861	340	3466	0	94.5	49	125				
2,4,6-Trichlorophenol	2862.692	340	3466	0	82.6	43	125				
2,4-Dichlorophenol	2729.132	1700	3466	0	78.7	45	125				
2,4-Dimethylphenol	2968.499	340	3466	0	85.7	32	125				
2,4-Dinitrophenol	2158.814	1700	3466	0	62.3	25	132				
2,4-Dinitrotoluene	2548.046	340	3466	0	73.5	48	125				
2,6-Dinitrotoluene	2464.788	340	3466	0	71.1	48	125				
2-Chloronaphthalene	2325.330	340	3466	0	67.1	45	125				
2-Chlorophenol	2743.702	340	3466	0	79.2	44	125				
2-Methylnaphthalene	2352.042	340	3466	0	67.9	47	125				
2-Methylphenol	3156.524	340	3466	0	91.1	40	125				
2-Nitroaniline	3634.564	1700	3466	0	105	44	125				
2-Nitrophenol	2520.293	340	3466	0	72.7	42	125				
3,3´-Dichlorobenzidine	2175.119	690	6931	0	31.4	25	128				
3-Nitroaniline	3083.326	1700	3466	0	89.0	27	125				
4,6-Dinitro-2-methylphenol	2512.661	1700	3466	0	72.5	29	137				
4-Bromophenyl-phenylether	2796.433	340	3466	0	80.7	46	125				
4-Chloro-3-methylphenol	3180.114	690	3466	0	91.8	46	125				
4-Chloroaniline	2152.917	690	3466	0	62.1	10	125				
4-Chlorophenyl-phenylether	2801.289	340	3466	0	80.8	47	125				
4-Methylphenol	2960.867	340	3466	0	85.4	41	125				
4-Nitroaniline	3150.280	1700	3466	0	90.9	34	125				
4-Nitrophenol	3520.778	1700	3466	0	102	25	138				
Acenaphthene	2902.934	340	3466	0	83.8	46	125				
Acenaphthylene	2778.393	340	3466	0	80.2	44	125				
Anthracene	3063.552	340	3466	0	88.4	53	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N023001-001E-MS** SampType: **MS** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **2/13/2017** RunNo: **113487**
Client ID: **ZZZZZZ** Batch ID: **61238** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **2/14/2017** SeqNo: **2565443**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)anthracene	3193.990	340	3466	0	92.2	52	125				
Benzo(a)pyrene	3213.070	340	3466	0	92.7	50	125				
Benzo(b)fluoranthene	4173.314	340	3466	72.28	118	45	125				
Benzo(g,h,i)perylene	950.877	340	3466	0	27.4	38	126				S
Benzo(k)fluoranthene	3862.831	340	3466	0	111	45	125				
Benzoic acid	2825.226	1700	3466	0	81.5	25	125				
Benzyl alcohol	2677.096	690	3466	0	77.2	25	125				
Bis(2-chloroethoxy)methane	2903.627	340	3466	0	83.8	43	125				
Bis(2-chloroethyl)ether	2949.419	340	3466	0	85.1	38	125				
Bis(2-chloroisopropyl)ether	2515.089	340	3466	0	72.6	25	125				
Bis(2-ethylhexyl)phthalate	3497.189	340	3466	0	101	47	127				
Butylbenzylphthalate	3463.191	340	3466	0	99.9	49	125				
Chrysene	3131.200	340	3466	0	90.4	53	125				
Di-n-butylphthalate	3189.827	340	3466	0	92.0	56	125				
Di-n-octylphthalate	7339.898	340	3466	0	212	41	132				SE
Dibenz(a,h)anthracene	1312.009	340	3466	0	37.9	41	125				S
Dibenzofuran	2491.847	340	3466	0	71.9	51	125				
Diethylphthalate	3081.592	340	3466	0	88.9	50	125				
Dimethylphthalate	3251.924	340	3466	0	93.8	49	125				
Fluoranthene	2783.597	340	3466	120.2	76.9	54	125				
Fluorene	2961.561	340	3466	0	85.5	49	125				
Hexachlorobenzene	2433.219	340	3466	0	70.2	47	125				
Hexachlorobutadiene	2279.191	690	3466	0	65.8	40	125				
Hexachloroethane	2138.346	340	3466	0	61.7	34	125				
Indeno(1,2,3-cd)pyrene	1231.873	340	3466	0	35.5	38	125				S
Isophorone	3167.972	340	3466	0	91.4	43	125				
N-Nitrosodi-n-propylamine	3215.845	340	3466	0	92.8	40	125				
N-Nitrosodiphenylamine	3286.962	340	3466	0	94.8	49	125				
Naphthalene	2673.974	340	3466	0	77.2	40	125				
Nitrobenzene	2529.660	340	3466	0	73.0	41	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N023001-001E-MS** SampType: **MS** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **2/13/2017** RunNo: **113487**
Client ID: **ZZZZZZ** Batch ID: **61238** TestNo: **EPA 8270C** **EPA 3550B** Analysis Date: **2/14/2017** SeqNo: **2565443**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pentachlorophenol	4110.870	1700	3466	0	119	25	125				
Phenanthrene	3102.406	340	3466	0	89.5	50	125				
Phenol	3003.190	340	3466	0	86.7	39	125				
Pyrene	2892.179	340	3466	96.25	80.7	46	125				
Surr: 1,2-Dichlorobenzene-d4	2355.164		3466		68.0	25	110				
Surr: 2,4,6-Tribromophenol	3259.903		3466		94.1	36	126				
Surr: 2-Chlorophenol-d4	2629.916		3466		75.9	30	100				
Surr: 2-Fluorobiphenyl	2637.895		3466		76.1	43	125				
Surr: 2-Fluorophenol	2840.837		3466		82.0	37	125				
Surr: 4-Terphenyl-d14	3076.735		3466		88.8	32	125				
Surr: Nitrobenzene-d5	2756.885		3466		79.5	37	125				
Surr: Phenol-d5	2920.973		3466		84.3	40	125				

Sample ID **N023001-001E-MSD** SampType: **MSD** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **2/13/2017** RunNo: **113487**
Client ID: **ZZZZZZ** Batch ID: **61238** TestNo: **EPA 8270C** **EPA 3550B** Analysis Date: **2/14/2017** SeqNo: **2565444**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	1750.612	340	3464	0	50.5	44	125	2013	13.9	30	
1,2-Dichlorobenzene	1868.522	340	3464	0	53.9	45	125	2091	11.2	30	
1,3-Dichlorobenzene	1718.014	340	3464	0	49.6	39	125	1941	12.2	30	
1,4-Dichlorobenzene	1784.598	340	3464	0	51.5	35	125	2006	11.7	30	
2,4,5-Trichlorophenol	2661.985	340	3464	0	76.8	49	125	3276	20.7	30	
2,4,6-Trichlorophenol	2403.624	340	3464	0	69.4	43	125	2863	17.4	30	
2,4-Dichlorophenol	2279.125	1700	3464	0	65.8	45	125	2729	18.0	30	
2,4-Dimethylphenol	2491.362	340	3464	0	71.9	32	125	2968	17.5	30	
2,4-Dinitrophenol	1697.900	1700	3464	0	49.0	25	132	2159	0	30	
2,4-Dinitrotoluene	2110.237	340	3464	0	60.9	48	125	2548	18.8	30	
2,6-Dinitrotoluene	2027.353	340	3464	0	58.5	48	125	2465	19.5	30	
2-Chloronaphthalene	1977.762	340	3464	0	57.1	45	125	2325	16.2	30	
2-Chlorophenol	2425.819	340	3464	0	70.0	44	125	2744	12.3	30	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N023001-001E-MSD** SampType: **MSD** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **2/13/2017** RunNo: **113487**
Client ID: **ZZZZZZ** Batch ID: **61238** TestNo: **EPA 8270C EPA 3550B** Analysis Date: **2/14/2017** SeqNo: **2565444**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	2029.434	340	3464	0	58.6	47	125	2352	14.7	30	
2-Methylphenol	2684.526	340	3464	0	77.5	40	125	3157	16.2	30	
2-Nitroaniline	3004.270	1700	3464	0	86.7	44	125	3635	19.0	30	
2-Nitrophenol	2203.177	340	3464	0	63.6	42	125	2520	13.4	30	
3,3´-Dichlorobenzidine	1862.973	690	6929	0	26.9	25	128	2175	15.5	30	
3-Nitroaniline	2535.405	1700	3464	0	73.2	27	125	3083	19.5	30	
4,6-Dinitro-2-methylphenol	1840.778	1700	3464	0	53.1	29	137	2513	30.9	30	R
4-Bromophenyl-phenylether	2286.061	340	3464	0	66.0	46	125	2796	20.1	30	
4-Chloro-3-methylphenol	2631.814	690	3464	0	76.0	46	125	3180	18.9	30	
4-Chloroaniline	1985.738	690	3464	0	57.3	10	125	2153	8.08	30	
4-Chlorophenyl-phenylether	2301.667	340	3464	0	66.4	47	125	2801	19.6	30	
4-Methylphenol	2631.120	340	3464	0	75.9	41	125	2961	11.8	30	
4-Nitroaniline	2575.633	1700	3464	0	74.3	34	125	3150	20.1	30	
4-Nitrophenol	2740.013	1700	3464	0	79.1	25	138	3521	24.9	30	
Acenaphthene	2470.208	340	3464	0	71.3	46	125	2903	16.1	30	
Acenaphthylene	2393.567	340	3464	0	69.1	44	125	2778	14.9	30	
Anthracene	2588.118	340	3464	0	74.7	53	125	3064	16.8	30	
Benzo(a)anthracene	2592.626	340	3464	0	74.8	52	125	3194	20.8	30	
Benzo(a)pyrene	2613.434	340	3464	0	75.4	50	125	3213	20.6	30	A6L
Benzo(b)fluoranthene	3400.654	340	3464	72.28	96.1	45	125	4173	20.4	30	A6L
Benzo(g,h,i)perylene	764.679	340	3464	0	22.1	38	126	950.9	21.7	30	SA6L
Benzo(k)fluoranthene	3467.932	340	3464	0	100	45	125	3863	10.8	30	A6L
Benzoic acid	1960.422	1700	3464	0	56.6	25	125	2825	36.1	30	R
Benzyl alcohol	2314.498	690	3464	0	66.8	25	125	2677	14.5	30	
Bis(2-chloroethoxy)methane	2512.864	340	3464	0	72.5	43	125	2904	14.4	30	
Bis(2-chloroethyl)ether	2347.790	340	3464	0	67.8	38	125	2949	22.7	30	
Bis(2-chloroisopropyl)ether	2258.664	340	3464	0	65.2	25	125	2515	10.7	30	
Bis(2-ethylhexyl)phthalate	3032.360	340	3464	0	87.5	47	127	3497	14.2	30	
Butylbenzylphthalate	2869.367	340	3464	0	82.8	49	125	3463	18.8	30	
Chrysene	2590.199	340	3464	0	74.8	53	125	3131	18.9	30	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_PGE

Sample ID **N023001-001E-MSD** SampType: **MSD** TestCode: **8270_S_PGE** Units: **ug/Kg-dry** Prep Date: **2/13/2017** RunNo: **113487**
Client ID: **ZZZZZZ** Batch ID: **61238** TestNo: **EPA 8270C** **EPA 3550B** Analysis Date: **2/14/2017** SeqNo: **2565444**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Di-n-butylphthalate	2644.298	340	3464	0	76.3	56	125	3190	18.7	30	
Di-n-octylphthalate	6887.660	340	3464	0	199	41	132	7340	6.36	30	SA6L
Dibenz(a,h)anthracene	1066.389	340	3464	0	30.8	41	125	1312	20.7	30	SA6L
Dibenzofuran	2122.028	340	3464	0	61.3	51	125	2492	16.0	30	
Diethylphthalate	2509.396	340	3464	0	72.4	50	125	3082	20.5	30	
Dimethylphthalate	2637.016	340	3464	0	76.1	49	125	3252	20.9	30	
Fluoranthene	2316.579	340	3464	120.2	63.4	54	125	2784	18.3	30	
Fluorene	2517.719	340	3464	0	72.7	49	125	2962	16.2	30	
Hexachlorobenzene	1994.408	340	3464	0	57.6	47	125	2433	19.8	30	
Hexachlorobutadiene	1991.287	690	3464	0	57.5	40	125	2279	13.5	30	
Hexachloroethane	1848.061	340	3464	0	53.3	34	125	2138	14.6	30	
Indeno(1,2,3-cd)pyrene	998.071	340	3464	0	28.8	38	125	1232	21.0	30	SA6L
Isophorone	2706.027	340	3464	0	78.1	43	125	3168	15.7	30	
N-Nitrosodi-n-propylamine	2887.054	340	3464	0	83.3	40	125	3216	10.8	30	
N-Nitrosodiphenylamine	2698.398	340	3464	0	77.9	49	125	3287	19.7	30	
Naphthalene	2361.315	340	3464	0	68.2	40	125	2674	12.4	30	
Nitrobenzene	2197.282	340	3464	0	63.4	41	125	2530	14.1	30	
Pentachlorophenol	3473.481	1700	3464	0	100	25	125	4111	16.8	30	
Phenanthrene	2582.569	340	3464	0	74.5	50	125	3102	18.3	30	
Phenol	2576.674	340	3464	0	74.4	39	125	3003	15.3	30	
Pyrene	2387.325	340	3464	96.25	66.1	46	125	2892	19.1	30	
Surr: 1,2-Dichlorobenzene-d4	2323.168		3464		67.1	25	110		0		
Surr: 2,4,6-Tribromophenol	2939.073		3464		84.8	36	126		0		
Surr: 2-Chlorophenol-d4	2573.899		3464		74.3	30	100		0		
Surr: 2-Fluorobiphenyl	2479.225		3464		71.6	43	125		0		
Surr: 2-Fluorophenol	2798.274		3464		80.8	37	125		0		
Surr: 4-Terphenyl-d14	2784.750		3464		80.4	32	125		0		
Surr: Nitrobenzene-d5	2655.049		3464		76.6	37	125		0		
Surr: Phenol-d5	2818.388		3464		81.4	40	125		0		

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-001

Client Sample ID: AOC4-40-3207
Collection Date: 2/6/2017 2:30:00 PM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM
EPA 3550B **EPA 8270CSIM**

RunID: **NV00922-MS9_170213B** QC Batch: **61222** PrepDate **2/9/2017** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1-Methylnaphthalene	ND	1.1	5.5		ug/Kg-dry	1	2/13/2017 10:38 PM
1-Methylnaphthalene	ND	220	1100		ug/Kg-dry	200	2/14/2017 02:51 PM
1-Methylnaphthalene	ND	11	55		ug/Kg-dry	10	2/13/2017 09:13 PM
2-Methylnaphthalene	ND	370	1100		ug/Kg-dry	200	2/14/2017 02:51 PM
2-Methylnaphthalene	ND	18	55		ug/Kg-dry	10	2/13/2017 09:13 PM
2-Methylnaphthalene	ND	1.8	5.5		ug/Kg-dry	1	2/13/2017 10:38 PM
Acenaphthene	ND	180	1100		ug/Kg-dry	200	2/14/2017 02:51 PM
Acenaphthene	ND	0.90	5.5		ug/Kg-dry	1	2/13/2017 10:38 PM
Acenaphthene	ND	9.0	55		ug/Kg-dry	10	2/13/2017 09:13 PM
Acenaphthylene	ND	170	1100		ug/Kg-dry	200	2/14/2017 02:51 PM
Acenaphthylene	ND	8.7	55		ug/Kg-dry	10	2/13/2017 09:13 PM
Acenaphthylene	ND	0.87	5.5		ug/Kg-dry	1	2/13/2017 10:38 PM
Anthracene	92	11	55		ug/Kg-dry	10	2/13/2017 09:13 PM
Anthracene	78	1.1	5.5		ug/Kg-dry	1	2/13/2017 10:38 PM
Anthracene	ND	220	1100		ug/Kg-dry	200	2/14/2017 02:51 PM
Benzo(a)anthracene	2900	19	55		ug/Kg-dry	10	2/13/2017 09:13 PM
Benzo(a)anthracene	1300	1.9	5.5	E	ug/Kg-dry	1	2/13/2017 10:38 PM
Benzo(a)anthracene	3200	370	1100		ug/Kg-dry	200	2/14/2017 02:51 PM
Benzo(a)pyrene	1800	310	1100		ug/Kg-dry	200	2/14/2017 02:51 PM
Benzo(a)pyrene	1800	16	55		ug/Kg-dry	10	2/13/2017 09:13 PM
Benzo(a)pyrene	1300	1.6	5.5	EA6L	ug/Kg-dry	1	2/13/2017 10:38 PM
Benzo(b)fluoranthene	2800	1.6	5.5	EA6L	ug/Kg-dry	1	2/13/2017 10:38 PM
Benzo(b)fluoranthene	3500	330	1100		ug/Kg-dry	200	2/14/2017 02:51 PM
Benzo(b)fluoranthene	3700	16	55	E	ug/Kg-dry	10	2/13/2017 09:13 PM
Benzo(g,h,i)perylene	470	19	55		ug/Kg-dry	10	2/13/2017 09:13 PM
Benzo(g,h,i)perylene	1100	370	1100		ug/Kg-dry	200	2/14/2017 02:51 PM
Benzo(g,h,i)perylene	270	1.9	5.5	A6L	ug/Kg-dry	1	2/13/2017 10:38 PM
Benzo(k)fluoranthene	880	19	55		ug/Kg-dry	10	2/13/2017 09:13 PM
Benzo(k)fluoranthene	730	1.9	5.5	EA6L	ug/Kg-dry	1	2/13/2017 10:38 PM
Benzo(k)fluoranthene	1100	370	1100		ug/Kg-dry	200	2/14/2017 02:51 PM
Chrysene	2400	19	55		ug/Kg-dry	10	2/13/2017 09:13 PM
Chrysene	1000	1.9	5.5	E	ug/Kg-dry	1	2/13/2017 10:38 PM
Chrysene	3000	370	1100		ug/Kg-dry	200	2/14/2017 02:51 PM
Dibenz(a,h)anthracene	ND	14	55		ug/Kg-dry	10	2/13/2017 09:13 PM
Dibenz(a,h)anthracene	ND	1.4	5.5	A6L	ug/Kg-dry	1	2/13/2017 10:38 PM
Dibenz(a,h)anthracene	ND	290	1100		ug/Kg-dry	200	2/14/2017 02:51 PM

Qualifiers:
B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference
Results are wet unless otherwise specified
DO Surrogate Diluted Out

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-001

Client Sample ID: AOC4-40-3207
Collection Date: 2/6/2017 2:30:00 PM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM

EPA 3550B **EPA 8270CSIM**

RunID: **NV00922-MS9_170213B** QC Batch: **61222** PrepDate **2/9/2017** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Fluoranthene	4200	290	1100		ug/Kg-dry	200	2/14/2017 02:51 PM
Fluoranthene	3400	15	55	E	ug/Kg-dry	10	2/13/2017 09:13 PM
Fluoranthene	1300	1.5	5.5	E	ug/Kg-dry	1	2/13/2017 10:38 PM
Fluorene	ND	1.3	5.5		ug/Kg-dry	1	2/13/2017 10:38 PM
Fluorene	ND	270	1100		ug/Kg-dry	200	2/14/2017 02:51 PM
Fluorene	ND	13	55		ug/Kg-dry	10	2/13/2017 09:13 PM
Indeno(1,2,3-cd)pyrene	290	1.8	5.5	A6L	ug/Kg-dry	1	2/13/2017 10:38 PM
Indeno(1,2,3-cd)pyrene	520	18	55		ug/Kg-dry	10	2/13/2017 09:13 PM
Indeno(1,2,3-cd)pyrene	ND	350	1100		ug/Kg-dry	200	2/14/2017 02:51 PM
Naphthalene	ND	260	1100		ug/Kg-dry	200	2/14/2017 02:51 PM
Naphthalene	ND	1.3	5.5		ug/Kg-dry	1	2/13/2017 10:38 PM
Naphthalene	ND	13	55		ug/Kg-dry	10	2/13/2017 09:13 PM
Phenanthrene	ND	280	1100		ug/Kg-dry	200	2/14/2017 02:51 PM
Phenanthrene	560	14	55		ug/Kg-dry	10	2/13/2017 09:13 PM
Phenanthrene	420	1.4	5.5	E	ug/Kg-dry	1	2/13/2017 10:38 PM
Pyrene	4800	290	1100		ug/Kg-dry	200	2/14/2017 02:51 PM
Pyrene	3700	14	55	E	ug/Kg-dry	10	2/13/2017 09:13 PM
Pyrene	1500	1.4	5.5	E	ug/Kg-dry	1	2/13/2017 10:38 PM
Surr: 1,2-Dichlorobenzene-d4	41.0	0	25-110		%REC	1	2/13/2017 10:38 PM
Surr: 1,2-Dichlorobenzene-d4	60.0	0	25-110		%REC	10	2/13/2017 09:13 PM
Surr: 1,2-Dichlorobenzene-d4	0	0	25-110	SDO	%REC	200	2/14/2017 02:51 PM
Surr: 2-Fluorobiphenyl	60.0	0	34-135		%REC	10	2/13/2017 09:13 PM
Surr: 2-Fluorobiphenyl	53.0	0	34-135		%REC	1	2/13/2017 10:38 PM
Surr: 2-Fluorobiphenyl	0	0	34-135	SDO	%REC	200	2/14/2017 02:51 PM
Surr: 4-Terphenyl-d14	67.0	0	14-129		%REC	1	2/13/2017 10:38 PM
Surr: 4-Terphenyl-d14	80.0	0	14-129		%REC	10	2/13/2017 09:13 PM
Surr: 4-Terphenyl-d14	200	0	14-129	SDO	%REC	200	2/14/2017 02:51 PM
Surr: Nitrobenzene-d5	49.0	0	25-135		%REC	1	2/13/2017 10:38 PM
Surr: Nitrobenzene-d5	50.0	0	25-135		%REC	10	2/13/2017 09:13 PM
Surr: Nitrobenzene-d5	0	0	25-135	SDO	%REC	200	2/14/2017 02:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-002

Client Sample ID: AOC4-tar
Collection Date: 2/6/2017 1:00:00 PM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM
EPA 3550B **EPA 8270CSIM**

RunID: **NV00922-MS9_170213B** QC Batch: **61222** PrepDate **2/9/2017** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1-Methylnaphthalene	230	10	51		ug/Kg-dry	10	2/13/2017 11:06 PM
1-Methylnaphthalene	ND	21000	100000		ug/Kg-dry	20000	2/14/2017 03:19 PM
1-Methylnaphthalene	ND	100	510		ug/Kg-dry	100	2/13/2017 09:41 PM
1-Methylnaphthalene	ND	2100	10000		ug/Kg-dry	2000	2/14/2017 04:15 PM
1-Methylnaphthalene	ND	420000	2000000		ug/Kg-dry	400000	2/14/2017 03:47 PM
2-Methylnaphthalene	ND	170	510		ug/Kg-dry	100	2/13/2017 09:41 PM
2-Methylnaphthalene	ND	3400	10000		ug/Kg-dry	2000	2/14/2017 04:15 PM
2-Methylnaphthalene	250	17	51		ug/Kg-dry	10	2/13/2017 11:06 PM
2-Methylnaphthalene	ND	690000	2000000		ug/Kg-dry	400000	2/14/2017 03:47 PM
2-Methylnaphthalene	ND	34000	100000		ug/Kg-dry	20000	2/14/2017 03:19 PM
Acenaphthene	13000	8.4	51	E	ug/Kg-dry	10	2/13/2017 11:06 PM
Acenaphthene	ND	340000	2000000		ug/Kg-dry	400000	2/14/2017 03:47 PM
Acenaphthene	30000	84	510	E	ug/Kg-dry	100	2/13/2017 09:41 PM
Acenaphthene	ND	17000	100000		ug/Kg-dry	20000	2/14/2017 03:19 PM
Acenaphthene	39000	1700	10000		ug/Kg-dry	2000	2/14/2017 04:15 PM
Acenaphthylene	ND	16000	100000		ug/Kg-dry	20000	2/14/2017 03:19 PM
Acenaphthylene	ND	320000	2000000		ug/Kg-dry	400000	2/14/2017 03:47 PM
Acenaphthylene	4100	81	510		ug/Kg-dry	100	2/13/2017 09:41 PM
Acenaphthylene	2600	8.1	51		ug/Kg-dry	10	2/13/2017 11:06 PM
Acenaphthylene	ND	1600	10000		ug/Kg-dry	2000	2/14/2017 04:15 PM
Anthracene	1700000	20000	100000		ug/Kg-dry	20000	2/14/2017 03:19 PM
Anthracene	ND	10	51	A6L	ug/Kg-dry	10	2/13/2017 11:06 PM
Anthracene	930000	2000	10000	E	ug/Kg-dry	2000	2/14/2017 04:15 PM
Anthracene	53000	100	510	E	ug/Kg-dry	100	2/13/2017 09:41 PM
Anthracene	2300000	410000	2000000		ug/Kg-dry	400000	2/14/2017 03:47 PM
Benzo(a)anthracene	2900000	3500	10000	E	ug/Kg-dry	2000	2/14/2017 04:15 PM
Benzo(a)anthracene	5100000	35000	100000		ug/Kg-dry	20000	2/14/2017 03:19 PM
Benzo(a)anthracene	260000	17	51	EA6L	ug/Kg-dry	10	2/13/2017 11:06 PM
Benzo(a)anthracene	3300000	170	510	EA6L	ug/Kg-dry	100	2/13/2017 09:41 PM
Benzo(a)anthracene	5600000	700000	2000000		ug/Kg-dry	400000	2/14/2017 03:47 PM
Benzo(a)pyrene	400000	140	510	EA6L	ug/Kg-dry	100	2/13/2017 09:41 PM
Benzo(a)pyrene	ND	580000	2000000		ug/Kg-dry	400000	2/14/2017 03:47 PM
Benzo(a)pyrene	1600000	2900	10000	E	ug/Kg-dry	2000	2/14/2017 04:15 PM
Benzo(a)pyrene	32000	14	51	EA6L	ug/Kg-dry	10	2/13/2017 11:06 PM
Benzo(a)pyrene	2000000	29000	100000		ug/Kg-dry	20000	2/14/2017 03:19 PM
Benzo(b)fluoranthene	3400000	3000	10000	E	ug/Kg-dry	2000	2/14/2017 04:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-002

Client Sample ID: AOC4-tar
Collection Date: 2/6/2017 1:00:00 PM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM
EPA 3550B **EPA 8270CSIM**

RunID: **NV00922-MS9_170213B** QC Batch: **61222** PrepDate **2/9/2017** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Benzo(b)fluoranthene	4600000	30000	100000		ug/Kg-dry	20000	2/14/2017 03:19 PM
Benzo(b)fluoranthene	4800000	610000	2000000		ug/Kg-dry	400000	2/14/2017 03:47 PM
Benzo(b)fluoranthene	77000	15	51	EA6L	ug/Kg-dry	10	2/13/2017 11:06 PM
Benzo(b)fluoranthene	980000	150	510	EA6L	ug/Kg-dry	100	2/13/2017 09:41 PM
Benzo(g,h,i)perylene	890000	3500	10000	E	ug/Kg-dry	2000	2/14/2017 04:15 PM
Benzo(g,h,i)perylene	ND	700000	2000000		ug/Kg-dry	400000	2/14/2017 03:47 PM
Benzo(g,h,i)perylene	14000	17	51	EA6L	ug/Kg-dry	10	2/13/2017 11:06 PM
Benzo(g,h,i)perylene	990000	35000	100000		ug/Kg-dry	20000	2/14/2017 03:19 PM
Benzo(g,h,i)perylene	59000	170	510	EA6L	ug/Kg-dry	100	2/13/2017 09:41 PM
Benzo(k)fluoranthene	890000	35000	100000		ug/Kg-dry	20000	2/14/2017 03:19 PM
Benzo(k)fluoranthene	ND	700000	2000000		ug/Kg-dry	400000	2/14/2017 03:47 PM
Benzo(k)fluoranthene	100000	170	510	EA6L	ug/Kg-dry	100	2/13/2017 09:41 PM
Benzo(k)fluoranthene	770000	3500	10000	E	ug/Kg-dry	2000	2/14/2017 04:15 PM
Benzo(k)fluoranthene	9200	17	51	EA6L	ug/Kg-dry	10	2/13/2017 11:06 PM
Chrysene	3400000	35000	100000		ug/Kg-dry	20000	2/14/2017 03:19 PM
Chrysene	4000000	700000	2000000		ug/Kg-dry	400000	2/14/2017 03:47 PM
Chrysene	82000	17	51	EA6L	ug/Kg-dry	10	2/13/2017 11:06 PM
Chrysene	740000	170	510	EA6L	ug/Kg-dry	100	2/13/2017 09:41 PM
Chrysene	2100000	3500	10000	E	ug/Kg-dry	2000	2/14/2017 04:15 PM
Dibenz(a,h)anthracene	ND	27000	100000		ug/Kg-dry	20000	2/14/2017 03:19 PM
Dibenz(a,h)anthracene	ND	13	51	A6L	ug/Kg-dry	10	2/13/2017 11:06 PM
Dibenz(a,h)anthracene	ND	2700	10000		ug/Kg-dry	2000	2/14/2017 04:15 PM
Dibenz(a,h)anthracene	ND	540000	2000000		ug/Kg-dry	400000	2/14/2017 03:47 PM
Dibenz(a,h)anthracene	ND	130	510	A6L	ug/Kg-dry	100	2/13/2017 09:41 PM
Fluoranthene	4000000	2700	10000	E	ug/Kg-dry	2000	2/14/2017 04:15 PM
Fluoranthene	1600000	140	510	E	ug/Kg-dry	100	2/13/2017 09:41 PM
Fluoranthene	18000000	540000	2000000		ug/Kg-dry	400000	2/14/2017 03:47 PM
Fluoranthene	510000	14	51	EA6L	ug/Kg-dry	10	2/13/2017 11:06 PM
Fluoranthene	11000000	27000	100000	E	ug/Kg-dry	20000	2/14/2017 03:19 PM
Fluorene	29000	120	510	E	ug/Kg-dry	100	2/13/2017 09:41 PM
Fluorene	ND	25000	100000		ug/Kg-dry	20000	2/14/2017 03:19 PM
Fluorene	ND	500000	2000000		ug/Kg-dry	400000	2/14/2017 03:47 PM
Fluorene	12000	12	51	E	ug/Kg-dry	10	2/13/2017 11:06 PM
Fluorene	37000	2500	10000		ug/Kg-dry	2000	2/14/2017 04:15 PM
Indeno(1,2,3-cd)pyrene	ND	650000	2000000		ug/Kg-dry	400000	2/14/2017 03:47 PM
Indeno(1,2,3-cd)pyrene	950000	3300	10000	E	ug/Kg-dry	2000	2/14/2017 04:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-002

Client Sample ID: AOC4-tar
Collection Date: 2/6/2017 1:00:00 PM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM

EPA 3550B **EPA 8270CSIM**

RunID: **NV00922-MS9_170213B** QC Batch: **61222** PrepDate **2/9/2017** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Indeno(1,2,3-cd)pyrene	1000000	33000	100000		ug/Kg-dry	20000	2/14/2017 03:19 PM
Indeno(1,2,3-cd)pyrene	83000	160	510	EA6L	ug/Kg-dry	100	2/13/2017 09:41 PM
Indeno(1,2,3-cd)pyrene	16000	16	51	EA6L	ug/Kg-dry	10	2/13/2017 11:06 PM
Naphthalene	ND	2400	10000		ug/Kg-dry	2000	2/14/2017 04:15 PM
Naphthalene	140	12	51		ug/Kg-dry	10	2/13/2017 11:06 PM
Naphthalene	ND	480000	2000000		ug/Kg-dry	400000	2/14/2017 03:47 PM
Naphthalene	ND	24000	100000		ug/Kg-dry	20000	2/14/2017 03:19 PM
Naphthalene	ND	120	510		ug/Kg-dry	100	2/13/2017 09:41 PM
Phenanthrene	3600000	2600	10000	E	ug/Kg-dry	2000	2/14/2017 04:15 PM
Phenanthrene	10000000	26000	100000	E	ug/Kg-dry	20000	2/14/2017 03:19 PM
Phenanthrene	15000000	520000	2000000		ug/Kg-dry	400000	2/14/2017 03:47 PM
Phenanthrene	800000	13	51	EA6L	ug/Kg-dry	10	2/13/2017 11:06 PM
Phenanthrene	1700000	130	510	E	ug/Kg-dry	100	2/13/2017 09:41 PM
Pyrene	3200000	2700	10000	E	ug/Kg-dry	2000	2/14/2017 04:15 PM
Pyrene	1100000	130	510	E	ug/Kg-dry	100	2/13/2017 09:41 PM
Pyrene	13000000	540000	2000000		ug/Kg-dry	400000	2/14/2017 03:47 PM
Pyrene	310000	13	51	EA6L	ug/Kg-dry	10	2/13/2017 11:06 PM
Pyrene	9300000	27000	100000	E	ug/Kg-dry	20000	2/14/2017 03:19 PM
Surr: 1,2-Dichlorobenzene-d4	0	0	25-110	SDO	%REC	400000	2/14/2017 03:47 PM
Surr: 1,2-Dichlorobenzene-d4	80.0	0	25-110		%REC	10	2/13/2017 11:06 PM
Surr: 1,2-Dichlorobenzene-d4	0	0	25-110	S	%REC	100	2/13/2017 09:41 PM
Surr: 1,2-Dichlorobenzene-d4	0	0	25-110	SDO	%REC	20000	2/14/2017 03:19 PM
Surr: 1,2-Dichlorobenzene-d4	0	0	25-110	SDO	%REC	2000	2/14/2017 04:15 PM
Surr: 2-Fluorobiphenyl	0	0	34-135	SDO	%REC	400000	2/14/2017 03:47 PM
Surr: 2-Fluorobiphenyl	0	0	34-135	SDO	%REC	20000	2/14/2017 03:19 PM
Surr: 2-Fluorobiphenyl	0	0	34-135	SDO	%REC	2000	2/14/2017 04:15 PM
Surr: 2-Fluorobiphenyl	60.0	0	34-135		%REC	10	2/13/2017 11:06 PM
Surr: 2-Fluorobiphenyl	100	0	34-135		%REC	100	2/13/2017 09:41 PM
Surr: 4-Terphenyl-d14	40000	0	14-129	SDO	%REC	20000	2/14/2017 03:19 PM
Surr: 4-Terphenyl-d14	64200	0	14-129	SA6L	%REC	100	2/13/2017 09:41 PM
Surr: 4-Terphenyl-d14	350	0	14-129	SA6L	%REC	10	2/13/2017 11:06 PM
Surr: 4-Terphenyl-d14	26000	0	14-129	SDO	%REC	2000	2/14/2017 04:15 PM
Surr: 4-Terphenyl-d14	0	0	14-129	SDO	%REC	400000	2/14/2017 03:47 PM
Surr: Nitrobenzene-d5	0	0	25-135	SDO	%REC	20000	2/14/2017 03:19 PM
Surr: Nitrobenzene-d5	0	0	25-135	SDO	%REC	2000	2/14/2017 04:15 PM
Surr: Nitrobenzene-d5	0	0	25-135	SDO	%REC	400000	2/14/2017 03:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	CH2M HILL	**Client Sample ID:**	AOC4-tar
Lab Order:	N023002	**Collection Date:**	2/6/2017 1:00:00 PM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	SOIL
Lab ID:	N023002-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM							
EPA 3550B			**EPA 8270CSIM**				
RunID: **NV00922-MS9_170213B** QC Batch: **61222**				PrepDate		**2/9/2017**	Analyst: **MDM**
Surr: Nitrobenzene-d5	70.0	0	25-135		%REC	10	2/13/2017 11:06 PM
Surr: Nitrobenzene-d5	0	0	25-135	S	%REC	100	2/13/2017 09:41 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-004

Client Sample ID: Soil-IDW-01-6253
Collection Date: 2/6/2017 9:45:00 AM
Matrix: SOIL

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM

EPA 3550B **EPA 8270CSIM**

RunID: **NV00922-MS9_170213B** QC Batch: **61222** PrepDate **2/9/2017** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1-Methylnaphthalene	ND	1.1	5.2		ug/Kg-dry	1	2/13/2017 08:17 PM
2-Methylnaphthalene	ND	1.7	5.2		ug/Kg-dry	1	2/13/2017 08:17 PM
Acenaphthene	ND	0.85	5.2		ug/Kg-dry	1	2/13/2017 08:17 PM
Acenaphthylene	ND	0.82	5.2		ug/Kg-dry	1	2/13/2017 08:17 PM
Anthracene	ND	1.0	5.2		ug/Kg-dry	1	2/13/2017 08:17 PM
Benzo(a)anthracene	ND	1.8	5.2		ug/Kg-dry	1	2/13/2017 08:17 PM
Benzo(a)pyrene	ND	1.5	5.2		ug/Kg-dry	1	2/13/2017 08:17 PM
Benzo(b)fluoranthene	13	1.5	5.2		ug/Kg-dry	1	2/13/2017 08:17 PM
Benzo(g,h,i)perylene	ND	1.8	5.2		ug/Kg-dry	1	2/13/2017 08:17 PM
Benzo(k)fluoranthene	ND	1.8	5.2		ug/Kg-dry	1	2/13/2017 08:17 PM
Chrysene	6.2	1.8	5.2		ug/Kg-dry	1	2/13/2017 08:17 PM
Dibenz(a,h)anthracene	ND	1.4	5.2		ug/Kg-dry	1	2/13/2017 08:17 PM
Fluoranthene	6.5	1.4	5.2		ug/Kg-dry	1	2/13/2017 08:17 PM
Fluorene	ND	1.3	5.2		ug/Kg-dry	1	2/13/2017 08:17 PM
Indeno(1,2,3-cd)pyrene	ND	1.7	5.2		ug/Kg-dry	1	2/13/2017 08:17 PM
Naphthalene	ND	1.2	5.2		ug/Kg-dry	1	2/13/2017 08:17 PM
Phenanthrene	ND	1.3	5.2		ug/Kg-dry	1	2/13/2017 08:17 PM
Pyrene	6.9	1.4	5.2		ug/Kg-dry	1	2/13/2017 08:17 PM
Surr: 1,2-Dichlorobenzene-d4	45.0	0	25-110		%REC	1	2/13/2017 08:17 PM
Surr: 2-Fluorobiphenyl	59.0	0	34-135		%REC	1	2/13/2017 08:17 PM
Surr: 4-Terphenyl-d14	56.0	0	14-129		%REC	1	2/13/2017 08:17 PM
Surr: Nitrobenzene-d5	54.0	0	25-135		%REC	1	2/13/2017 08:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_SIMPGE

Sample ID **LCS-61222**	SampType: **LCS**	TestCode: **8270_S_SIM**	Units: **ug/Kg**	Prep Date: **2/9/2017**	RunNo: **113478**
Client ID: **LCSS**	Batch ID: **61222**	TestNo: **EPA 8270CSI EPA 3550B**		Analysis Date: **2/13/2017**	SeqNo: **2564451**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1-Methylnaphthalene	21.667	5.0	33.30	0	65.1	30	111				
2-Methylnaphthalene	23.667	5.0	33.30	0	71.1	30	111				
Acenaphthene	22.667	5.0	33.30	0	68.1	28	110				
Acenaphthylene	23.000	5.0	33.30	0	69.1	23	126				
Anthracene	19.333	5.0	33.30	0	58.1	28	136				
Benzo(a)anthracene	31.333	5.0	33.30	0	94.1	31	146				
Benzo(a)pyrene	25.667	5.0	33.30	0	77.1	28	128				
Benzo(b)fluoranthene	27.667	5.0	33.30	0	83.1	30	139				
Benzo(g,h,i)perylene	26.333	5.0	33.30	0	79.1	21	149				
Benzo(k)fluoranthene	26.000	5.0	33.30	0	78.1	42	129				
Chrysene	26.000	5.0	33.30	0	78.1	39	134				
Dibenz(a,h)anthracene	27.667	5.0	33.30	0	83.1	30	138				
Fluoranthene	25.000	5.0	33.30	0	75.1	30	142				
Fluorene	23.333	5.0	33.30	0	70.1	27	116				
Indeno(1,2,3-cd)pyrene	27.667	5.0	33.30	0	83.1	17	164				
Naphthalene	22.667	5.0	33.30	0	68.1	29	106				
Phenanthrene	26.000	5.0	33.30	0	78.1	32	127				
Pyrene	26.000	5.0	33.30	0	78.1	28	130				
Surr: 1,2-Dichlorobenzene-d4	17.667		33.30		53.1	25	110				
Surr: 2-Fluorobiphenyl	18.333		33.30		55.1	34	135				
Surr: 4-Terphenyl-d14	22.667		33.30		68.1	14	129				
Surr: Nitrobenzene-d5	18.000		33.30		54.1	25	135				

Sample ID **MB-61222**	SampType: **MBLK**	TestCode: **8270_S_SIM**	Units: **ug/Kg**	Prep Date: **2/9/2017**	RunNo: **113478**
Client ID: **PBS**	Batch ID: **61222**	TestNo: **EPA 8270CSI EPA 3550B**		Analysis Date: **2/13/2017**	SeqNo: **2564452**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1-Methylnaphthalene	ND	5.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_SIMPGE

Sample ID **MB-61222**	SampType: **MBLK**	TestCode: **8270_S_SIM**	Units: **ug/Kg**	Prep Date: **2/9/2017**	RunNo: **113478**
Client ID: **PBS**	Batch ID: **61222**	TestNo: **EPA 8270CSI EPA 3550B**		Analysis Date: **2/13/2017**	SeqNo: **2564452**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	ND	5.0									
Acenaphthene	ND	5.0									
Acenaphthylene	ND	5.0									
Anthracene	ND	5.0									
Benzo(a)anthracene	ND	5.0									
Benzo(a)pyrene	ND	5.0									
Benzo(b)fluoranthene	ND	5.0									
Benzo(g,h,i)perylene	ND	5.0									
Benzo(k)fluoranthene	ND	5.0									
Chrysene	ND	5.0									
Dibenz(a,h)anthracene	ND	5.0									
Fluoranthene	ND	5.0									
Fluorene	ND	5.0									
Indeno(1,2,3-cd)pyrene	ND	5.0									
Naphthalene	ND	5.0									
Phenanthrene	2.333	5.0									
Pyrene	ND	5.0									
Surr: 1,2-Dichlorobenzene-d4	15.333		33.30		46.0	25	110				
Surr: 2-Fluorobiphenyl	18.333		33.30		55.1	34	135				
Surr: 4-Terphenyl-d14	21.333		33.30		64.1	14	129				
Surr: Nitrobenzene-d5	17.333		33.30		52.1	25	135				

Sample ID **N022966-003A-MS**	SampType: **MS**	TestCode: **8270_S_SIM**	Units: **ug/Kg-dry**	Prep Date: **2/9/2017**	RunNo: **113478**
Client ID: **ZZZZZZ**	Batch ID: **61222**	TestNo: **EPA 8270CSI EPA 3550B**		Analysis Date: **2/13/2017**	SeqNo: **2565278**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1-Methylnaphthalene	82.862	5.2	138.6	0	59.8	30	111				
2-Methylnaphthalene	101.584	5.2	138.6	0	73.3	30	111				
Acenaphthene	90.143	5.2	138.6	0	65.0	28	110				
Acenaphthylene	95.690	5.2	138.6	0	69.0	23	126				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_SIMPGE

Sample ID **N022966-003A-MS** SampType: **MS** TestCode: **8270_S_SIM** Units: **ug/Kg-dry** Prep Date: **2/9/2017** RunNo: **113478**
Client ID: **ZZZZZZ** Batch ID: **61222** TestNo: **EPA 8270CSI EPA 3550B** Analysis Date: **2/13/2017** SeqNo: **2565278**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Anthracene	78.008	5.2	138.6	3.179	54.0	28	136				
Benzo(a)anthracene	103.317	5.2	138.6	6.004	70.2	31	146				
Benzo(a)pyrene	93.263	5.2	138.6	7.770	61.7	28	128				
Benzo(b)fluoranthene	120.306	5.2	138.6	19.78	72.5	30	139				
Benzo(g,h,i)perylene	67.260	5.2	138.6	7.770	42.9	21	149				
Benzo(k)fluoranthene	78.702	5.2	138.6	5.651	52.7	42	129				
Chrysene	83.555	5.2	138.6	10.95	52.4	39	134				
Dibenz(a,h)anthracene	72.808	5.2	138.6	0	52.5	30	138				
Fluoranthene	93.610	5.2	138.6	9.890	60.4	30	142				
Fluorene	93.956	5.2	138.6	0	67.8	27	116				
Indeno(1,2,3-cd)pyrene	74.888	5.2	138.6	6.711	49.2	17	164				
Naphthalene	92.916	5.2	138.6	0	67.0	29	106				
Phenanthrene	98.464	5.2	138.6	20.49	56.2	32	127				
Pyrene	92.223	5.2	138.6	9.183	59.9	28	130				
Surr: 1,2-Dichlorobenzene-d4	16.295		34.64		47.0	25	110				
Surr: 2-Fluorobiphenyl	18.375		34.64		53.1	34	135				
Surr: 4-Terphenyl-d14	17.335		34.64		50.1	14	129				
Surr: Nitrobenzene-d5	19.415		34.64		56.1	25	135				

Sample ID **N022966-003A-MSD** SampType: **MSD** TestCode: **8270_S_SIM** Units: **ug/Kg-dry** Prep Date: **2/9/2017** RunNo: **113478**
Client ID: **ZZZZZZ** Batch ID: **61222** TestNo: **EPA 8270CSI EPA 3550B** Analysis Date: **2/13/2017** SeqNo: **2565279**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1-Methylnaphthalene	30.774	5.2	138.3	0	22.3	30	111	82.86	91.7	30	SR
2-Methylnaphthalene	29.737	5.2	138.3	0	21.5	30	111	101.6	109	30	SR
Acenaphthene	54.287	5.2	138.3	0	39.3	28	110	90.14	49.7	30	R
Acenaphthylene	56.362	5.2	138.3	0	40.8	23	126	95.69	51.7	30	R
Anthracene	79.529	5.2	138.3	3.179	55.2	28	136	78.01	1.93	30	
Benzo(a)anthracene	119.294	5.2	138.3	6.004	81.9	31	146	103.3	14.4	30	
Benzo(a)pyrene	99.585	5.2	138.3	7.770	66.4	28	128	93.26	6.56	30	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_S_SIMPGE

Sample ID **N022966-003A-MSD** SampType: **MSD** TestCode: **8270_S_SIM** Units: **ug/Kg-dry** Prep Date: **2/9/2017** RunNo: **113478**
Client ID: **ZZZZZZ** Batch ID: **61222** TestNo: **EPA 8270CSI EPA 3550B** Analysis Date: **2/13/2017** SeqNo: **2565279**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	124.827	5.2	138.3	19.78	76.0	30	139	120.3	3.69	30	
Benzo(g,h,i)perylene	60.166	5.2	138.3	7.770	37.9	21	149	67.26	11.1	30	
Benzo(k)fluoranthene	88.865	5.2	138.3	5.651	60.2	42	129	78.70	12.1	30	
Chrysene	93.015	5.2	138.3	10.95	59.3	39	134	83.56	10.7	30	
Dibenz(a,h)anthracene	70.885	5.2	138.3	0	51.3	30	138	72.81	2.68	30	
Fluoranthene	117.219	5.2	138.3	9.890	77.6	30	142	93.61	22.4	30	
Fluorene	69.848	5.2	138.3	0	50.5	27	116	93.96	29.4	30	
Indeno(1,2,3-cd)pyrene	71.231	5.2	138.3	6.711	46.7	17	164	74.89	5.01	30	
Naphthalene	17.981	5.2	138.3	0	13.0	29	106	92.92	135	30	SR
Phenanthrene	105.117	5.2	138.3	20.49	61.2	32	127	98.46	6.54	30	
Pyrene	110.650	5.2	138.3	9.183	73.4	28	130	92.22	18.2	30	
Surr: 1,2-Dichlorobenzene-d4	2.766		34.54		8.01	25	110		0		S
Surr: 2-Fluorobiphenyl	7.607		34.54		22.0	34	135		0		S
Surr: 4-Terphenyl-d14	18.326		34.54		53.1	14	129		0		
Surr: Nitrobenzene-d5	5.187		34.54		15.0	25	135		0		S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-005

Client Sample ID: AOC-EB-02-04-17
Collection Date: 2/4/2017 4:00:00 PM
Matrix: WATER

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM
EPA 3510C **EPA 8270CSIM**

RunID: **NV00922-MS9_170213A** QC Batch: **61232** PrepDate **2/10/2017** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1-Methylnaphthalene	ND	0.019	0.21		ug/L	1	2/13/2017 01:16 PM
2-Methylnaphthalene	ND	0.023	0.21		ug/L	1	2/13/2017 01:16 PM
Acenaphthene	ND	0.019	0.21		ug/L	1	2/13/2017 01:16 PM
Acenaphthylene	ND	0.018	0.21		ug/L	1	2/13/2017 01:16 PM
Anthracene	ND	0.019	0.21		ug/L	1	2/13/2017 01:16 PM
Benzo(a)anthracene	ND	0.016	0.21		ug/L	1	2/13/2017 01:16 PM
Benzo(a)pyrene	ND	0.032	0.21		ug/L	1	2/13/2017 01:16 PM
Benzo(b)fluoranthene	ND	0.045	0.21		ug/L	1	2/13/2017 01:16 PM
Benzo(g,h,i)perylene	ND	0.016	0.21		ug/L	1	2/13/2017 01:16 PM
Benzo(k)fluoranthene	ND	0.016	0.21		ug/L	1	2/13/2017 01:16 PM
Chrysene	ND	0.027	0.21		ug/L	1	2/13/2017 01:16 PM
Dibenz(a,h)anthracene	ND	0.016	0.21		ug/L	1	2/13/2017 01:16 PM
Fluoranthene	ND	0.018	0.21		ug/L	1	2/13/2017 01:16 PM
Fluorene	ND	0.018	0.21		ug/L	1	2/13/2017 01:16 PM
Indeno(1,2,3-cd)pyrene	ND	0.018	0.21		ug/L	1	2/13/2017 01:16 PM
Naphthalene	ND	0.023	0.21		ug/L	1	2/13/2017 01:16 PM
Phenanthrene	ND	0.019	0.21		ug/L	1	2/13/2017 01:16 PM
Pyrene	ND	0.016	0.21		ug/L	1	2/13/2017 01:16 PM
Surr: 1,2-Dichlorobenzene-d4	70.0	0	27-100		%REC	1	2/13/2017 01:16 PM
Surr: 2-Fluorobiphenyl	71.0	0	34-135		%REC	1	2/13/2017 01:16 PM
Surr: 4-Terphenyl-d14	69.0	0	34-167		%REC	1	2/13/2017 01:16 PM
Surr: Nitrobenzene-d5	66.0	0	25-135		%REC	1	2/13/2017 01:16 PM

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
E Value above quantitation range
ND Not Detected at the Reporting Limit
Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW
Lab ID: N023002-006

Client Sample ID: SD-EB-02-05-17
Collection Date: 2/5/2017 4:00:00 PM
Matrix: WATER

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM

EPA 3510C **EPA 8270CSIM**

RunID: **NV00922-MS9_170213A** QC Batch: **61232** PrepDate **2/10/2017** Analyst: **MDM**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1-Methylnaphthalene	ND	0.020	0.23		ug/L	1	2/13/2017 01:44 PM
2-Methylnaphthalene	ND	0.025	0.23		ug/L	1	2/13/2017 01:44 PM
Acenaphthene	ND	0.020	0.23		ug/L	1	2/13/2017 01:44 PM
Acenaphthylene	ND	0.019	0.23		ug/L	1	2/13/2017 01:44 PM
Anthracene	ND	0.020	0.23		ug/L	1	2/13/2017 01:44 PM
Benzo(a)anthracene	ND	0.017	0.23		ug/L	1	2/13/2017 01:44 PM
Benzo(a)pyrene	ND	0.034	0.23		ug/L	1	2/13/2017 01:44 PM
Benzo(b)fluoranthene	ND	0.049	0.23		ug/L	1	2/13/2017 01:44 PM
Benzo(g,h,i)perylene	ND	0.017	0.23		ug/L	1	2/13/2017 01:44 PM
Benzo(k)fluoranthene	ND	0.017	0.23		ug/L	1	2/13/2017 01:44 PM
Chrysene	ND	0.030	0.23		ug/L	1	2/13/2017 01:44 PM
Dibenz(a,h)anthracene	ND	0.017	0.23		ug/L	1	2/13/2017 01:44 PM
Fluoranthene	ND	0.019	0.23		ug/L	1	2/13/2017 01:44 PM
Fluorene	ND	0.019	0.23		ug/L	1	2/13/2017 01:44 PM
Indeno(1,2,3-cd)pyrene	ND	0.019	0.23		ug/L	1	2/13/2017 01:44 PM
Naphthalene	ND	0.025	0.23		ug/L	1	2/13/2017 01:44 PM
Phenanthrene	ND	0.020	0.23		ug/L	1	2/13/2017 01:44 PM
Pyrene	ND	0.017	0.23		ug/L	1	2/13/2017 01:44 PM
Surr: 1,2-Dichlorobenzene-d4	64.0	0	27-100		%REC	1	2/13/2017 01:44 PM
Surr: 2-Fluorobiphenyl	67.0	0	34-135		%REC	1	2/13/2017 01:44 PM
Surr: 4-Terphenyl-d14	68.0	0	34-167		%REC	1	2/13/2017 01:44 PM
Surr: Nitrobenzene-d5	70.0	0	25-135		%REC	1	2/13/2017 01:44 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_SIMPGE

Sample ID **LCS-61232** SampType: **LCS** TestCode: **8270_W_SIM** Units: **ug/L** Prep Date: **2/10/2017** RunNo: **113477**
Client ID: **LCSW** Batch ID: **61232** TestNo: **EPA 8270CSI EPA 3510C** Analysis Date: **2/13/2017** SeqNo: **2564443**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1-Methylnaphthalene	0.750	0.20	1.000	0	75.0	35	131				
2-Methylnaphthalene	0.910	0.20	1.000	0	91.0	36	121				
Acenaphthene	0.830	0.20	1.000	0	83.0	39	125				
Acenaphthylene	0.840	0.20	1.000	0	84.0	43	140				
Anthracene	0.740	0.20	1.000	0	74.0	41	132				
Benzo(a)anthracene	0.970	0.20	1.000	0	97.0	58	141				
Benzo(a)pyrene	0.840	0.20	1.000	0	84.0	31	142				
Benzo(b)fluoranthene	0.860	0.20	1.000	0	86.0	42	156				
Benzo(g,h,i)perylene	0.820	0.20	1.000	0	82.0	12	171				
Benzo(k)fluoranthene	0.830	0.20	1.000	0	83.0	49	165				
Chrysene	0.810	0.20	1.000	0	81.0	51	155				
Dibenz(a,h)anthracene	0.870	0.20	1.000	0	87.0	28	153				
Fluoranthene	0.830	0.20	1.000	0	83.0	47	158				
Fluorene	0.880	0.20	1.000	0	88.0	40	140				
Indeno(1,2,3-cd)pyrene	0.860	0.20	1.000	0	86.0	20	167				
Naphthalene	0.850	0.20	1.000	0	85.0	39	125				
Phenanthrene	0.880	0.20	1.000	0	88.0	46	144				
Pyrene	0.860	0.20	1.000	0	86.0	39	158				
Surr: 1,2-Dichlorobenzene-d4	0.640		1.000		64.0	27	100				
Surr: 2-Fluorobiphenyl	0.650		1.000		65.0	34	135				
Surr: 4-Terphenyl-d14	0.730		1.000		73.0	34	167				
Surr: Nitrobenzene-d5	0.660		1.000		66.0	25	135				

Sample ID **MB-61232** SampType: **MBLK** TestCode: **8270_W_SIM** Units: **ug/L** Prep Date: **2/10/2017** RunNo: **113477**
Client ID: **PBW** Batch ID: **61232** TestNo: **EPA 8270CSI EPA 3510C** Analysis Date: **2/13/2017** SeqNo: **2564444**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1-Methylnaphthalene	ND	0.20									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_SIMPGE

Sample ID **MB-61232**	SampType: **MBLK**	TestCode: **8270_W_SIM**	Units: **ug/L**	Prep Date: **2/10/2017**	RunNo: **113477**
Client ID: **PBW**	Batch ID: **61232**	TestNo: **EPA 8270CSI EPA 3510C**		Analysis Date: **2/13/2017**	SeqNo: **2564444**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	ND	0.20									
Acenaphthene	ND	0.20									
Acenaphthylene	ND	0.20									
Anthracene	ND	0.20									
Benzo(a)anthracene	ND	0.20									
Benzo(a)pyrene	ND	0.20									
Benzo(b)fluoranthene	ND	0.20									
Benzo(g,h,i)perylene	ND	0.20									
Benzo(k)fluoranthene	ND	0.20									
Chrysene	ND	0.20									
Dibenz(a,h)anthracene	ND	0.20									
Fluoranthene	ND	0.20									
Fluorene	ND	0.20									
Indeno(1,2,3-cd)pyrene	ND	0.20									
Naphthalene	ND	0.20									
Phenanthrene	0.020	0.20									
Pyrene	ND	0.20									
Surr: 1,2-Dichlorobenzene-d4	0.630		1.000		63.0	27	100				
Surr: 2-Fluorobiphenyl	0.640		1.000		64.0	34	135				
Surr: 4-Terphenyl-d14	0.690		1.000		69.0	34	167				
Surr: Nitrobenzene-d5	0.620		1.000		62.0	25	135				

Sample ID **N023002-006C-MS**	SampType: **MS**	TestCode: **8270_W_SIM**	Units: **ug/L**	Prep Date: **2/10/2017**	RunNo: **113477**
Client ID: **ZZZZZZ**	Batch ID: **61232**	TestNo: **EPA 8270CSI EPA 3510C**		Analysis Date: **2/13/2017**	SeqNo: **2564447**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1-Methylnaphthalene	3.351	0.21	4.255	0	78.8	35	131				
2-Methylnaphthalene	3.649	0.21	4.255	0	85.8	36	121				
Acenaphthene	3.670	0.21	4.255	0	86.2	39	125				
Acenaphthylene	3.851	0.21	4.255	0	90.5	43	140				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_SIMPGE

Sample ID **N023002-006C-MS** SampType: **MS** TestCode: **8270_W_SIM** Units: **ug/L** Prep Date: **2/10/2017** RunNo: **113477**
Client ID: **ZZZZZZ** Batch ID: **61232** TestNo: **EPA 8270CSI EPA 3510C** Analysis Date: **2/13/2017** SeqNo: **2564447**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Anthracene	3.255	0.21	4.255	0	76.5	41	132				
Benzo(a)anthracene	4.181	0.21	4.255	0	98.2	58	141				
Benzo(a)pyrene	3.670	0.21	4.255	0	86.2	31	142				
Benzo(b)fluoranthene	3.862	0.21	4.255	0	90.8	42	156				
Benzo(g,h,i)perylene	3.000	0.21	4.255	0	70.5	12	171				
Benzo(k)fluoranthene	3.287	0.21	4.255	0	77.2	49	165				
Chrysene	3.277	0.21	4.255	0	77.0	51	155				
Dibenz(a,h)anthracene	3.021	0.21	4.255	0	71.0	28	153				
Fluoranthene	3.596	0.21	4.255	0	84.5	47	158				
Fluorene	3.872	0.21	4.255	0	91.0	40	140				
Indeno(1,2,3-cd)pyrene	3.543	0.21	4.255	0	83.2	20	167				
Naphthalene	3.479	0.21	4.255	0	81.8	39	125				
Phenanthrene	3.851	0.21	4.255	0.03409	89.7	46	144				
Pyrene	3.543	0.21	4.255	0	83.2	39	158				
Surr: 1,2-Dichlorobenzene-d4	0.734		1.064		69.0	27	100				
Surr: 2-Fluorobiphenyl	0.755		1.064		71.0	34	135				
Surr: 4-Terphenyl-d14	0.723		1.064		68.0	34	167				
Surr: Nitrobenzene-d5	0.755		1.064		71.0	25	135				

Sample ID **N023002-006C-MSD** SampType: **MSD** TestCode: **8270_W_SIM** Units: **ug/L** Prep Date: **2/10/2017** RunNo: **113477**
Client ID: **ZZZZZZ** Batch ID: **61232** TestNo: **EPA 8270CSI EPA 3510C** Analysis Date: **2/13/2017** SeqNo: **2564448**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1-Methylnaphthalene	3.158	0.21	4.211	0	75.0	35	131	3.351	5.94	30	
2-Methylnaphthalene	3.368	0.21	4.211	0	80.0	36	121	3.649	7.99	30	
Acenaphthene	3.453	0.21	4.211	0	82.0	39	125	3.670	6.11	30	
Acenaphthylene	3.663	0.21	4.211	0	87.0	43	140	3.851	5.00	30	
Anthracene	3.168	0.21	4.211	0	75.2	41	132	3.255	2.71	30	
Benzo(a)anthracene	4.053	0.21	4.211	0	96.2	58	141	4.181	3.11	30	
Benzo(a)pyrene	3.589	0.21	4.211	0	85.2	31	142	3.670	2.22	30	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_SIMPGE

Sample ID	N023002-006C-MSD	SampType:	MSD	TestCode:	8270_W_SIM	Units:	ug/L	Prep Date:	2/10/2017	RunNo:	113477
Client ID:	ZZZZZZ	Batch ID:	61232	TestNo:	EPA 8270CSI EPA 3510C			Analysis Date:	2/13/2017	SeqNo:	2564448

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	3.926	0.21	4.211	0	93.2	42	156	3.862	1.66	30	
Benzo(g,h,i)perylene	3.168	0.21	4.211	0	75.2	12	171	3.000	5.46	30	
Benzo(k)fluoranthene	3.063	0.21	4.211	0	72.8	49	165	3.287	7.06	30	
Chrysene	3.221	0.21	4.211	0	76.5	51	155	3.277	1.71	30	
Dibenz(a,h)anthracene	3.295	0.21	4.211	0	78.3	28	153	3.021	8.66	30	
Fluoranthene	3.463	0.21	4.211	0	82.3	47	158	3.596	3.76	30	
Fluorene	3.705	0.21	4.211	0	88.0	40	140	3.872	4.41	30	
Indeno(1,2,3-cd)pyrene	3.463	0.21	4.211	0	82.3	20	167	3.543	2.27	30	
Naphthalene	3.147	0.21	4.211	0	74.8	39	125	3.479	10.0	30	
Phenanthrene	3.716	0.21	4.211	0.03409	87.4	46	144	3.851	3.58	30	
Pyrene	3.484	0.21	4.211	0	82.8	39	158	3.543	1.66	30	
Surr: 1,2-Dichlorobenzene-d4	0.674		1.053		64.0	27	100		0		
Surr: 2-Fluorobiphenyl	0.684		1.053		65.0	34	135		0		
Surr: 4-Terphenyl-d14	0.705		1.053		67.0	34	167		0		
Surr: Nitrobenzene-d5	0.674		1.053		64.0	25	135		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	CH2M HILL	**Client Sample ID:**	AOC4-40-3207
Lab Order:	N023002	**Collection Date:**	2/6/2017 2:30:00 PM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	SOIL
Lab ID:	N023002-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PERCENT MOISTURE							
			D2216				
RunID: **NV00922-WC_170208C**	QC Batch: **R113375**			PrepDate			Analyst: **LR**
Percent Moisture	9.152	0.1000	0.1000		wt%	1	2/8/2017 12:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	CH2M HILL	**Client Sample ID:**	AOC4-tar
Lab Order:	N023002	**Collection Date:**	2/6/2017 1:00:00 PM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	SOIL
Lab ID:	N023002-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PERCENT MOISTURE							
			D2216				
RunID: **NV00922-WC_170208C**	QC Batch: **R113375**			PrepDate			Analyst: **LR**
Percent Moisture	1.944	0.1000	0.1000		wt%	1	2/8/2017 12:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	CH2M HILL	**Client Sample ID:**	Soil-IDW-01-6253
Lab Order:	N023002	**Collection Date:**	2/6/2017 9:45:00 AM
Project:	PG&E 2017-Soil RFI-Sampling, 684141.FP.FW	**Matrix:**	SOIL
Lab ID:	N023002-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PERCENT MOISTURE							
			D2216				
RunID: **NV00922-WC_170208C**	QC Batch: **R113375**			PrepDate			Analyst: **LR**
Percent Moisture	2.939	0.1000	0.1000		wt%	1	2/8/2017 12:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: CH2M HILL
Work Order: N023002
Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW

ANALYTICAL QC SUMMARY REPORT

TestCode: PMOIST

Sample ID **MB-R113375**	SampType: **MBLK**	TestCode: **PMOIST**	Units: **wt%**	Prep Date:	RunNo: **113375**
Client ID: **PBS**	Batch ID: **R113375**	TestNo: **D2216**		Analysis Date: **2/8/2017**	SeqNo: **2559487**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	ND	0.1000									

Sample ID **N023002-001BDUP**	SampType: **DUP**	TestCode: **PMOIST**	Units: **wt%**	Prep Date:	RunNo: **113375**
Client ID: **ZZZZZZ**	Batch ID: **R113375**	TestNo: **D2216**		Analysis Date: **2/8/2017**	SeqNo: **2559492**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	9.894	0.1000						9.152	7.79	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CHAIN OF CUSTODY RECORD

Project Name: PG&E **Project:** 2017-Soil RFI-Sampling **Project Manager:** Mike Cavaliere 415.819.0476

Field Manager: Eli Ludwig 505.999.7535
Location: Topock
Turnaround Time: 10 Days
Project Number: 684141.FP.FW
COC Number: 2017-02-07-17-06

GROUNDWATER PARTNERS

								Container Type	8oz Jar	8oz Jar		3 x 8oz	8oz Jar				5x40ml	5x40ml	8oz Jar	R=Run				
								Holding Time	30	180	14	30	14	14	14	14	14	14	14	H=Hold				
No.	AOC	Sample ID	Sample Date	Sample Time	Matrix	Top Depth Of Sample (Ft)	Bottom Depth Of Sample (Ft)	Hexavalent Chromium (7199-RFI)	Metals (6010B/7471A) Title 22 Metals	CLP-Cn, CLP-Metals	Dioxins/Furan (8290)	CLP-Pest, CLP-SVOCs	PAHs (8270C-RFI)	PAHs (8270Sim)	PCBs (8082)	CLP-VOCs	TPH-Purgable (8015B-P)	TPH-Extractable (8015B-E)	No. of 8 oz. Jars	No. of 40 oz. DI VOAs	No. of 40 oz. Methanol VOAs	Total No. of Containers	Comments
1	4	AOC4-42-3177	2/4/17	8:00	Soil	0.0	0.5	R	R	R	R	R		R	R	R			6	4	1	11	
2	4	AOC4-42-3177MS	2/4/17	8:05	Soil	0.0	0.5	R	R		R			R	R				6			6	Matrix Spike
3	4	AOC4-42-3177SD	2/4/17	8:10	Soil	0.0	0.5	R	R		R			R	R				6			6	Matrix Spike Duplicate
4	4	AOC4-42-3178	2/4/17	9:00	Soil	2.0	3.0	R	R		R			R	R				6			6	
5	4	AOC4-42-3179	2/4/17	9:45	Soil	5.0	6.0	R	R		R			R	R				6			6	Rocky: low volume
6	4	AOC4-42-3181	2/4/17	10:30	Soil	7.0	7.5	R	R		R			R	R				6			6	Refusal at 7.5'. Very rocky
7	4	AOC4-37-3192	2/4/17	15:00	Soil	0.0	0.5	R	R	R	R	R		R	R	R			6	4	1	11	Refusal at 0.5'
8	SD	SD-28-01	2/5/17	12:00	Soil	0.0	0.5	R	R					R	R		R	R	4	4	1	9	
9	SD	SD-28-02	2/5/17	12:30	Soil	2.0	3.0	R	R					R	R		R	R	4	4	1	9	
10	SD	SD-28-03	2/5/17	13:00	Soil	5.0	6.0	R	R					R	R		R	R	4	4	1	9	
11	SD	SD-28-04	2/5/17	14:00	Soil	9.0	10.0	R	R					R	R		R	R	4	4	1	9	Collected below PVC pipe
12	SD	SD-29-01	2/4/17	13:30	Soil	0.0	0.5	R	R					R	R		R	R	4	4	1	9	
13	SD	SD-29-02	2/4/17	14:00	Soil	2.0	3.0	R	R	R		R		R	R	R	R	R	4	4	1	9	
14	SD	SD-29-02MS	2/4/17	14:05	Soil	2.0	3.0	R	R					R	R		R	R	4	4	1	9	Matrix Spike
15	SD	SD-29-02SD	2/4/17	14:10	Soil	2.0	3.0	R	R					R	R		R	R	4	4	1	9	Matrix Spike Duplicate
16	SD	SD-29-03	2/5/17	8:00	Soil	4.5	5.0	R	R					R	R		R	R	4	4	1	9	Collected below clay pipe
17	SD	SD-29-04	2/5/17	8:30	Soil	7.5	8.0	R	R					R	R		R	R	4	4	1	9	
18	4	AOC4-40-3205	2/6/17	14:00	Soil	0.0	0.5	R	R		R			R	R				6			6	
19	4	AOC4-40-3206	2/6/17	14:05	Soil	0.0	0.5	R	R		R			R	R				6			6	
20	4	AOC4-40-3207	2/6/17	14:30	Soil	0.5	1.0	R	R		R			R	R				6			6	Refusal at 1.0' ND23082-0
21	4	AOC4-tar	2/6/17	13:00	Soil	0.0	0.5	R	R		R		R	R	R				6			6	Debris sample -02
22	4	AOC4-M06-10822	2/7/17	10:00	Soil	2.0	3.0				R								6			6	Refusal at 3.4' -03
23	NA	Soil-IDW-01-6253	2/6/17	9:45	Soil	NA	NA	R	R		R			R	R				6			6	Waste Characterization -04

Signatures	Date	Time
Relinquished By	2/7/17	1600
Received By	2/7/17	1610
Relinquished By	2/7/17	2350
Received By	2/7/17	2350

Shipping
Method drive ship — 17°C Dry ice
On Ice? (yes) no — 0.6°C, 2.1°C, 2.2°C, 2.5°C
Lab Name ASSET Lab
Lab Phone # 702.307.2659

118 48 12 178 Total Number of Containers

Special Instructions
Be sure to spike the "****MS" and "****SD" samples. Thank you, Eli.

Report Copy To
Mark Fesler 530.229.3273

CHAIN OF CUSTODY RECORD

Project Name: PG&E **Project:** 2017-Soil RFI-Sampling **Project Manager:** Mike Cavaliere

Field Manager: Eli Ludwig
Location: Topock
Turnaround Time: 10 Days
Project Number: 684141.FP.FW
COC Number: 2017-02-07-17-06

R=Run
H=Hold

GROUNDWATER PARTNERS

	Hex Chrom (218.6)	Title 22 Metals (6010B/7470A)	CLP-Metals	CLP-Cyanide	Dioxins/Furan (8290)	PAHs (8270Sim)	PCBs (8082)	CLP-Pesticides	TPH-Extractable	TPH-Purgeable	CLP-VOCs
Container Type	250 ml Poly	500 ml Poly		250 ml Poly	2x1L Amber	2x1L Amber	2x1L Amber	2x1L Amber	1x1L Amber	3x40ml VOAs	3x40ml VOAs
Preservatives	NH_4SO_4/NH_4OH	HNO3, 4°C		NaOH, 4°C	4°C	4°C	4°C	4°C	4°C	HCl, 4°C	HCl, 4°C
Filtered	None	None		None	None	None	None	None	None	None	None
Holding Time	28	180		14	30	7	7	7	7	14	14

No.	Sample ID	Sample Date	Sample Time	Matrix	Hex Chrom (218.6)	Title 22 Metals (6010B/7470A)	CLP-Metals	CLP-Cyanide	Dioxins/Furan (8290)	PAHs (8270Sim)	PCBs (8082)	CLP-Pesticides	TPH-Extractable	TPH-Purgeable	CLP-VOCs	No. of 250 ml Poly w/ NH_4SO_4/NH_4OH	No. of 500 ml Poly w/ HNO_3	No. of 250 ml Poly w/NaOH	No. of 1L Ambers	No. of 40ml VOAs w/ HCl	Total No. of Containers	Sites or AOCs Sampled From
24	AOC-EB-02-04-17	2/4/17	16:00	Water	R	R	R	R	R	R	R	R	R	R	R	1	1	1	8	6	16	Perimeter Area N0223[illegible]
25	SD-EB-02-05-17	2/5/17	16:00	Water	R	R				R	R		R	R		1	1		5	3	10	Perimeter Area [illegible]
26	AOC-TB-02-07-17	2/7/17	14:00	Water										R	R					6	6	Perimeter Area [illegible]
																2	2	1	12	15	32	Total Number of Containers
																					15	Total Volume (Liters):
																					4	Total Volume (Gallons):

	Signatures	Date	Time
Relinquished By	[signature]	2/7/17	1600
Received By	[signature]	2/7/17	1600
Relinquished By	[signature]	2/7/17	2350
Received By	[signature]	2/7/17	2350

Shipping

Method: drive ship
On Ice? (yes) no 2.6°C, 2.1°C [illegible]
Lab Name: ASSET Lab
Lab Phone #: 702.307.2659

Special Instructions

Be sure to spike the "****MS" and "****SD" samples. Thank you, Eli.

Report Copy To

Mark Fesler 530.229.3273

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	2/7/2017	Workorder:	N023002
Rep sample Temp (Deg C):	2.6/2.1/2.2/2.5	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☑	NA ☐
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☑	No ☐	NA ☐

Comments:
- AOC-EB-02-04-17: 1 VOA with headspace > 7 mm
- AOC-TB-02-07-17: 2 VOAs with headspace < 5 mm and 1 VOA with a huge headspace.
- Soil-IDW-01-6253. Received two extra 5035 sets (4 VOAs/DI Water and 1 VOA/MeOH).

Checklist Completed By: YR 2/9/2017

Reviewed By: MBC 2/20/2017

ASSET Laboratories

WORK ORDER Summary

08-Feb-17

WorkOrder: N023002

Client ID: CH2HI01

Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.F **QC Level:** Level IV **Date Received:** 2/7/2017

Comments: Be sure to spike the "****MS" and "****SD" samples. Thank you, Eli. Report Copy to Mark Fesler 530.229.3273

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N023002-001A	AOC4-40-3207	2/6/2017 2:30:00 PM	2/21/2017	Soil	EPA 3060A	Prep for Hexavalend Chromium	☐	☐	☐	WS
			2/21/2017		EPA 7199	Hexavalent Chromium by IC	☐	☐	☐	WS
N023002-001B			2/21/2017		EPA 3050B	SOPREP TOTAL METALS	☐	☐	☐	WS
			2/21/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WS
			2/21/2017			MERCURY PREP	☐	☐	☐	WS
			2/21/2017		EPA 7471A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WS
			2/21/2017		D2216	PERCENT MOISTURE	☐	☐	☐	WS
N023002-001C			2/21/2017		EPA 8290	Dioxins and Dibenzofurans	☐	☐	☑	SUB
N023002-001D			2/21/2017		EPA 3550B	ULTRASONIC EXTRACTION: PESTICIDES/PCB	☐	☐	☐	WS
			2/21/2017		EPA 3550B	ULTRASONIC EXTRACTION: 8270C - SIM	☐	☐	☐	WS
			2/21/2017		EPA 8082	PCBs BY GC/ECD	☐	☐	☐	WS
			2/21/2017		EPA 8270CSIM	SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM	☐	☐	☐	WS
N023002-002A	AOC4-tar	2/6/2017 1:00:00 PM	2/21/2017		EPA 3060A	Prep for Hexavalend Chromium	☐	☐	☐	WS
			2/21/2017		EPA 7199	Hexavalent Chromium by IC	☐	☐	☐	WS
N023002-002B			2/21/2017		EPA 3050B	SOPREP TOTAL METALS	☐	☐	☐	WS
			2/21/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WS
			2/21/2017			MERCURY PREP	☐	☐	☐	WS
			2/21/2017		EPA 7471A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WS
			2/21/2017		D2216	PERCENT MOISTURE	☐	☐	☐	WS
N023002-002C			2/21/2017		EPA 8290	Dioxins and Dibenzofurans	☐	☐	☑	SUB

ASSET Laboratories

WORK ORDER Summary

08-Feb-17

WorkOrder: N023002

Client ID: CH2HI01

Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.F **QC Level:** Level IV **Date Received:** 2/7/2017

Comments: Be sure to spike the "****MS" and "****SD" samples. Thank you, Eli. Report Copy to Mark Fesler 530.229.3273

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N023002-002D	AOC4-tar	2/6/2017 1:00:00 PM	2/21/2017	Soil	EPA 3550B	ULTRASONIC EXTRACTION: PESTICIDES/PCB	☐	☐	☐	WS
			2/21/2017		EPA 3550B	ULTRASONIC EXTRACTION: 8270C	☐	☐	☐	WS
			2/21/2017		EPA 3550B	ULTRASONIC EXTRACTION: 8270C - SIM	☐	☐	☐	WS
			2/21/2017		EPA 8082	PCBs BY GC/ECD	☐	☐	☐	WS
			2/21/2017		EPA 8270C	SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	WS
			2/21/2017		EPA 8270CSIM	SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM	☐	☐	☐	WS
N023002-003A	AOC4-M06-10822	2/7/2017 10:00:00 AM	2/21/2017		EPA 8290	Dioxins and Dibenzofurans	☐	☐	☑	SUB
N023002-004A	Soil-IDW-01-6253	2/6/2017 9:45:00 AM	2/21/2017		EPA 3060A	Prep for Hexavalend Chromium	☐	☐	☐	WS
			2/21/2017		EPA 7199	Hexavalent Chromium by IC	☐	☐	☐	WS
N023002-004B			2/21/2017		EPA 3050B	SOPREP TOTAL METALS	☐	☐	☐	WS
			2/21/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WS
			2/21/2017			MERCURY PREP	☐	☐	☐	WS
			2/21/2017		EPA 7471A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WS
			2/21/2017		D2216	PERCENT MOISTURE	☐	☐	☐	WS
N023002-004C			2/21/2017		EPA 8290	Dioxins and Dibenzofurans	☐	☐	☑	SUB
N023002-004D			2/21/2017		EPA 3550B	ULTRASONIC EXTRACTION: PESTICIDES/PCB	☐	☐	☐	WS
			2/21/2017		EPA 3550B	ULTRASONIC EXTRACTION: 8270C - SIM	☐	☐	☐	WS
			2/21/2017		EPA 8082	PCBs BY GC/ECD	☐	☐	☐	WS
			2/21/2017		EPA 8270CSIM	SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM	☐	☐	☐	WS

ASSET Laboratories

WORK ORDER Summary

08-Feb-17

WorkOrder: N023002

Client ID: CH2HI01

Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.F **QC Level:** Level IV **Date Received:** 2/7/2017

Comments: Be sure to spike the "****MS" and "****SD" samples. Thank you, Eli. Report Copy to Mark Fesler 530.229.3273

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N023002-005A	AOC-EB-02-04-17	2/4/2017 4:00:00 PM	2/21/2017	Water	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N023002-005B			2/21/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			2/21/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			2/21/2017		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
			2/21/2017		EPA 6020	TOTAL METALS BY ICPMS	☐	☐	☐	WW
			2/21/2017			MERCURY PREP	☐	☐	☐	WW
			2/21/2017		EPA 7470A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WW
N023002-005C			2/21/2017		EPA 9014	CYANIDE, TOTAL	☐	☐	☑	SUB
N023002-005D			2/21/2017		EPA 8290	Dioxins and Dibenzofurans	☐	☐	☑	SUB
N023002-005E			2/21/2017		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: PESTICIDE/PCB	☐	☐	☐	WW
			2/21/2017		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: EXTRACTABLE FUELS	☐	☐	☐	WW
			2/21/2017		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: PESTICIDE	☐	☐	☐	WW
			2/21/2017		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: 8270C - SIM	☐	☐	☐	WW
			2/21/2017		EPA 8015B	DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID	☐	☐	☐	WW
			2/21/2017		EPA 8081A	ORGANOCHLORINE PESTICIDES BY GC/ECD	☐	☐	☐	WW
			2/21/2017		EPA 8082	PCBs BY GC/ECD	☐	☐	☐	WW
			2/21/2017		EPA 8270CSIM	SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM	☐	☐	☐	WW
N023002-005F			2/21/2017		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☐	VW
N023002-005G			2/21/2017		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VW

ASSET Laboratories

WORK ORDER Summary

08-Feb-17

WorkOrder: N023002

Client ID: CH2HI01

Project: PG&E 2017-Soil RFI-Sampling, 684141.FP.F **QC Level:** Level IV **Date Received:** 2/7/2017

Comments: Be sure to spike the "****MS" and "****SD" samples. Thank you, Eli. Report Copy to Mark Fesler 530.229.3273

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N023002-005G	AOC-EB-02-04-17	2/4/2017 4:00:00 PM	2/21/2017	Water	EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VW
N023002-006A	SD-EB-02-05-17	2/5/2017 4:00:00 PM	2/21/2017		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N023002-006B			2/21/2017		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			2/21/2017		EPA 6020	TOTAL METALS BY ICPMS	☐	☐	☐	WW
			2/21/2017			MERCURY PREP	☐	☐	☐	WW
			2/21/2017		EPA 7470A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	☐	☐	☐	WW
N023002-006C			2/21/2017		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: PESTICIDE/PCB	☐	☐	☐	WW
			2/21/2017		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: EXTRACTABLE FUELS	☐	☐	☐	WW
			2/21/2017		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: 8270C - SIM	☐	☐	☐	WW
			2/21/2017		EPA 8015B	DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID	☐	☐	☐	WW
			2/21/2017		EPA 8082	PCBs BY GC/ECD	☐	☐	☐	WW
			2/21/2017		EPA 8270CSIM	SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS-SIM	☐	☐	☐	WW
N023002-006D			2/21/2017		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☐	VW
N023002-007A	AOC-TB-02-07-17	2/7/2017 2:00:00 PM	2/21/2017		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☐	VW
N023002-007B			2/21/2017		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VW
			2/21/2017		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VW
N023002-008A	FOLDER	2/21/2017	2/21/2017		Folder	Folder	☐	☐	☐	LAB

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

Truesdail
3337 Michelson Drive, Suite CN750
Irvine, CA 92612

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler:

08-Feb-17

				Requested Tests		
Sample ID	**Matrix**	**Date Collected**	**Bottle Type**	**EPA 9014**		
N023002-005C / AOC-EB-02-04-17	Water	2/4/2017 4:00:00 PM	8OZP	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#:N23002B Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT.

Please analyze for Cyanide. CH2M Hill Sample.

GSO #: 534971591

	Date/Time		Date/Time
Relinquished by:	2/8/2017 17:00	**Received by:**	
Relinquished by:		**Received by:**	

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

APPL, Inc.
908 N. Temperance Ave.
Clovis, CA 93611

TEL: (559) 275-2175
FAX: (209) 275-4422
Acct #:

Field Sampler:

08-Feb-17

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: EPA 8290		
N023002-001C / AOC4-40-3207	Soil	2/6/2017 2:30:00 PM	8OZG	1		
N023002-002C / AOC4-tar	Soil	2/6/2017 1:00:00 PM	8OZG	1		
N023002-003A / AOC4-M06-10822	Soil	2/7/2017 10:00:00 AM	8OZG	1		
N023002-004C / Soil-IDW-01-6253	Soil	2/6/2017 9:45:00 AM	8OZG	1		
N023002-005D / AOC-EB-02-04-17	Water	2/4/2017 4:00:00 PM	32OZA	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#:N23002A Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT.

Please analyze for Dioxins/Furans by EPA 8290. CH2M Hill Samples.

GSO #: 534971580

	Date/Time		Date/Time
Relinquished by:	2/8/2017 17:00	**Received by:**	
Relinquished by:		**Received by:**	

Yoandra Rodriguez

From: Mark.Fesler@CH2M.com
Sent: Friday, February 10, 2017 2:43 PM
To: marlon@assetlaboratories.com
Cc: yoandra@assetlaboratories.com; hanah.glodoviza@assetlaboratories.com; fernando@assetlaboratories.com
Subject: RE: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW (Asset Labs No. N023002)

Marlon:

Please run the same TPH fractions on Sample N023002-004 (**Soil-IDW-01-6253**) that you are running on N023002-006 (8015 GRO and DRO)

Thanks

Mark Fesler
Environmental Scientist/Manager of Talent (MOT)
D 1 530 229 3273
C 1 530 524 8041

CH2M
2525 Airpark Dr
Redding CA 96001
mark.fesler@ch2m.com

From: Eli Ludwig [mailto:eli@groundwaterpartners.com]
Sent: Friday, February 10, 2017 2:31 PM
To: Marlon B. Cartin <marlon@assetlaboratories.com>; Fesler, Mark/RDD <Mark.Fesler@CH2M.com>
Cc: Yoandra Rodriguez <yoandra@assetlaboratories.com>; Hanah Glodoviza <hanah.glodoviza@assetlaboratories.com>; fernando@assetlaboratories.com
Subject: Re: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW (Asset Labs No. N023002) [EXTERNAL]

Hi mark. Can you advise the lab what they should run for tph? Thank you. Eli

On Feb 9, 2017, at 3:53 PM, Marlon B. Cartin <marlon@assetlaboratories.com> wrote:

> So we will run TPH on the sample and not VOCs, right?
> Also, what TPH range do you need?
>
> Thanks,
>
> **Marlon B. Cartin**
> Project Manager
> Nevada: 3151 W. Post Road, Las Vegas, NV 89118
> **P:** 702.307.2659 Ext. 410 | **F:** 702.307.2691 | **M:** 702.439.0421
>
> ---
>
> **From:** Eli Ludwig [mailto:eli@groundwaterpartners.com]
> **Sent:** Thursday, February 09, 2017 2:41 PM
> **To:** Marlon B. Cartin
> **Subject:** Re: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW (Asset Labs No. N023002)
>
> Hi Marlon, please include the tph analysis.

Thanks! Eli

On Feb 9, 2017, at 9:59 AM, Marlon B. Cartin <marlon@assetlaboratories.com> wrote:

Bro,

Forwarding.

Thanks,

Marlon B. Cartin

Project Manager

Nevada: 3151 W. Post Road, Las Vegas, NV 89118

P: 702.307.2659 Ext. 410 **I** **F:** 702.307.2691 **I** **M:** 702.439.0421

From: Yoandra Rodriguez [mailto:yoandra@assetlaboratories.com]
Sent: Wednesday, February 08, 2017 6:35 PM
To: 'Marlon B. Cartin'
Cc: Sonny. Lorenzo; Hanah Glodoviza; Fernando Rivera; Andreafe. Gallardo
Subject: PG&E 2017-Soil RFI-Sampling, 684141.FP.FW (Asset Labs No. N023002)

Hi Marlon,

We received two 5035 sets (4 VOAs/DI Water and 1 VOA/MeOH) for sample **Soil-IDW-01-6253**, but VOC and/or TPH-purgeable analysis are not requested on COC.

COC is atteched for reference.

Please kindly advise.

Thanks,

Yoandra Rodriguez

Sample Control Officer

California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 I P: 562.219.7435 I F: 562.219.7436

Nevada: 3151 W. Post Road, Las Vegas, NV 89118 I P: 702.307.2659 Ext. 411 I F: 702.307.2691 I

www.assetlaboratories.com

<<...>>

<N023002_COC.pdf>

ASSET LV Sample Control

From: Marlon B. Cartin <marlon@assetlaboratories.com>
Sent: Wednesday, February 08, 2017 5:16 PM
To: Mark.Fesler@CH2M.com; samplecontrol.lv@assetlaboratories.com
Subject: RE: N023001; N023002 COC and Work Order Summary for Samples Received 2/7/2017

Noted on this Mark. I'm sorry for the late response, I was out picking up samples.

Thanks,

Marlon B. Cartin
Project Manager
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 Ext. 410 I F: 702.307.2691 I M: 702.439.0421

From: Mark.Fesler@CH2M.com [mailto:Mark.Fesler@CH2M.com]
Sent: Wednesday, February 08, 2017 7:25 AM
To: samplecontrol.lv@assetlaboratories.com
Cc: marlon@assetlaboratories.com
Subject: RN: N023001; N023002 COC and Work Order Summary for Samples Received 2/7/2.017

Sample control:

For WO N023002, sample N023002-002 (AOC4-tar) needs to also be logged in for SW8270C full list in addition to the SW8270SIM PAH method. (Note; The method code on COC should have read "SVOCs (8270C-RFI)").

Thanks

Mart{ Fesler
Environmental Scientist/Manager of Talent (MOT)
D 1 530 229 3273
C 1 530 524 8041

CH2M
2525 Airpart{ Dr
Redding CA 96001
mark.fes1er@ch2m.com

From: ASSET LV Sample Control [mailto:samplecontrol.lv@assetlaboratories.com]
Sent: Wednesday, February 08, 2017 7:00 AM
To: SWR/RDD Electronic Data <edata@CH2M.com>
Cc: Fesler, Mark/ROD <Mark.Fesler@CH2M.com>
Subject: N023001; N023002 COC and Work Order Summary for Samples Received 2/7/2017 [EXTERNAL]

Hi Mark Fesler:

Enclosed are COC and WO Summary for sample received 2/7/2017. If you have any questions, please contact your Project Manager listed below.

Marlon Cartin
3151 W. Post Road
Las Vegas, Nevada
89118
Tel. No.: (702)-307-2659 Ext. 410
Cel. No.: (702)-439-0421
Email: marlon@assetlaboratories.com

Thank you for using ASSET Laboratories.

Sincerely,
Andrea Fe M. Gallardo
Sample Control Officer

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691
www.assetlaboratories.com

ASSET LABORATORIES - Serving Clients with Passion and Professionalism

Attachment B5
Waste Manifest

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: CAR000151118
2. Page 1 of
3. Emergency Response Phone: 877-577-2669
4. Manifest Tracking Number: 014901522 JJK

GENERATOR

5. Generator's Name and Mailing Address
PG&E MANIFESTS
PO BOX 7640
SAN FRANCISCO, CA. 94120
Generator's Phone: 760-258-7899

Generator's Site Address (if different than mailing address)
PG&E TOPOCK GROUNDWATER EXTRACTION SITE
HWY I-40 & PARK MOABI RD
NEEDLES, CA. 92363

6. Transporter 1 Company Name: MPE
U.S. EPA ID Number: CAT000624247

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
US ECOLOGY
HWY 95 11 MILES S. OF BEATTY
BEATTY, NV 89003
Facility's Phone: 800-239-3943
U.S. EPA ID Number: NVT330010000

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. RQ, NA3077, HAZARDOUS WASTE, SOLID, N.O.S. (CHROMIUM), 9, PG III	1	CM	11	Y	D007	611	
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
PROFILE #: 070238340
BIN # 16057

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: CHRIS SMITH
Signature: Chris Smith
Month: 4 Day: 21 Year: 16

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: HECTOR CINAR
Signature:
Month: 4 Day: 21 Year: 16

Transporter 2 Printed/Typed Name
Signature
Month Day Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H039			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: THOMAS MOORE
Signature:
Month: 04 Day: 26 Year: 16

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
CAR000151118		877-577-2669	014901521 JJK

GENERATOR

5. Generator's Name and Mailing Address
~~PG&E Topock Groundwater Extraction Site~~ CA
PG&E MANIFESTS
P.O. BOX 7640
SAN FRANCISCO, CA 94120
Generator's Phone:

Generator's Site Address (if different than mailing address)
PG&E TOPOCK GROUNDWATER EXTRACTION SITE
HWY I-40 & PARK MOABI RD.
NEEDLES, CA 92363 760-258-7899

6. Transporter 1 Company Name
MPE
U.S. EPA ID Number
CAT000624247

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
US ECOLOGY
HWY 95 (7 MILES S. OF BEATTY 800-239-3943
BEATTY, NV 89003 775-553-2203
Facility's Phone:
U.S. EPA ID Number
NVT330010000

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON RCRA HAZARDOUS WASTE SOLID (NOT DOT REGULATED) PGU	1	CM	8 CY	Y	611
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
PROFILE: 070238370-1
BIN#: 6590

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: CHRIS SMITH
Signature:
Month: 4 Day: 21 Year: 16

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: LEWIS Valder
Signature: Valder
Month: 4 Day: 21 Year: 16

Transporter 2 Printed/Typed Name:
Signature:
Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H132			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: JOSHUA MUSIL
Signature:
Month: 04 Day: 22 Year: 16

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
NA	1	844-334-2468	070294128-03

GENERATOR

5. Generator's Name and Mailing Address
PG&E MANIFESTS
P.O. BOX 7640, SAN FRANCISCO, CA 94120
Generator's Phone:

Generator's Site Address (if different than mailing address)
PGE TOPOCK GW EXTRACT SITE
HIGHWAY I-40 & PARK MOABI RD
NEEDLES, CA 92363

6. Transporter 1 Company Name
HOYT TRANSPORTATION, INC
U.S. EPA ID Number
CAD981425853

7. Transporter 2 Company Name
NONE
U.S. EPA ID Number
NONE

8. Designated Facility Name and Site Address
US ECOLOGY
US HIGHWAY 95, 11 MILES SOUTH OF BEATTY NV, 89003
Facility's Phone:
U.S. EPA ID Number
NVT330010000

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	NON-HAZARDOUS SOIL	1	DT	16	T	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information
WASTE PROFILE NUMBER: 070294128-0

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: KRISTINA BONNETT
Signature: Kristina Bonnett
Month: 8 Day: 6 Year: 20

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name:
Signature:
Month: 8 Day: 11 Year: 20

Transporter 2 Printed/Typed Name:
Signature:
Month: Day: Year:

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

17c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Brandy Williams
Signature:
Month: 8 Day: 11 Year: 20

US ecology

Ticket: 16215

US Ecology Nevada
11 Miles South of Beatty
Beatty, NV 89003

Vehicle: 320

Manifest #:070294128-03

Date: 8/11/2020
Time In: 11:14 AM
Time Out: 12:01 PM

In: 66000 lb
Out: 32720 lb
Net: 33280 lb

Net Tons:16.64 tons
Net Kg: 15096 kilograms

800-239-3943 → 0 – LARISSA DOWNIE

844-334-2468

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number: ~~CAR00015 1118~~
2. Page 1 of: 1
3. Emergency Response Phone: ~~505-999-7535~~
4. Waste Tracking Number: 070294128-01

5. Generator's Name and Mailing Address:
Pacific Gas + Electric Company
~~145453 National Trails Hwy.~~ PO BOX 7640
~~Needles, CA 92363~~ SAN FRANCISCO CA 94120

Generator's Site Address (if different than mailing address):
145453 NATIONAL TRAILS HWY NEEDLES, CA 92363
~~same as mailing address~~
PG&E TOPOCK GROUNDWATER SITE

Generator's Phone:

6. Transporter 1 Company Name: HOYT TRANSPORTATION, INC — U.S. EPA ID Number: CAD981425853

7. Transporter 2 Company Name: NONE — U.S. EPA ID Number: NONE

8. Designated Facility Name and Site Address:
US Ecology
US Highway 95, 11 miles South of Beatty, NV 89003
Facility's Phone: 800-239-3943 ext: 4132
U.S. EPA ID Number: NVT330010000

9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.
1. NON-HAZ SOIL ~~Contaminated Soil~~	1	DT ~~Bulk~~	20 ~~20 Yds.~~	Y ~~Yd~~
2.				
3.				
4.				

13. Special Handling Instructions and Additional Information:
~~NONE~~ PROFILE# 070294128-0

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Kristina Bonnett — Signature: [signature] — Month 8 Day 4 Year 20

15. International Shipments ☐ Import to U.S. NA ☐ Export from U.S. — Port of entry/exit: NA
Transporter Signature (for exports only): — Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Bob Valenti — Signature: [signature] — Month 8 Day 4 Year 20
Transporter 2 Printed/Typed Name: NA — Signature: NA — Month/Day/Year: NA

17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
17b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:
17c. Signature of Alternate Facility (or Generator) — Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name: Brenda Cordova — Signature: [signature] — Month 08 Day 04 Year 20

169-BLS-C 5 11979 (Rev. 9/09)

DESIGNATED FACILITY TO GENERATOR

GENERATOR · INT'L · TRANSPORTER · DESIGNATED FACILITY

Ticket: 16002

US Ecology Nevada
11 Miles South of Beatty
Beatty, NV 89003

Vehicle: 320

Manifest #:070294128-01

Date: 8/4/2020
Time In: 03:52 PM
Time Out: 04:20 PM

In: 79480 lb
Out: 33340 lb
Net: 46140 lb

Net Tons:23.07 tons
Net Kg: 20929 kilograms

Attachment B6
Geophysical Survey Results

NORCAL GEOPHYSICAL CONSULTANTS, INC.

December 15, 2015

Mr. Eli Ludwig
Groundwater Partners Inc.
4410 Hawkins Street - Northwest, Unit D
Albuquerque, NM 87109

Subject: Geophysical Investigation
PG&E Compressor Station - Topock
San Bernardino County, CA

NORCAL Job Number 15-1114.01

Dear Mr. Ludwig:

This letter presents the findings of a geophysical investigation performed by NORCAL Geophysical Consultants, Inc. on the subject site located adjacent to the right bank of the Colorado River, approximately 15 miles southeast of Needles, CA. The field survey was conducted during the period November 16 through 18 by NORCAL California Professional Geophysicist David T. Hagin PGp 1033 and Staff Geophysicist Hunter S. Philson. On-site support, logistics and safety information were provided by Eli Ludwig of Groundwater Partners.

1.0 INTRODUCTION and PURPOSE

PG&E's Topock Compressor Station is a facility associated with the transportation of natural gas through pipelines to service areas in central and northern California. The station has been in operation for over 60 years. Historical information provided by Groundwater Partners indicates that various objects of concern may be buried at or around this facility. These include large pipe segments, a septic tank and leach line and accumulations of metallic debris. Since their locations are unknown, the purpose of this investigation is to obtain subsurface geophysical information to aid in identifying where these suspected features are buried.

2.0 SITE DESCRIPTION

The geophysical survey was conducted in five separate areas, as specified by Groundwater Partners. They are designated as AOC-27, UA-1A, UA-1B West, UA-1B East and AOC-17, and are shown on the aerial photograph on Plate 1.

2.1 - AOC-27

AOC-27 is a large area to the north of the main facility, adjacent to eastbound I40. The central portion of the area is flat, however it is surrounded by steep slopes. The geophysical survey was

limited to areas where the steepness of the slope did not compromise safety while walking with the geophysical equipment; data were acquired in all accessible locations within the specified area of investigation. The area contains active underground pipelines, an above-ground storage tank (AST), abandoned water valves and line, several monitoring wells with bollards, chain-link fencing and other assorted metallic surface debris. The features of interest are zones of buried metallic debris.

2.2 - UA-1A, UA-1B West and UA-1B East

These smaller areas are to the southwest of the main facility and are in a linear configuration roughly parallel to the adjacent pipeline to the south. The areas are characterized by hilly terrain with sparse brush; desert pavement was noted in some locations, indicating areas that have not been disturbed recently. The areas are suspected to contain buried segments of pipe.

2.3 - AOC-17

AOC-17 is within the main portion of the facility. It consists of a small area within a parking lot on the southeast side of the facility. A small portion of the area is overlain by an open storage structure with a cement base. This area is surrounded by metallic features on all sides such as chain-link fencing, metallic structures and racks of stored metallic items. The features of interest are a septic tank and one or more leach lines. It should be noted that upon our arrival excavations had already exposed a portion of the septic tank.

3.0 FIELD INVESTIGATIONS

3.1 METHODOLOGY

Buried objects and debris are often both metallic and nonmetallic in nature. These materials can produce subsurface magnetic and conductivity contrasts that can be delineated by certain geophysical methods. These include, but are not limited to, vertical magnetic gradient (VMG) total field magnetic (TFM), electromagnetic terrain conductivity (TC), metal detection (MD), and ground penetrating radar (GPR) methods.

We used the VMG and TFM methods to search for buried metallic (ferrous) objects such as buried pipes, USTs, utilities, or accumulations of metallic debris. We employed a Geometrics G-858 cesium vapor magnetometer to obtain the TFM data, since it provides high sensitivity and rapid data acquisition. The depth of exploration is dependent on the size and mass of the magnetic source(s).

TC surveys are used to delineate variations in the electrical conductivity of the shallow subsurface to a maximum depth of approximately 8 to 10 ft. or less depending upon site conditions. These variations can be affected by both metallic and nonmetallic objects, debris or

soils or fill material with contrasting electrical properties. The effect that metal (ferrous or nonferrous) will have on the TC readings is dependent upon the depth and size of the object, as well as the conductivity contrast with the surrounding materials. We performed the TC survey using a GSSI EMP-400 ground conductivity meter.

We used the MD (metal detection) method to scan for near surface metal objects and the presence of utilities. The GPR method was used to provide images that represent variations in the electrical properties of the shallow subsurface. These images may indicate possible locations of shallow subsurface objects, including both conductive and non-conductive materials. Descriptions of the TFM, TC, MD, and GPR methods are provided in Appendix A.

3.2 GEOPHYSICAL SURVEYS

3.2.1 Equipment Use

The use of the VMG, TFM, TC, MD, and GPR methods are typically dictated by site access and conditions, as well as the proximity to above ground features that may cause instrument interference. For example, the TC and TFM methods are affected more by the close proximity of above ground metal objects than the MD. The GPR signal is focused downward and is minimally affected by above ground metal objects. However, fine grained near surface soils, high moisture content or thick gravel used for ground cover can reduce signal penetration or cause significant interference to the GPR signal.

3.2.2 Data Acquisition and Analysis

In order to provide position control for the acquisition of data we established a survey grid in each area to determine horizontal positioning. The grids were based on a rectangular coordinate system with the origin (0,0) located in the southwest corner of the area to be surveyed. We set out the grid using a fiberglass measuring tape and marking paint or pin flags. The grid nodes were determined at relevant 10- by 10-ft intervals on the ground. These grids were then used to guide the respective surveys.

We collected both VMG and TFM data, as well as TC data for each site. Readings were acquired at 3- to 5-ft intervals (stations) along traverses spaced 10-ft apart. Following data acquisition in each area, we transferred the data to a field computer and converted them into a format for contouring. The contouring program (***SURFER Version 13.0 by Golden Software***) calculates an evenly spaced array of values based on the observed field data. These gridded values were contoured to produce contour maps for each data set. These maps provided a general characterization of the magnetic and conductivity variations and were used to assess the existence of buried pipes, debris or other subsurface objects. Areas with tightly spaced or closed contour lines indicate larger variations or extremes in the measured values within a specific area. Large variations in values are expected when the instrument is close to a known source such as

chain-link fencing, known underground piping or other metal objects; however, when large variations are not attributable to any identifiable source they are considered anomalous. Anomalies may be due to a single source or may be the net effect of multiple sources superimposed on one another.

After evaluation and comparison of the VMG and TFM contour maps, it was determined that the TFM data were less affected by the existing surface debris and thus more diagnostic in the resolution of sub-surface features. Therefore, the VMG contours were not presented in the final results. The TFM and TC contour maps are presented on Plates 2B, 2C, 3B and 4B.

Follow-up surveys were performed at areas where preliminary analysis of TFM or TC contour maps indicated anomalous variations. These areas were scanned with the MD and GPR equipment in multiple directions in order to assess the configuration of the sub-surface source. The location of any detected target was subsequently marked on the ground surface with spray paint or pin flags.

Following the geophysical investigation, we used a satellite based Trimble Global Positioning System (GPS) with sub-foot accuracy to record the locations of the survey grids and various site features. This information was used to create the Auto CAD generated Site Location Map and Geophysical Survey Maps.

4.0 RESULTS AND INTERPRETATION

The results of the geophysical surveys are presented on Plates 2B, 2C, 3B, 4B and 5; plates 2A, 3A and 4A are localized site maps, and include a summary of all of the anomalies detected by the various methods used. The features shown on these plates include the survey limits, TFM and TC contours and anomalies, MD and GPR anomalies, detected utility lines and pertinent surface features.

4.1 AOC-27

The TFM contour map for this area is shown on Plate 2B and the TC map is on Plate 2C. Note that the steep slopes reduced the area where data could be acquired. Also, the maps have a greater range of values and the TFM has a different contour interval than the other maps due to a larger range of measured values.

Although the maps indicate numerous areas with extreme values and contour closures, nearly all of these areas are attributable to known objects. This area contains numerous surface and known sub-surface metallic features such as large underground gas pipelines, an abandoned underground water line and associated surface water valves, an above-ground ethanol storage tank with protective bollards, monitoring wells with protective bollards, electric vaults and associated electric lines, chain-link fencing and surface metal (rebar). The locations of these

features correlate with the strong variations on the TFM and/or TC contour maps. These variations are attributed to the known features and are thus not considered anomalous.

There are four areas where strong variations do not appear to be associated with known features, and are considered anomalous. The TFM anomalies are indicated by purple hachure and the TC anomalies by blue hachure. These anomalous areas are labeled TMF1, TMF2, TC1 and TC2 on Plates 2A, 2B and 2C, as appropriate. The source of these anomalies is unknown; however, the MD and GPR defined three anomalies (MDA1, MDA2 and GPR1) near the location of TMF1 as indicated on Plate 2A. The sources of these anomalies are also unknown.

Additionally, MD and GPR anomalies are noted directly east of the ethanol tank (MDA3, GPR2 and GPR3) and approximately 40 feet northeast of the ethanol tank (GPR 4 and GPR5), in the dirt road (Plate 2A). Based on conversations with Groundwater Partners personnel these anomalies are interpreted to represent buried debris.

4.2 UA-1B West

The TFM and TC contour maps for this area are shown on Plate 3B. The contour maps show only minor variations and do not suggest the presence of buried metal. The minor variations in the observed values are consistent with variations in soil type and/or moisture content. We also scanned the area with the MD and did not find any locations that were indicative of buried metallic items.

4.3 UA-1B East

The TFM and TC contour maps for this area are shown on Plate 3B. The TFM contour map shows minor variations and does not suggest the presence of buried metal. The TC contour map shows one area with variations in the observed values that may indicate the presence of non-conductive items such as brick or wood, or alternately may be due to changes in soil type and/or moisture content. This area is shown on the TC contour map with blue hachure. We also scanned the area with the MD and did not find any locations that were indicative of buried metallic items.

4.4 UA-1A

The TC contour map for this area shows only minor variations and is free from anomalies. The TMF map indicates 2 areas with significant variations and no apparent source; a metal post and a sign post also cause large variations on the map. The anomalous areas are labeled TMF1 and TMF2 on Plates 4A and 4B. During the subsequent MD and GPR investigation of these areas we did not find anomalies directly correlating with the TFM anomalies; however, we discovered a linear MD anomaly, shown as a dashed blue line on the map. This linear anomaly may represent one or more of the suspected buried pipe segments. The TMF anomalies may be associated with the buried pipes or may possibly represent buried metallic debris.

4.5 AOC-17

Although the close proximity of metal objects such as metal structures and a chain-link fence precluded the use of TFM and TC in this small area, the MD and GPR methods detected anomalies that are interpreted to represent the suspected septic tank and a single leach line. The septic tank had been partially exposed prior to our arrival at the site; the MD anomaly coincides with the exposed septic tank. The interpreted leach line leads from the tank directly down slope. Subsequent to our field survey Groundwater Partners performed several exploratory excavations at locations where we interpreted the leach line to exist and found the line at a depth of approximately 4 feet in each case. Figure 1 is a photograph provided by Groundwater Partners showing one such excavation. The photo shows what appears to be a terra cotta pipe at a depth of approximately 4 feet.

Figure 1

5.0 LIMITATIONS

In general, there are limitations unique to the geophysical methods used for this investigation. For example, subsurface objects may be buried deeper than the detection capabilities of the geophysical method. There may be a lack of contrast in physical properties between native soils

and buried objects. Above or below ground cultural features, such as utilities, fences, and debris, may cause interference that limits or masks the detection of nearby buried objects. Since the accuracy of our findings is subject to these limitations, it should be noted it is possible that not all buried objects or features may be detected or characterized. Descriptions of the MD, TFM, TC, and GPR methods and limitations are presented in Appendix A.

6.0 STANDARD CARE AND WARRANTY

The scope of NORCAL's services for this project consisted of using geophysical methods to characterize the shallow subsurface. The accuracy of our findings is subject to specific site conditions and limitations inherent to the techniques used. We performed our services in a manner consistent with the standard of care ordinarily exercised by members of the profession currently employing similar methods. No warranty, with respect to the performance of services or products delivered under this agreement, expressed or implied, is made by NORCAL.

We appreciate having the opportunity to provide our services to Groundwater Partners for this investigation. Please do not hesitate to call if you are in need of further geophysical consulting services.

Respectfully,

NORCAL Geophysical Consultants, Inc.

David T. Hagin
California Professional Geophysicist, PGp 1033

DTH/KGB/tt

Enclosure: Plates 1 through 5
Appendix A GEOPHYSICAL METHODOLOGY

Appendix A

GEOPHYSICAL METHODOLOGY

TOTAL FIELD MAGNETOMETRY (TFM)

Methodology

Magnetometers measure variations in the earth's magnetic field. These may include the total field magnetic intensity and/or its vertical or horizontal gradient. The magnetometry method that measures the total field magnetic intensity is referred to as total field magnetometry (TFM).

The total field magnetic intensity is a measurement of the magnitude of the earth's magnetic field. Variations in the total field magnetic intensity can be due to differences in the magnetic susceptibility of deep geologic structures, and shallow subsurface materials, or even interferences from above ground cultural features. Typically, effects from shallow subsurface or cultural features tend to be localized or isolated whereas deeper geologic influences are more regional in nature. Total field magnetic intensity is subject to diurnal variations caused by atmospheric effects. To monitor these variations, the intensity of the total field is periodically measured at a predetermined station (free from cultural effects) during the course of the TFM survey. This information is used to create a drift curve so that diurnal variations can be removed from the TFM measurements and thereby increase survey resolution.

A Geometrics G-858 cesium vapor magnetometer or a SCINTREX ENVI-MAP proton precession magnetometer is typically used to obtain TFM data. These instruments feature a built-in memory that stores the TFM data and survey grid information. The information can be down loaded to a computer for further processing.

Data Analysis

Computer Processing

The TFM data are downloaded to a lap-top computer and converted into a format for contouring. The contouring program (SURFER Version 11.0 by Golden Software) calculates an evenly spaced array of values (grid) based on the observed field data. Finally, these gridded values are contoured to produce a TFM contour map.

Contour Map Interpretation

The TFM contour map illustrates the variations in the total field magnetic intensity across the site. Areas without below or above ground ferrous metal are characterized by minimal variations. In these areas, there are very few contours. In areas with above or below ground ferrous metal, the total field magnetic intensity varies considerably. These areas are characterized by numerous closely spaced contours and are considered anomalous. If the source of the anomaly is linear (e.g. underground utilities or fence lines), then the contours tend to be parallel and evenly distributed. If the source of the anomaly is localized (e.g. sign post, buried drum, etc.), then the contours tend to

form circular or elliptical closures proportional to the size of the object. The larger the object and the closer it is to the magnetometer, the denser the concentrations of contours. Magnetic anomalies that cannot be attributed to above ground objects (fences, vehicles, buildings, etc.) are probably caused by buried objects.

USTs are often characterized by circular to elliptical contour closures. These closures have magnitudes ranging from several hundred to several thousand nano-Tesla (nT) depending on the size and depth of the tank. If the UST is cylindrical and lying horizontally, it will often produce a bi-polar TFM anomaly. This consists of two adjacent contour closures. One has TFM values that increase towards the center of the closure and is referred to as a positive lobe. The second has TFM values that decrease towards the center of the closure and is referred to as a negative lobe. Typically, the positive lobe is situated directly above the UST and the negative lobe is to the north of the UST. Utilities and scattered metal debris, on the other hand, are generally characterized by single circular or irregular shaped negative lobes, or a group of alternating positive and negative lobes (closures). These closures typically have magnitudes ranging from less than fifty to several hundred nano-Tesla (nT) depending on the size, depth, and amount of utilities and debris in a given area.

Limitations

Below ground metal ferrous objects produce localized variations in the earth's magnetic field. The magnetic intensity associated with buried metal depends on the mass of the metal and the distance the metal object is from the magnetometer sensor. As the distance between the object and the magnetometer sensor increases, the intensity of the associated field decreases, thereby making detection more difficult. In addition, the ability to detect a buried metal object is based on the intensity of these variations versus the intensity of the background variations. Background variations can be caused by other nearby above or below ground metallic sources. Cultural features such as chain link fences, buildings, debris, railroad spurs, utilities, above ground electric lines, etc. typically produce numerous magnetic variations with high intensities. These variations may mask effects from buried metal objects, or make it very difficult to determine whether the magnetic variations are associated with below ground metal or above/below ground cultural features.

ELECTROMAGNETIC TERRAIN CONDUCTIVITY (TC)

Methodology

The electromagnetic method is used to measure variations in subsurface electrical conductivity that may be due to buried foreign objects or changes in subsurface materials. The electromagnetic system utilizes two coils separated by a specified distance. One of these coils transmits a time-varying electromagnetic signal (primary magnetic field) which induces current flow in the earth. This in turn creates a secondary magnetic field which is detected by the receiver coil. The

secondary signal is complex and has both quadrature and in-phase components. The amplitude of the quadrature component is proportional to the electrical conductivity of the subsurface materials. The in-phase component is proportional to conductivity, but is also affected by electrical properties associated with metal objects. The instrument displays the quadrature component in units of *milliSiemens/meter* (mS/m). Since this measurement represents the conductivity of the volume of material sampled, rather than individual layers, it is an apparent value and is referred to as terrain conductivity.

Electromagnetic surveys are typically conducted using a Geonics EM31-DL ground conductivity meter connected to an *Omnidata* data recorder or comparable equipment. The EM31 has a fixed coil separation of 12 feet, which results in a total depth of investigation of approximately 10 to 15 feet depending upon local site conditions. The data recorder automatically stores EM values as well as station locations and annotations regarding cultural features.

Data Analysis

Computer Processing

The TC data are downloaded to a lap-top computer and converted into a format for contouring. The contouring program (SURFER Version 8.0 by Golden Software) calculates an evenly spaced array of values (grid) based on the observed field data. Finally, these gridded values are contoured to produce a TC contour map.

Contour Map Interpretation

The TC contour map shows the variations in the electromagnetic terrain conductivity values within the survey area. The contour map is characterized by a series of contour lines that represent specific values. Areas that lack contour lines, or where the contours are spaced far apart, indicate a minimal change or variation in the respective values. This is indicative of relatively uniform conditions. Areas where contours are closely spaced indicate variations that are not uniform and probably caused by local sources.

In areas where there are significant quantities of above or below ground metal objects, the measured values are relatively large. These areas are characterized by numerous closely spaced contours. If the source of the anomaly is linear (e.g. underground utilities, railroad spurs, culvert, etc.), then the contours tend to parallel the object, and are closely spaced in close proximity to the object. If the below ground source is localized (e.g. buried drum, isolated metal debris, etc.), then the contours tend to form circular or elliptical closures that enclose the object. The larger the object and the closer it is to the geophysical instrument, the more contours there are in a given area. Variations that cannot be attributed to known above and/or below ground objects (metal well casings, reinforced concrete surface drain, above ground 55 gallon drums, utilities, etc.) are caused by unknown buried objects and are considered anomalous.

Buried landfill material is often characterized by circular to elliptical contour closures. These closures can vary from large circular closures that cover broad areas, to clusters of small closures that occur in zones. If the composition of the landfill is generally homogenous and nonmetallic, the contours tend to form large closures representing low values. If the fill material consists of both nonmetallic and metallic debris that varies significantly throughout the landfill, the contours tend to occur as numerous small closures representing both high and low values.

Limitations

There are inherent limitations associated with TC techniques that may not allow for the detection of all subsurface features of interest. These limitations are related to the composition of the subsurface feature, its size and depth of burial, and its proximity to other above or below ground features. In general, as the distance between a subsurface object and the respective geophysical instrument increases, the intensity of the associated field decreases, thereby making detection more difficult. In addition, above and below ground objects, such as buildings, debris, utilities, above ground electric lines, etc., typically produce interference that may mask effects from nearby buried features (targets).

Apart from the physical limitations of the instruments and the unwanted effects from secondary objects, the ability to detect subsurface features is also dependent upon the density of data acquisition points. If the distance between data acquisition points is significantly larger than the size of the subsurface feature, then this object may not be detectable.

GROUND PENETRATING RADAR (GPR)

Methodology

Ground penetrating radar is a method that provides a continuous, high resolution cross-section depicting variations in the electrical properties of the shallow subsurface. The method is particularly sensitive to variations in electrical conductivity and electrical permittivity (the ability of a material to hold a charge when an electrical field is applied).

The GPR system operates by radiating electromagnetic pulses into the ground from a transducer (antenna) as it is moved along a traverse. Since most earth materials are transparent to electromagnetic energy, the signal spreads downward into the subsurface. However, when the signal encounters a contrast in electrical permittivity, a portion of the electromagnetic energy is reflected back to the surface. When the signal encounters a metal object, all of the incident energy is reflected. The reflected signals are received by the same transducer and are printed in cross-section form on a graphical recorder. Changes in subsurface reflection character on the GPR records can provide information regarding the location of voids, USTs, sumps, buried debris, underground utilities, and variations in the shallow stratigraphy.

The depth of investigation is dependent upon antenna frequency and ground conductivity, as determined by soil conditions. Clayey soils are typically high in water content and relatively conductive, potentially limiting the depth of investigation. Locally, optimum conditions for GPR are dry, sandy soils, although the method has been quite successful when used on snow and ice.

The GPR system used was a Geophysical Survey Systems, Inc. SIR-3000 Subsurface Interface Radar equipped with a 500 megahertz (MHz) transducer. This transducer is near the center of the available frequency range and is used to provide high resolution at shallow depths.

Data Analysis

GPR records are examined to identify reflection patterns characteristic of voids, USTs, utilities, and other buried debris. Typically, USTs, conduits and pipes are manifested by broad localized hyperbolic (upside-down "U" shape) reflection patterns, whereas voids may be quite irregular in shape. The intensity of a reflection pattern is usually dependent upon the condition of the respective object or void, its burial depth, and the type of fill over the feature. Utilities and other buried debris are typically manifested by narrow localized hyperbolic reflections that vary in intensity.

Limitations

The ability to detect subsurface targets is dependent on site specific conditions. These conditions include depth of burial, the size or diameter of the target, the condition of the specific target in question, the type of backfill material associated with the target, and the surface conditions over the target (reinforced concrete, etc.). Under ideal conditions, the GPR can generally detect objects buried to approximately six feet. However, as the clay content in the subsurface increases, the GPR depth of detection decreases. Therefore, it is possible that on-site soil conditions and target features may limit the depth of detection to the upper one to two feet below ground surface.

METAL DETECTION (MD)

Methodology

Buried metallic objects can be detected, without direct contact, by using electromagnetic induction. This is used to detect buried near surface metal objects such as rebar, manhole covers, USTs, and various metallic debris. The induction mode is used by holding the transmitter-receiver unit above the ground and continuously scanning the surface. The unit utilizes two orthogonal coils that are separated by a specified distance. One of the coils transmits an electromagnetic signal (primary magnetic field) which in turn produces a secondary magnetic field about the subsurface metal object. Since the receiver coil is orthogonal to the transmitter coil, it is unaffected by the primary field. Therefore, the secondary magnetic fields produced by buried metal object will generate an audible response from the unit. The peak of this response indicates when the unit is directly over the metal object.

The instrumentation we used for the MD survey consists of a Fisher TW-6 inductive pipe and cable locator.

Data Analysis

The MD instrumentation indicates the presence of buried metal by emitting an audible tone; there are no recorded data to analyze. Therefore, the locations of buried objects detected with the MD method are marked on the ground surface during the survey.

Limitations

The detection of metallic underground utilities, other objects or debris is dependent upon the composition and construction of the item of interest, as well as depth. Features that may not be detectable using standard electromagnetic line location techniques include certain abandoned utilities, or those made of non-electrically conductive materials such as PVC, fiberglass, vitrified clay, and metal pipes with insulating joints. Pipes or other metallic items or debris deeper than about five to seven feet may not be detected.

SCALE

0 10 20 40

(1 inch = 20 feet)

LEGEND

— — —	LIMITS OF GEOPHYSICAL SURVEY
▬	METAL DETECTOR ANOMALY (POSSIBLE SEPTIC TANK)
— — —	LEACH LINE
⊢	APPARENT UTILITY LINE TERMINATION (LINE BECOMES UNDETECTABLE AND IS SUSPECTED TO END)

NORCAL

GEOPHYSICAL SURVEY MAP
AREA AOC-17
PG&E TOPOCK COMPRESSOR STATION

LOCATION: NEEDLES, CALIFORNIA

CLIENT: GROUNDWATER PARTNERS, INC.

JOB #: 15-1114.01

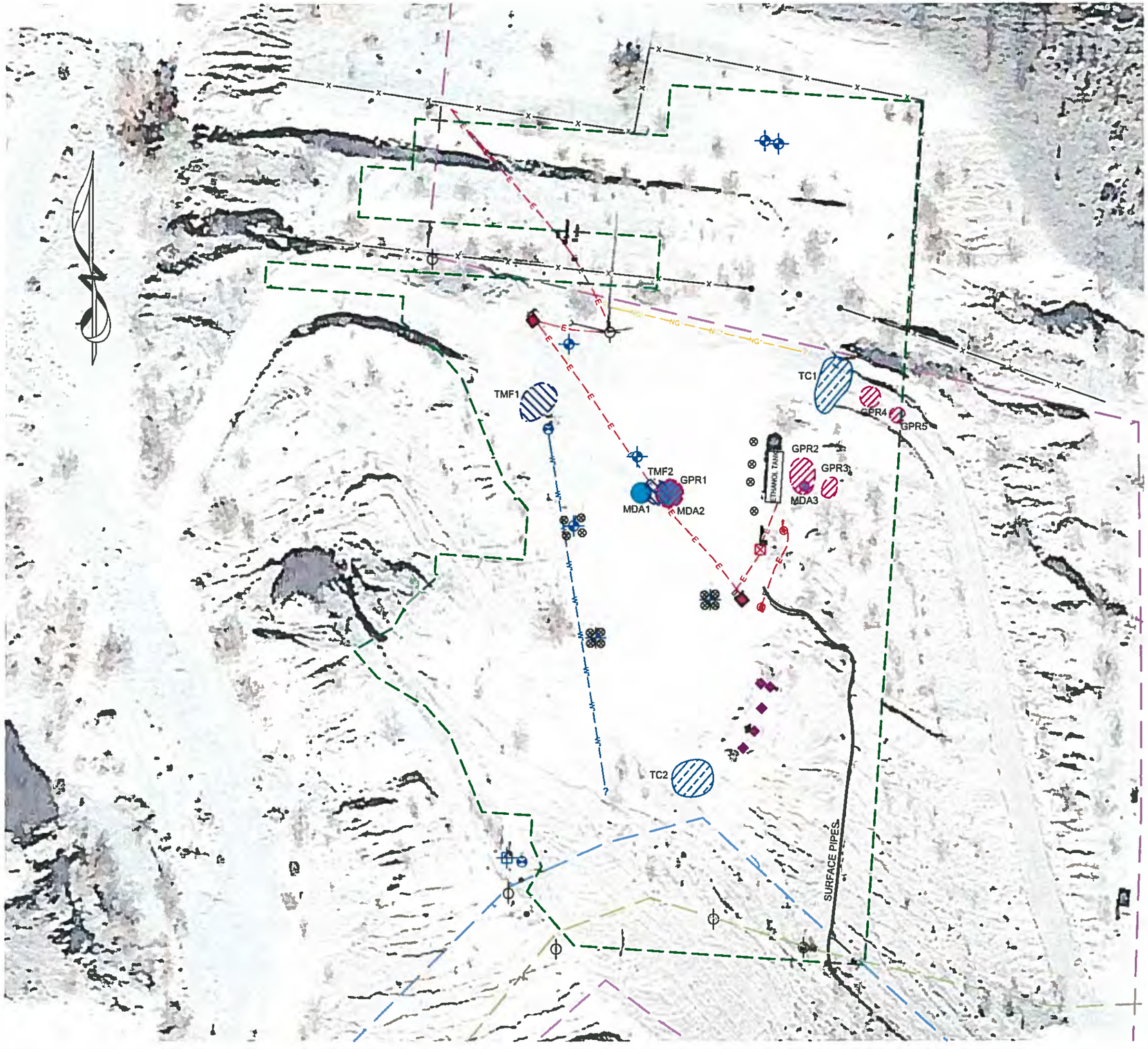
NORCAL GEOPHYSICAL CONSULTANTS INC.

DATE: DEC 2015

DRAWN BY: G.RANDALL

APPROVED BY: DTH

PLATE 5



SCALE

0 20 40 80

(1 inch = 40 feet)

LEGEND

	LIMITS OF GEOPHYSICAL SURVEY
	GPR ANOMALY
	METAL DETECTOR ANOMALY
	TOTAL MAGNETIC FIELD ANOMALY
	TERRAIN CONDUCTIVITY ANOMALY
E	ELECTRIC LINE (METAL CONDUIT WHERE EXPOSED)
NG	NATURAL GAS LINE (MARKED BY OTHERS)
W	SUSPECTED WATER LINE (PER PG&E PERSONNEL, CURT RUSSELL)
	MOJAVE PIPELINE (PER CH2MHILL, 2012)
	PG&E PIPELINE (PER CH2MHILL, 2012)
	TRANSWESTERN PIPELINE (PER CH2MHILL, 2012)
	UTILITY LINE CONTINUATION (LINE IS SUSPECTED TO CONTINUE BEYOND DETECTED LOCATION)
?	UTILITY LINE NOT DETECTED BEYOND LOCATION (LINE MAY TERMINATE OR CONTINUE)
x	FENCE
	BOLLARD
	ELECTRIC BOX
	METAL POST
	CUT-OFF METAL POST
	MONITORING WELL
	OLD RV ELECTRIC HOOK-UP
	OLD WATER VALVE/WELL
	OLD WATER PRODUCTION WELL
	SIGN POST
	SURFACE METAL (REBAR)
	UTILITY POLE/GUY WIRE
	UTILITY VAULT/PULL BOX

NORCAL

GEOPHYSICAL SURVEY MAP
AREA AOC-27
PG&E TOPOCK COMPRESSOR STATION

LOCATION: NEEDLES, CALIFORNIA

CLIENT: GROUNDWATER PARTNERS, INC.

JOB #: 15-1114.01

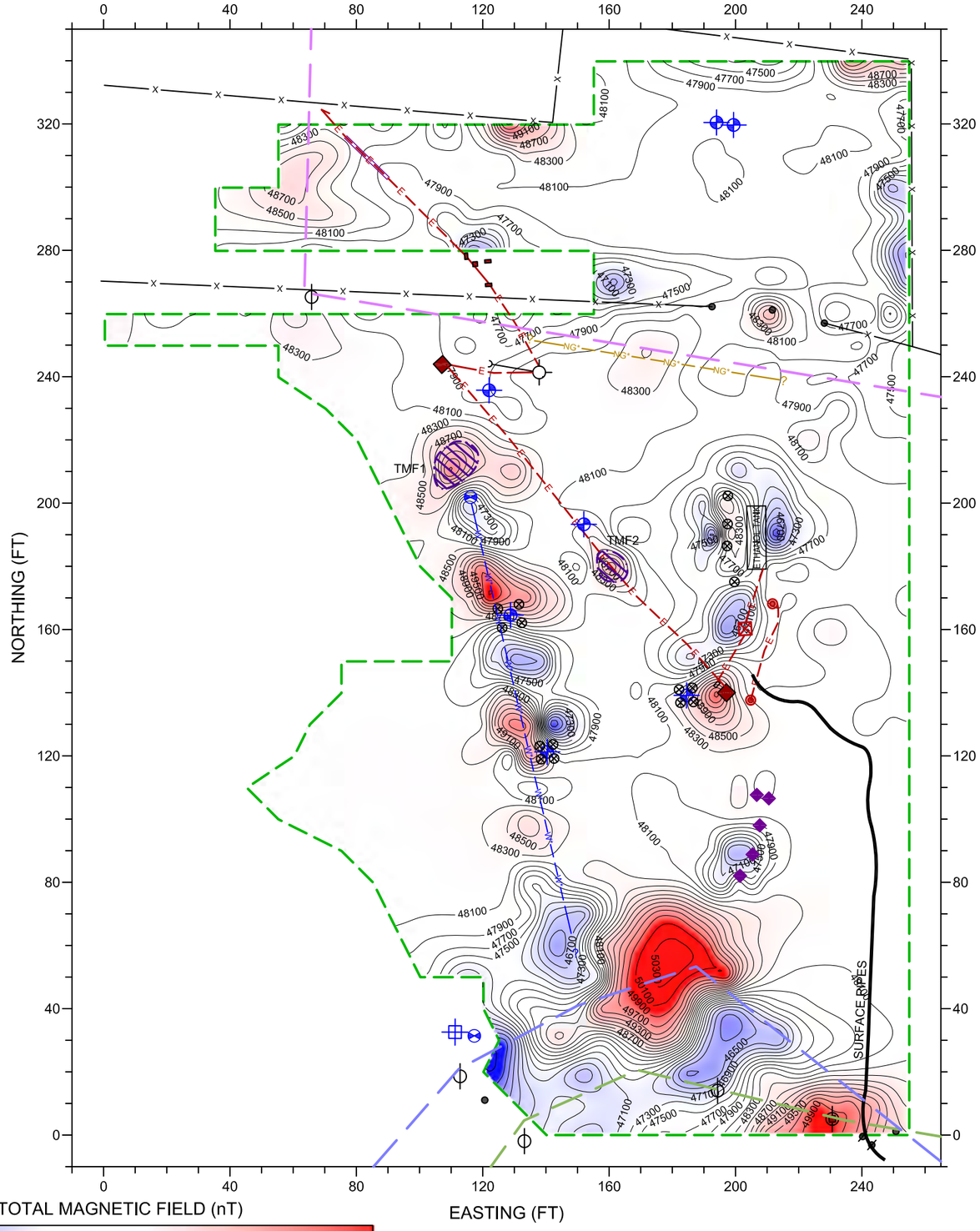
NORCAL GEOPHYSICAL CONSULTANTS INC.

DATE: DEC. 2015

DRAWN BY: G.RANDALL

APPROVED BY: DTH

PLATE 2A



SCALE

0 20 40 80

(1 inch = 40 feet)

LEGEND

	LIMITS OF TOTAL MAGNETIC FIELD SURVEY
0	TOTAL MAGNETIC FIELD CONTOUR (CONTOUR INTERVAL = 200 nT)
	TOTAL MAGNETIC FIELD ANOMALY
E	ELECTRIC LINE (METAL CONDUIT WHERE EXPOSED)
NG*	NATURAL GAS LINE (MARKED BY OTHERS)
W*	SUSPECTED WATER LINE (PER PG&E PERSONNEL, CURT RUSSELL)
	MOJAVE PIPELINE (PER CH2MHILL, 2012)
	PG&E PIPELINE (PER CH2MHILL, 2012)
	TRANSWESTERN PIPELINE (PER CH2MHILL, 2012)
	UTILITY LINE CONTINUATION (LINE IS SUSPECTED TO CONTINUE BEYOND DETECTED LOCATION)
?	UTILITY LINE NOT DETECTED BEYOND LOCATION (LINE MAY TERMINATE OR CONTINUE)
x	FENCE
	BOLLARD
	ELECTRIC BOX
	METAL POST
	CUT-OFF METAL POST
	MONITORING WELL
	OLD RV ELECTRIC HOOK-UP
	OLD WATER VALVE/WELL
	OLD WATER PRODUCTION WELL
	SIGN POST
	SURFACE METAL (REBAR)
	UTILITY POLE/GUY WIRE
	UTILITY VAULT/PULL BOX

NORCAL

TOTAL MAGNETIC FIELD CONTOUR MAP - AREA AOC-27 PG&E TOPOCK COMPRESSOR STATION

LOCATION: NEEDLES, CALIFORNIA

CLIENT: GROUNDWATER PARTNERS, INC.

JOB #: 15-1114.01

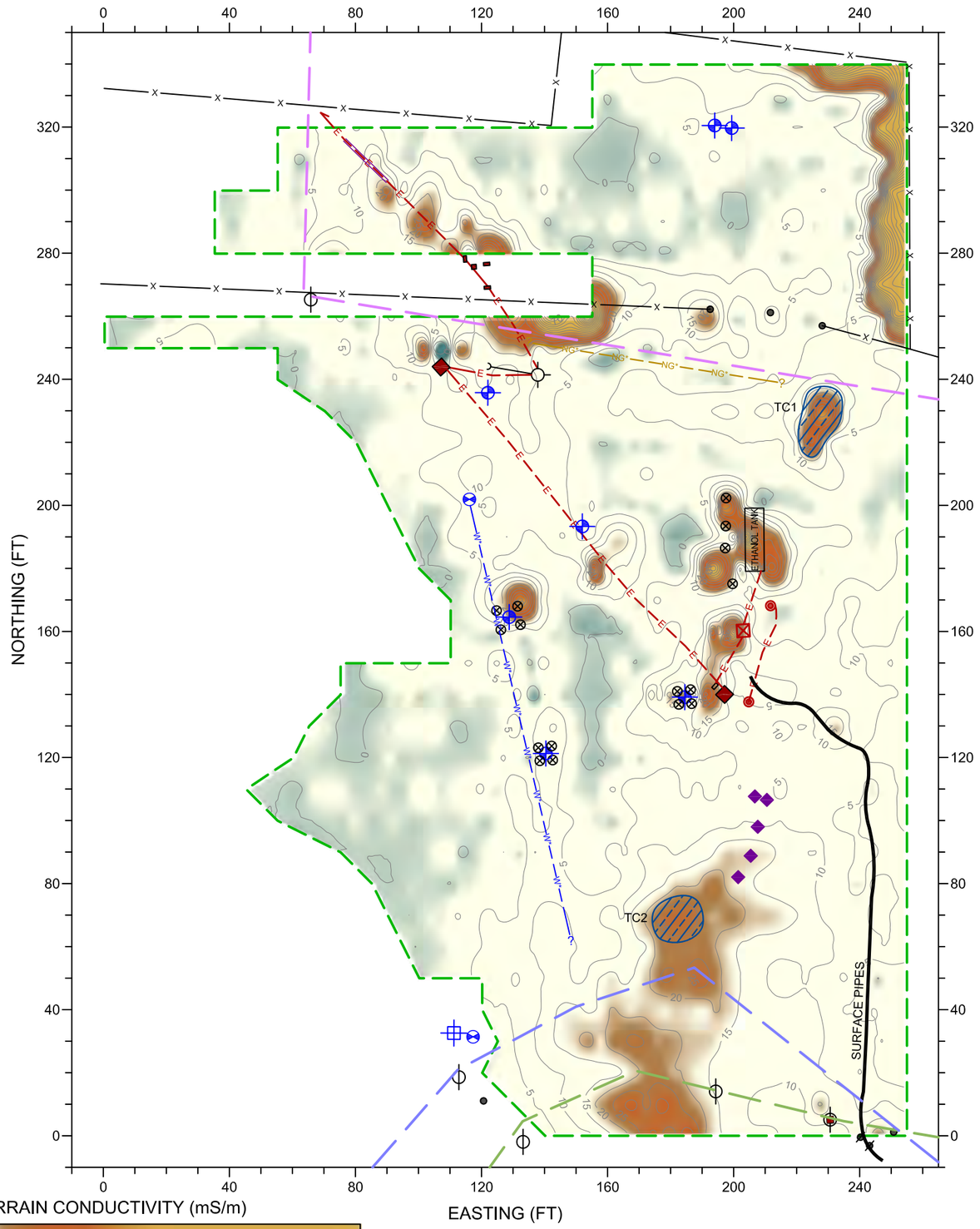
NORCAL GEOPHYSICAL CONSULTANTS INC.

DATE: DEC. 2015

DRAWN BY: G.RANDALL

APPROVED BY: DTH

PLATE 2B



TERRAIN CONDUCTIVITY (mS/m)

-10 0 10 20 30 40 50 60 70 80 90 100

SCALE

0 20 40 80

(1 inch = 40 feet)

LEGEND

	LIMITS OF TERRAIN CONDUCTIVITY SURVEY
0	TERRAIN CONDUCTIVITY CONTOUR (CONTOUR INTERVAL = 5 mS/m)
	TERRAIN CONDUCTIVITY ANOMALY
E	ELECTRIC LINE (METAL CONDUIT WHERE EXPOSED)
NG*	NATURAL GAS LINE (MARKED BY OTHERS)
W*	SUSPECTED WATER LINE (PER PG&E PERSONNEL, CURT RUSSELL)
	MOJAVE PIPELINE (PER CH2MHILL, 2012)
	PG&E PIPELINE (PER CH2MHILL, 2012)
	TRANSWESTERN PIPELINE (PER CH2MHILL, 2012)
	UTILITY LINE CONTINUATION (LINE IS SUSPECTED TO CONTINUE BEYOND DETECTED LOCATION)
?	UTILITY LINE NOT DETECTED BEYOND LOCATION (LINE MAY TERMINATE OR CONTINUE)
x	FENCE
	BOLLARD
	ELECTRIC BOX
	METAL POST
	CUT-OFF METAL POST
	MONITORING WELL
	OLD RV ELECTRIC HOOK-UP
	OLD WATER VALVE/WELL
	OLD WATER PRODUCTION WELL
	SIGN POST
	SURFACE METAL (REBAR)
	UTILITY POLE/GUY WIRE
	UTILITY VAULT/PULL BOX

NORCAL

TERRAIN CONDUCTIVITY CONTOUR MAP - AREA AOC-27 PG&E TOPOCK COMPRESSOR STATION

LOCATION: NEEDLES, CALIFORNIA

CLIENT: GROUNDWATER PARTNERS, INC.

JOB #: 15-1114.01

NORCAL GEOPHYSICAL CONSULTANTS INC.

DATE: DEC. 2015

DRAWN BY: G.RANDALL

APPROVED BY: DTH

PLATE 2C

LEGEND	
— — —	LIMITS OF GEOPHYSICAL SURVEY
	TERRAIN CONDUCTIVITY ANOMALY
⊗	BOLLARD

SCALE
0 20 40 80
(1 inch = 40 feet)

NORCAL

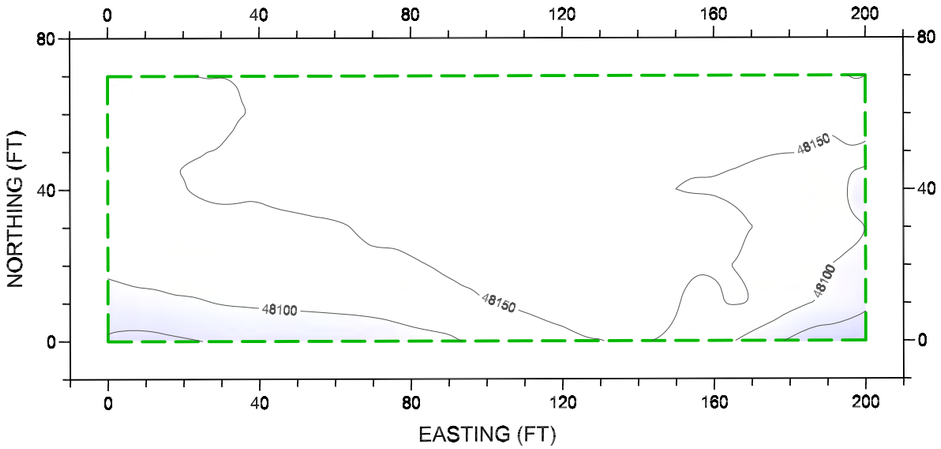
GEOPHYSICAL SURVEY MAP
AREA UA-1B
PG&E TOPOCK COMPRESSOR STATION

LOCATION: NEEDLES, CALIFORNIA
CLIENT: GROUNDWATER PARTNERS, INC.
JOB #: 15-1114.01
NORCAL GEOPHYSICAL CONSULTANTS INC.
DATE: DEC. 2015
DRAWN BY: G.RANDALL
APPROVED BY: DTH

PLATE
3A

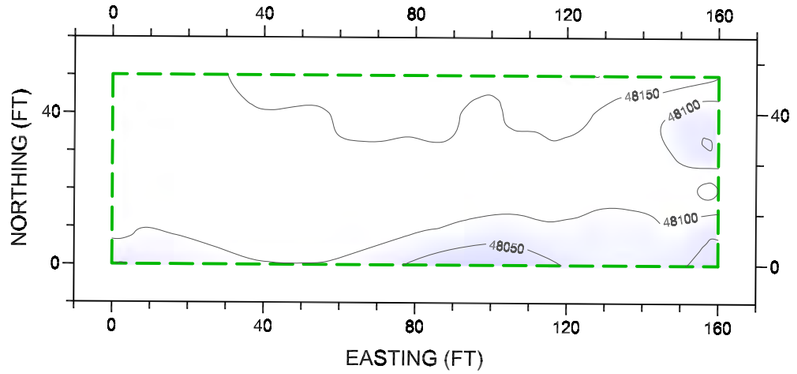
UA-1B WEST

TOTAL MAGNETIC FIELD

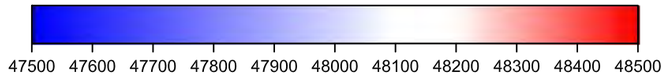


UA-1B EAST

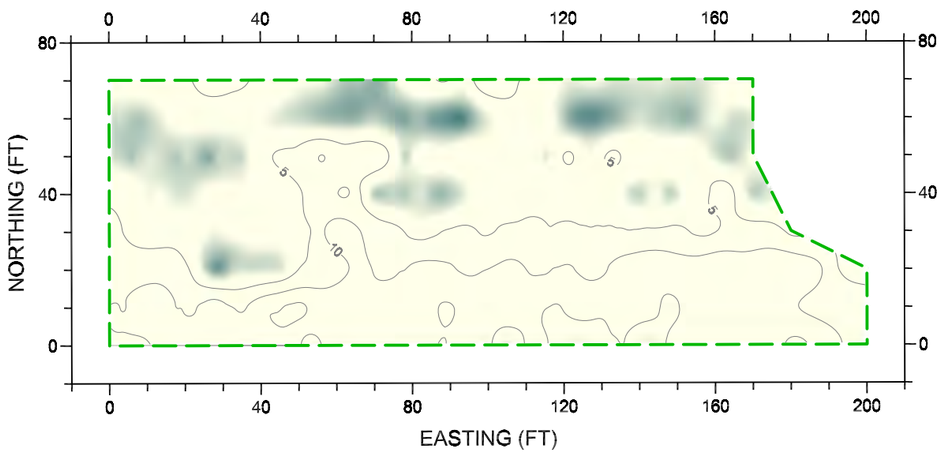
TOTAL MAGNETIC FIELD



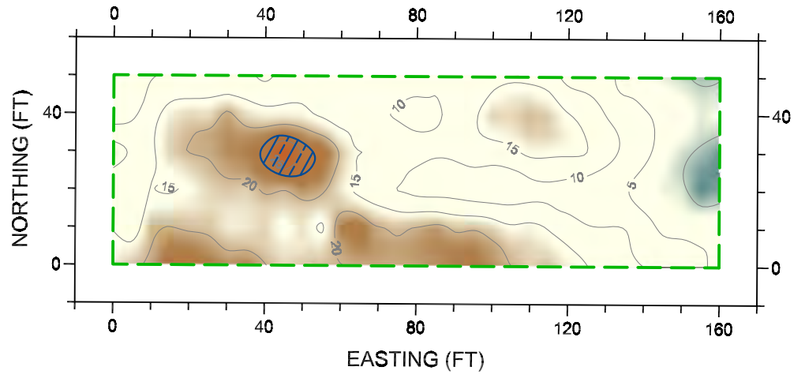
TOTAL MAGNETIC FIELD (nT)



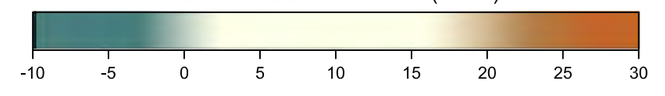
TERRAIN CONDUCTIVITY



TERRAIN CONDUCTIVITY



TERRAIN CONDUCTIVITY (mS/m)



SCALE

(1 inch = 40 feet)

LEGEND

	LIMITS OF GEOPHYSICAL SURVEYS
	TOTAL MAGNETIC FIELD CONTOUR (CONTOUR INTERVAL = 30 nT)
	TERRAIN CONDUCTIVITY CONTOUR (CONTOUR INTERVAL = 5 mS/m)
	TERRAIN CONDUCTIVITY ANOMALY

NORCAL

TOTAL MAGNETIC FIELD &
TERRAIN CONDUCTIVITY CONTOUR MAPS
AREA UA-1B
PG&E TOPOCK COMPRESSOR STATION

LOCATION: NEEDLES, CALIFORNIA

CLIENT: GROUNDWATER PARTNERS, INC.

JOB #: 15-1114.01

NORCAL GEOPHYSICAL CONSULTANTS INC.

DATE: DEC. 2015

DRAWN BY: G.RANDALL

APPROVED BY: DTH

PLATE
3B

N

SCALE

0 30 60

(1 inch = 30 feet)

LEGEND

	LIMITS OF GEOPHYSICAL SURVEY
	TOTAL MAGNETIC FIELD ANOMALY
	LINEAR METAL DETECTOR ANOMALY
	UTILITY LINE CONTINUATION (LINE IS SUSPECTED TO CONTINUE BEYOND DETECTED LOCATION)
?	UTILITY LINE NOT DETECTED BEYOND LOCATION (LINE MAY TERMINATE OR CONTINUE)
	METAL POST
	SIGN POST
	UTILITY VAULT

NORCAL

GEOPHYSICAL SURVEY MAP
AREA UA-1A
PG&E TOPOCK COMPRESSOR STATION

LOCATION: NEEDLES, CALIFORNIA

CLIENT: GROUNDWATER PARTNERS, INC.

JOB #: 15-1114.01

NORCAL GEOPHYSICAL CONSULTANTS INC.

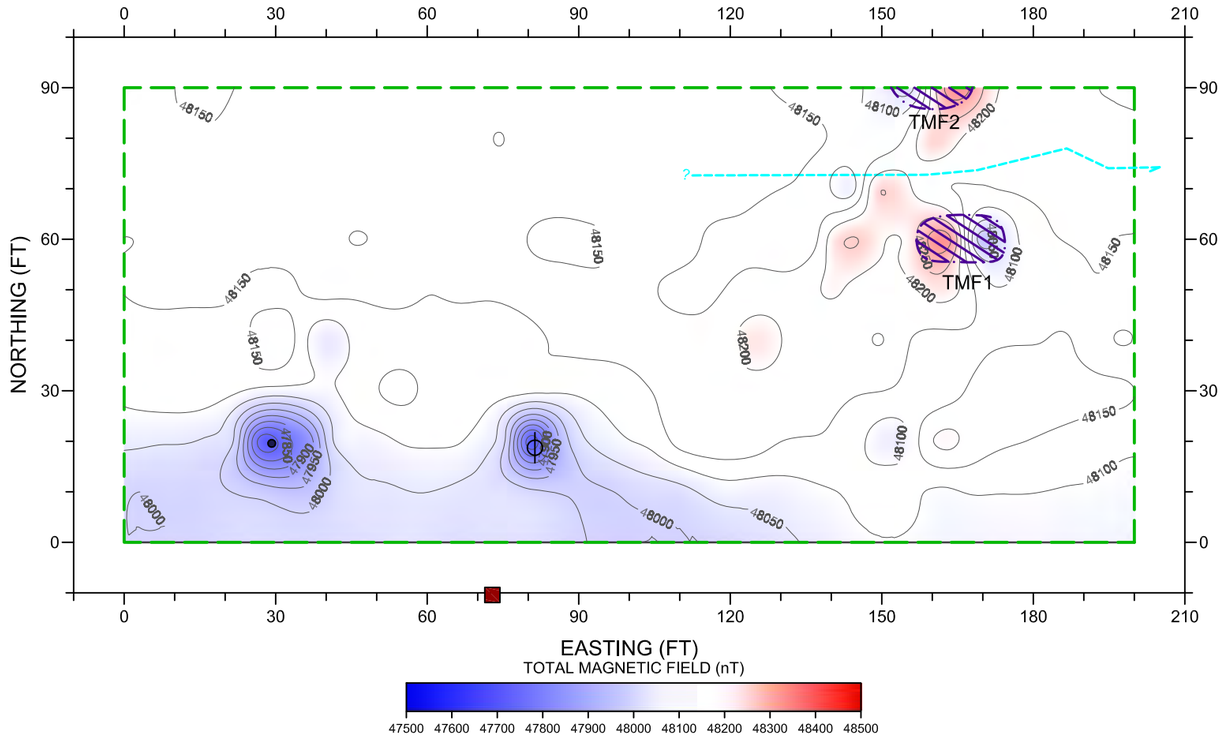
DATE: DEC. 2015

DRAWN BY: G RANDALL

APPROVED BY: DTH

PLATE 4A

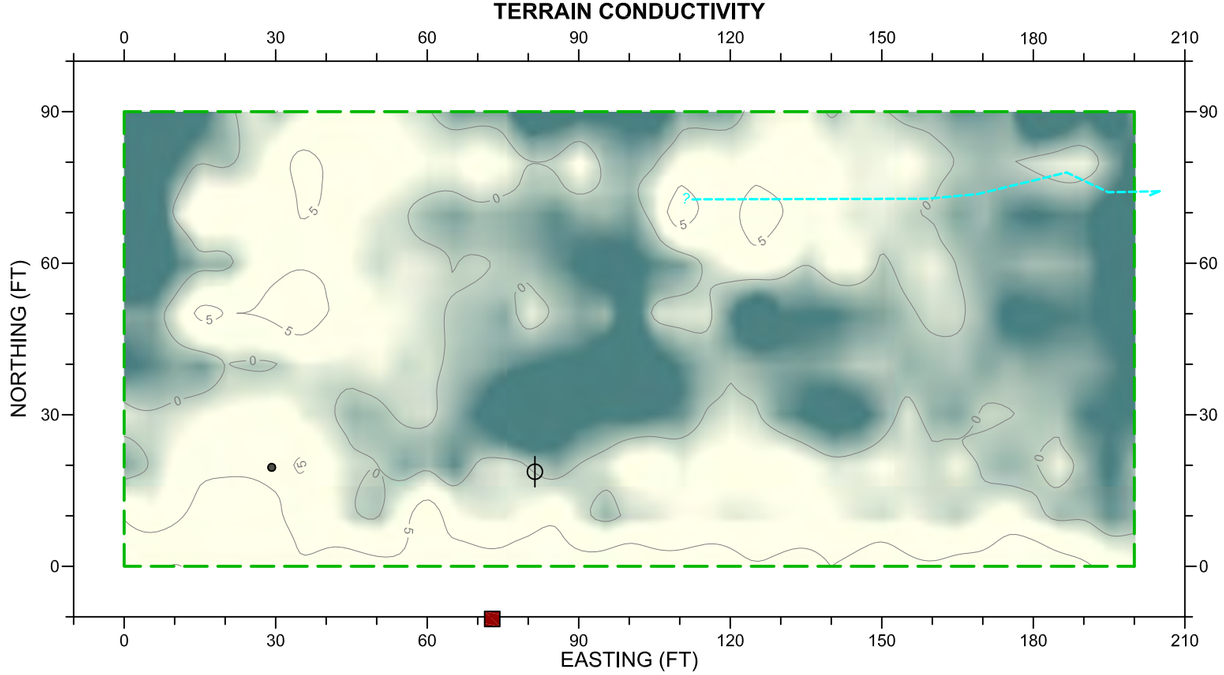
TOTAL MAGNETIC FIELD



TOTAL MAGNETIC FIELD (nT)

47500 47600 47700 47800 47900 48000 48100 48200 48300 48400 48500

TERRAIN CONDUCTIVITY



TERRAIN CONDUCTIVITY (mS/m)

-10 -5 0 5 10 15 20 25 30

SCALE

0 30 60

(1 inch = 30 feet)

LEGEND

	LIMITS OF GEOPHYSICAL SURVEYS
0	TOTAL MAGNETIC FIELD CONTOUR (CONTOUR INTERVAL = 30 nT)
0	TERRAIN CONDUCTIVITY CONTOUR (CONTOUR INTERVAL = 5 mS/m)
	TOTAL MAGNETIC FIELD ANOMALY
	LINEAR METAL DETECTOR ANOMALY
	UTILITY LINE CONTINUATION (LINE IS SUSPECTED TO CONTINUE BEYOND DETECTED LOCATION)
?	UTILITY LINE NOT DETECTED BEYOND LOCATION (LINE MAY TERMINATE OR CONTINUE)
	METAL POST
	SIGN POST
	UTILITY VAULT

NORCAL

GEOPHYSICAL SURVEY MAP
AREA UA-1A
PG&E TOPOCK COMPRESSOR STATION

LOCATION: NEEDLES, CALIFORNIA

CLIENT: GROUNDWATER PARTNERS, INC.

JOB #: 15-1114.01

NORCAL GEOPHYSICAL CONSULTANTS INC.

DATE: DEC. 2015

DRAWN BY: G.RANDALL

APPROVED BY: DTH

PLATE 4B

Attachment B7
Standard Operating Procedures

SOP-B2

Soil Classification and Logging Procedures
Standard Operating Procedures for PG&E Topock Program

This standard operating procedure (SOP) provides guidance to obtain accurate and consistent descriptions of soil characteristics during soil-sampling operations. The characterization is based on visual examination and manual tests not on laboratory determinations.

REQUIRED DOCUMENTS

1) Event-specific sampling and analysis plan, work plan or event-specific field instructions. Planned borehole depth, proposed well construction/specifications, and field sampling summary table, if available.

2) Applicable project work plan or monitoring plan. Refer to Topock Program *Sampling, Analysis, and Field Procedures Manual* and *Quality Assurance Project* Plan (Procedures Manual), as required.

3) Topock Program Health and Safety Plan (HSP).

4) Previous sampling, drilling, or well construction logs from other boreholes or wells in the vicinity, if available.

5) Blank field notebook.

6) Blank CH2M HILL soil boring log Form D1586.

PREPARATION AND SETUP

1) Review event-specific work plan or event-specific field instructions, previous sampling logs, Procedures Manual, and HSP.

2) Initiate field logbook for sampling activity.

3) Review sampling procedures and equipment, and planned sample depths with drilling contractor and field crew.

EQUIPMENT LIST

- Indelible pens
- Tape measure or ruler
- Field logbook
- Spatula
- HCl, 10-percent solution
- Squirt bottle/Spray bottle with water

- Rock- or soil-color chart (e.g., Munsell)
- Grain-size chart
- Hand lens
- Unified Soil Classification System index charts and tables to help with soil classification

PROCEDURES

This section covers several aspects of the soil characterization: instructions for completing the CH2M HILL soil boring log (see Form D1586, Attachment A) and the field logging of soil using the "Unified Soil Classification System and Logging Criteria" (Attachment B).

Instructions for Completing Soil Boring Logs

- Soil boring logs will be completed on field boring log forms. Information collected will be consistent with that required for Form D1586 (attached), a standard CH2M HILL form, or an equivalent form that supplies the same information.
- The information collected in the field to perform the soil characterization is described below.
- Field personnel should review completed logs for accuracy, clarity, and thoroughness of detail. Samples also should be checked to see that information is correctly recorded on both jar lids and labels and on the log sheets.

Heading Information

1) **Boring/Well Number.** Enter the boring/well number. A numbering system should be chosen that does not conflict with information recorded for previous exploratory work done at the site. Number the sheets consecutively for each boring.
2) **Location.** If stationing, coordinates, mileposts, or similar project layout information is available, indicate the position of the boring to that system using modifiers such as "approximate" or "estimated," as appropriate.
3) **Elevation.** Elevation will be determined at the conclusion of field activities.
4) **Drilling Contractor.** Enter the name of the drilling company and the city and state where the company is based.
5) **Drilling Method and Equipment.** Identify the bit size and type, drilling fluid (if used), and method of drilling (e.g., rotary, hollow-stem auger, sonic). Information on the drilling equipment (e.g., CME 55, Mobile B61) should be noted.
6) **Water Level and Date.** Enter the depth below ground surface to the apparent water level in the borehole. The information should be recorded as a comment. If free water is not encountered during drilling or cannot be detected because of the drilling method, this information should be noted. Record date and time of day (for tides, river stage) of each water level measurement.

7) **Date of Start and Finish.** Enter the dates the boring was started and completed. Time of day should be added if several borings are performed on the same day.

8) **Logger.** Enter the first initial and full last name of the logger.

Technical Data

1) **Depth Below Surface.** Use a depth scale that is appropriate for the sample spacing and for the complexity of subsurface conditions.

2) **Sample Interval.** Note the depth at the top and bottom of the sample interval.

3) **Sample Type and Number.** Enter the sample type and number. SS-1 = split spoon, first sample. Number samples consecutively regardless of type. Enter a sample number even if no material was recovered in the sampler.

4) **Sample Recovery.** Enter the length to the nearest 0.1 foot of soil sample recovered from the sampler. Often, there will be some wash or caved material above the sample; do not include the wash material in the measurement. Record recovery in feet.

5) **Soil Description.** The soil classification should follow the format described in the "Field Classification of Soil" subsection below.

6) **Comments.** Include all pertinent observations (changes in drilling fluid color, rod drops, drilling chatter, rod bounce as in driving on a cobble, damaged Shelby tubes, and equipment malfunctions). In addition, note if casing was used, the sizes and depths installed, and if drilling fluid was added or changed. You should instruct the driller to alert you to any significant changes in drilling (changes in material, occurrence of boulders, and loss of drilling fluid). Such information should be attributed to the driller and recorded in this column. Specific information might include:

   - The date and the time drilling began and ended each day.
   - The depth and size of casing and the method of installation.
   - The date, time, and depth of water level measurements.
   - Depth of rod chatter.
   - Depth and percentage of drilling fluid loss.
   - Depth of hole caving or heaving.
   - Depth of change in material.
   - Health and safety monitoring data.
   - Drilling interval through a boulder.

Field Classification of Soil

This section presents the format for the field classification of soil. In general, the approach and format for classifying soils should conform to the "United Soils Classification System and Logging Criteria" (see charts and criteria, Attachment B).

- The Unified Soil Classification System (USCS) is based on numerical values of certain soil properties that are measured by laboratory tests (ASTM D 2487). It is possible, however, to estimate these values in the field with reasonable accuracy using visual-manual procedures (ASTM D 2488). In addition, some elements of a complete soil description, such as the presence of cobbles or boulders, changes in strata, and the relative proportions of soil types in a bedded deposit can be obtained only in the field.
- Soil descriptions should be precise and comprehensive without being verbose. The correct overall impression of the soil should not be distorted by excessive emphasis on insignificant details. In general, similarities rather than differences between consecutive samples should be stressed.

Soil Descriptions

Soil descriptions must be recorded for every soil sample collected. The format and order for soil descriptions should be:

1) Soil name (synonymous with ASTM D 2488 Group Name) with appropriate modifiers. Soil name should be in all capitals in the log, for example "POORLY-GRADED SAND."
2) Group symbol, in parentheses, for example, "(SP)."
3) Color, using Munsell color designation.
4) Particle size distribution (i.e., sand, silt, clay).
5) Moisture content.
6) Relative density or consistency.
7) Soil structure, mineralogy, or other descriptors.

This order follows, in general, the format described in ASTM D 2488.

(1) Soil Name

The basic name of a soil should be the ASTM D 2488 Group Name on the basis of visual estimates of gradation and plasticity. The soil name should be capitalized.

Examples of acceptable soil names are illustrated by the following descriptions:

- A soil sample is visually estimated to contain 15-percent gravel, 55-percent sand, and 30-percent fines (passing No. 200 sieve). The fines are estimated as either low- or highly-plastic silt. This visual classification is SILTY SAND WITH GRAVEL with a Group Symbol of (SM).
- Another soil sample has the following visual estimate: 10-percent gravel, 30-percent sand, and 60-percent fines (passing the No. 200 sieve). The fines are estimated as low-plastic silt. This visual classification is SANDY SILT. The gravel portion is not included in the soil name because the gravel portion was estimated as less than 15 percent. The Group Symbol is (ML).

The gradation of coarse-grained soil (more than 50 percent retained on No. 200 sieve) is included in the specific soil name in accordance with ASTM D 2488.

- There is no need to further document the gradation.
- However, the maximum size and angularity or roundness of gravel and sand-sized particles should be recorded.
- For fine-grained soil (50 percent or more passing the No. 200 sieve), the name is modified by the appropriate plasticity/elasticity term in accordance with ASTM D 2488.

Interlayered soil should each be described starting with the predominant type.

- An introductory name, such as "Interlayered Sand and Silt," should be used.
- In addition, the relative proportion of each soil type should be indicated (see Table 1 for example).

Where helpful, the evaluation of plasticity/elasticity can be justified by describing results from any of the visual-manual procedures for identifying fine-grained soils, such as reaction to shaking, toughness of a soil thread, or dry strength as described in ASTM D 2488.

(2) Group Symbol

The appropriate group symbol from ASTM D 2488 must be given after each soil name.

1) The group symbol should be placed in parentheses to indicate that the classification has been estimated.
2) In accordance with ASTM D 2488, dual symbols (e.g., GP-GM or SW-SC) can be used to indicate that a soil is estimated to have about 10-percent fines.
3) Borderline symbols (e.g., GM/SM or SW/SP) can be used to indicate that a soil sample has been identified as having properties that do not distinctly place the soil into a specific group. Generally, the group name assigned to a soil with a borderline symbol should be the group name for the first symbol. The use of a borderline symbol should not be used indiscriminately. Every effort should be made to first place the soil into a single group.

(3) Color

Soil color is described by comparing the sample with the Munsell Soil Color Charts. The Munsell colors should be used unless directed otherwise by project sampling plans. Instructions for their proper use are in the color charts. The color name shall precede the Munsell color notation (e.g., "yellowish brown, 10 YR 5/4"), with color hue and chroma number parenthetically entered in the borelog description. If no color chip is available, the color should be simply described as primary color (i.e., green, brown, gray, yellow, tan, etc.).

(4) Particle Size Distribution

Within the gravel sizes and the sand sizes, there are further divisions based on particle sizes. Gravel is divided into fine and coarse gravel. Fine-gravel particles (pebbles) are those that would pass through 3/4-inch opening but not a 1/4-inch opening. The fine gravel ranges from pea- to marble-sized. Coarse-gravel particles are those that would pass through a 3-inch opening but not a 3/4-in opening. Common objects of this size are grapes and tennis balls. Cobbles range from 3 inches to 12 inches in size; boulders are larger than 12 inches.

Sand is divided into three sizes: fine, medium, and coarse. Sand passes a No. 4 sieve (approximately 1/4 inch) and is retained in a No. 200 sieve (0.003 inch). Fine-sand particles pass a No. 40 sieve (approximately 1/64 inch) and are retained in the No. 200 (0.003 inch) sieve. These particles are sugar- or table salt-sized. Medium sand passes the No. 10 sieve (approximately 1/2 inch) and retained on the No. 40 sieve. These particles are about the same size as the openings in window screening. Coarse-sand particles would pass a No. 4 sieve (approximately 1/4 inch) and be retained on a No. 10 sieve. Rock salt granules fall in this size range. Sand and gravel particle sizes are illustrated in ASTM D2488 along with percentage estimating charts. The percentages of different grain size fractions are important in the soil type determination.

(5) Moisture Content

Soil moisture content shall be estimated using only the terminology described below:

- Dry - Absence of moisture, dusty, dry to the touch
- Moist - Damp but no visible water
- Wet - Visibly free water, usually sampled from below the water table

(6) Relative Density or Consistency

An estimate of the consistency shall accompany descriptions of all fine-grained soil (silt and clay where more than 50 percent of the material would pass the No. 200 sieve). A pocket penetrometer is the most accurate method for estimating the consistency of fine-grained soils. The table below lists characteristics for soil consistency identification.

Consistency	Unconfined Compressive Strength (tons/ft)[a]	Blows/foot (SPT) [b]	Manual Procedure
Very soft	<0.25	0 – 4	Thumb will penetrate soil more than 1 inch (25 mm).
Soft	0.25 - 0.50	4 – 8	Thumb will penetrate soil about 1 inch (25 mm).
Firm (formerly stiff)	-1.50	8 – 15	Thumb will indent soil about 1/4 inch (6 mm).
Hard	-2.00	15 – 30	Thumb will not indent soil but readily indented with thumbnail.
Very hard	>4.0	> 30	Thumbnail will not indent soil.

Notes:

[a] Pocket penetrometer

[b] Blows/foot is defined as the total number of blows required to drive the second and third 6 inches of penetration (blow counts for the first 6 inches are also noted) while driving an 18-inch SPT sampler with a 140-pound hammer falling a free height of 30 inches. Conversion factors may be applied when the field log information is transferred to the final log when using a sampler other than an SPT (Standard penetrometer) (e.g., S&H or Modified California), or when using different hammer weights and drop. The conversion factor is approximately 0.5 for an S&H sampler with a hammer weight of 140 pounds falling 30 inches.

Descriptions of all coarse-grained soil (sand and gravel where less than 50 percent of the material would pass the No. 200 sieve and 100 percent would pass the 3-inch sieve) shall be

accompanied by an estimate of the density based upon standard penetrometer (SPT) blow counts. The following terminology should be used:

Density	Blows/foot (SPT)
Very loose	< 4
Loose	4-10
Medium dense	10-30
Dense	30-50
Very dense	> 50

(7) Soil Structure, Mineralogy, and Other Descriptors

Discontinuities and inclusions are important and should be described. Such features include joints or fissures, slickensides, bedding or laminations, veins, root holes, and wood debris.

Significant mineralogical information such as cementation, abundant mica, or unusual mineralogy should be described.

Other descriptors may include particle angularity or shape, maximum particle size, hardness of large particles, plasticity of fines, dry strength, dilatancy, toughness, reaction to HCl, and staining, as well as other information such as organic debris, odor, or presence of free product. Criteria for the use of these other descriptions include:

- Structure:
  - Stratified - Alternating layers of varying material or color with layers at least 1/4-inch thick; note thickness.
  - Laminated - Alternating layers of varying material or color with the layers less than 1/4-inch thick; note thickness.
  - Fissured - Breaks along definite planes of fracture with little resistance.
  - Slickensides - Fracture planes appear polished or glossy, often striated.
  - Blocky - Cohesive soil that can be broken down into small angular lumps that resist further breakdown.
  - Lensed - Inclusion of small pockets of different soils, such as lenses of sand within clay; note thickness.
  - Homogeneous - Same color and appearance throughout.
  - Grading - Whether the particles increase or decrease in size toward the top of logged interval.
- Particle Shape:
  - Flat - Particles with width/thickness ratio > 3.
  - Elongated - Particles with length/width ratio > 3.

  - Elongated and flat - Particles meet criteria for both flat and elongated.

- Particle Angularity:
  - Angular - Particles have sharp edges and relatively planar sides with unpolished surfaces.
  - Subangular - Particles are similar to angular description but have rounded edges.
  - Subrounded - Particles have nearly planar sides but have well-rounded corners and edges.
  - Rounded - Particles have smoothly-curved sides and no edges.
- Cementation:
  - Weak - rumbles or breaks with handling or little finger pressure.
  - Moderate - Crumbles or breaks with considerable finger pressure.
  - Strong - Will not crumble or break with finger pressure.
- Reaction with HCl:
  - None - No visible reaction.
  - Weak - Some reaction, bubbles forming slowly.
  - Strong - Vigorous reaction, bubbles forming immediately.

Comments

This section should be reserved for information not pertaining to lithologic description. Sample information including sample identifier, analysis, matrix, and depth interval should be included in the boring log comments. Information related to drilling, such as drilling rate, chatter, and equipment malfunctions should also be well documented in the comments section of the boring log. Additionally interpretations of the lithologic data may also be presented in the comments section. Examples of this include "transition between Older Alluvium and Fanglomerate," "paleosol horizon B," or "conductive zone."

Recovery

Recovery data are entered along the left side of the boring log. Enter the length of retrieved core to the nearest 0.1 foot of sample recovered and record the value in feet. Do not count slough or caved material as part of the total recovered length of core. Record total length and percent of sample recovered. If using a 5-foot sample barrel, multiply the total length by 2 and 100 to get a percentage number. Similarly, if using a 2.5-foot sampler, multiply by 4 and 100 to get the percent recovery.

Backfilling

When a boring is completed and the water level measured, the boring shall be backfilled to ground surface according to applicable regulations. The destruction of the hole shall be noted on the log. Borehole destruction should follow SOP 28 *Soil Boring Abandonment*

Attachments

- Soil Boring Log, CH2M HILL Form D1586, and a completed example
- Unified Soil Classification System and Logging Criteria

Key Checks and Preventive Maintenance

Check entries to the soil boring log and field logbook in the field; because the samples will be disposed of, confirmation and corrections cannot be made later. Check that sample numbers and intervals are properly specified. Check that drilling and sampling equipment is decontaminated using the procedures defined in SOP *Decontamination of Drilling Rigs and Equipment*.

ATTACHMENT A

Examples of Soil Bore Logs

CH2MHILL

PROJECT NUMBER	BORING NUMBER SHEET OF

SOIL BORING LOG

PROJECT _____ LOCATION _____

ELEVATION _____ DRILLING CONTRACTOR _____

DRILLING METHOD AND EQUIPMENT _____

WATER LEVELS _____ START _____ FINISH _____ LOGGER _____

DEPTH BELOW SURFACE (FT)	SAMPLE			STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS
	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION

SHEET 1 of 9	PROJECT NUMBER: 326128.01.16.EN	BORING NUMBER: *MW-47*

SOIL BORING LOG - DRAFT FOR DISCUSSION

PROJECT NAME: IMPM Drill Program		HOLE DEPTH (ft): 288.0	DRILLING CONTRACTOR: Prosonic Corp. Phoenix, AZ	
SURFACE ELEVATION: 482.6 ft. MSL	NORTHING (CCS NAD 27 Z 5): 2,103,450.05	EASTING (CCS NAD 27 Z 5): 7,615,629.49	DATE STARTED: 02/27/2006	DATE COMPLETED: 03/13/2006
DRILLING METHOD: Rotosonic			DRILLING EQUIPMENT: Sonic AT (track mounted)	
LOCATION: PG&E Compressor Station - Flood Plain, Topock, California			LOGGED BY: B. Moayyad, K. Ebel	

DEPTH BGS (feet)	SAMPLE INTERVAL	SAMPLE TYPE/ NUMBER	SAMPLE RECOVERY (ft)	USCS CODE	SOIL DESCRIPTION SOIL NAME, USCS SYMBOL, COLOR, PERCENT COMPOSITION, GRADING, GRAIN SHAPE, MINERALOGY, DENSITY/CONSISTENCY, STRUCTURE, MOISTURE.	COMMENTS DRILLING OBSERVATIONS AND OPERATIONS, DAILY START AND END TIMES , DRILL RATE, REFUSALS, SAMPLING AND TESTING NOTES.
5			6	SP	**POORLY GRADED SAND (SP)** - very lt brn (10YR7/3), =2% fines, 98% f to m lithic quartz sand, subang to subrnd, dry - fine roots, iron staining, some iron oxide coating on grains	Hand augured to 5' bgs
10			10	SP	- slightly moist - dry	Rapid drill rate, no chatter
15						
20			16	SW	**WELL GRADED SAND w/ GRAVEL (SW)** - lt yellowish brn (10YR6/4), 45% gravel up to 7cm, 50% f to m sand, 5% fines, loose, met subang gravel, dry(moist@ 17') - cobble present in slough - one subrnd chert gravel - Possible Fluvially Reworked Alluvium - lt grey (10YR7/2), subang to rnd met gravel up to 9cm, 2% to 5% fines - dk yellowish brn (10YR4/4), mostly c sand subang to ang, met, some Miocene conglomerate gravel	
25				SW	- 65% sand, 30% gravel up to 4cm, 5% fines	
30				SW	**WELL GRADED SAND w/ GRAVEL (SW)** - dk yellowish brn (10YR3/6), 35% gravel up to 4cm, 55% m to c sand, 10% silty fines, met clasts are grain supported some mm siltstone - some oxide staining	
35				SW	**WELL GRADED SAND w/ GRAVEL AND CLAY (SW)** - dk yellowish brn (10YR3/6), 30% subang met gravel up to 7 cm, 55% subrnd to subang m to c sand, 15% clayey fines, m density, moist	Drill rate slowed to clean out 8" pipe

CH2MHILL

PROJECT NUMBER: 326128.01.16.EN

BORING NUMBER: *MW-47*

SOIL BORING LOG - DRAFT FOR DISCUSSION

PROJECT NAME: IMPM Drill Program		**HOLE DEPTH (ft):** 288.0	**DRILLING CONTRACTOR:** Prosonic Corp. Phoenix, AZ	
SURFACE ELEVATION: 482.6 ft. MSL	**NORTHING (CCS NAD 27 Z 5):** 2,103,450.05	**EASTING (CCS NAD 27 Z 5):** 7,615,629.49	**DATE STARTED:** 02/27/2006	**DATE COMPLETED:** 03/13/2006
DRILLING METHOD: Rotosonic			**DRILLING EQUIPMENT:** Sonic AT (track mounted)	
LOCATION: PG&E Compressor Station - Flood Plain, Topock, California			**LOGGED BY:** B. Moayyad, K. Ebel	

DEPTH BGS (feet)	SAMPLE INTERVAL	SAMPLE TYPE/ NUMBER	SAMPLE RECOVERY (ft)	USCS CODE	SOIL DESCRIPTION SOIL NAME, USCS SYMBOL, COLOR, PERCENT COMPOSITION, GRADING, GRAIN SHAPE, MINERALOGY, DENSITY/CONSISTENCY, STRUCTURE, MOISTURE.	COMMENTS DRILLING OBSERVATIONS AND OPERATIONS, DAILY START AND END TIMES , DRILL RATE, REFUSALS, SAMPLING AND TESTING NOTES.
			2.5	SW	**WELL GRADED SAND w/ GRAVEL (SW)** - dr yellowish brn (10YR3/6), 30% gravel, 60% sand, 10% silty fines	Drilling smooth but preceeds less rapidly
40					**WELL GRADED SAND w/ GRAVEL (SW)** - 40% subang met gravel up to 6cm, 55% subrnd to ang sand, 5% fines - more gravel below 38'	
			10	SW	- gravel is mostly fine	
45						
				SW	**WELL GRADED SAND w/ GRAVEL (SW)** - Pale brn (10YR6/3), 30% subang met gravel up to 5cm, 60% subrnd to subang m to c met sand, 10% silty fines, wet	Soil sample collected
50			10			
				SP	**POORLY GRADED SAND w/ GRAVEL (SP)** - pale brn (10TR6/3), 30% f subang gravel up to 2 cm, 65% mostly c sand, =2% fines	
55				SW	**WELL GRADED SAND w/ GRAVEL (SW)** - yellowish brn (10YR5/4), 40% subang met gravel up to 9cm, 55% f to c met sand, 5% silty fines, clast supported, m density, wet	
					WELL GRADED GRAVEL w/ SILT AND SAND (GW) - brn (7.5YR5/4), 55% subang to ang met gravel up to 4cm, 25% f to c sand, 20% silty fines, dense, moist to dry	
60					- soil dries out	Collected Isoflow sample
			9.5	GW	- lt grey (10YR7/2) and powder dry	Drill rate slows to 2' / min
65					- moist sandy zone, 55% gravel, 35% sand, 10% fines - dry silty lt grey GW below 65'	
				SW	**WELL GRADED SAND w/ GRAVEL (SW)** - yellowish brn (10YR5/4), 35% subang met gravel up to 4cm, 60% subrnd sand, 5% silty fines, loose, moist to wet	Moderate Drill Rate
70						

CH2MHILL

PROJECT NUMBER: 326128.01.16.EN

BORING NUMBER: *MW-47*

SOIL BORING LOG - DRAFT FOR DISCUSSION

PROJECT NAME: IMPM Drill Program		**HOLE DEPTH (ft):** 288.0	**DRILLING CONTRACTOR:** Prosonic Corp. Phoenix, AZ	
SURFACE ELEVATION: 482.6 ft. MSL	**NORTHING (CCS NAD 27 Z 5):** 2,103,450.05	**EASTING (CCS NAD 27 Z 5):** 7,615,629.49	**DATE STARTED:** 02/27/2006	**DATE COMPLETED:** 03/13/2006
DRILLING METHOD: Rotosonic			**DRILLING EQUIPMENT:** Sonic AT (track mounted)	
LOCATION: PG&E Compressor Station - Flood Plain, Topock, California			**LOGGED BY:** B. Moayyad, K. Ebel	

DEPTH BGS (feet)	SAMPLE INTERVAL	SAMPLE TYPE/ NUMBER	SAMPLE RECOVERY (ft)	USCS CODE	SOIL DESCRIPTION SOIL NAME, USCS SYMBOL, COLOR, PERCENT COMPOSITION, GRADING, GRAIN SHAPE, MINERALOGY, DENSITY/CONSISTENCY, STRUCTURE, MOISTURE.	COMMENTS DRILLING OBSERVATIONS AND OPERATIONS, DAILY START AND END TIMES , DRILL RATE, REFUSALS, SAMPLING AND TESTING NOTES.
			6	SP	**POORLY GRADED SAND w/ SILT (SP)** - brn (7.5YR4/4), 5% subrnd to subang met gravel up to 4cm, 85% f to c sand, 10% fines, poorly graded, wet, no odor	
145			3	SM	**SILTY SAND W/ GRAVEL (SM)** - brn (7.5YR4/4), 20% subang to subrnd gravel up to 6cm, 60% f to c sand, 20% silty fines, well graded, m consolidated, met, wet, no odor	
150			5	SM	**SILTY SAND w/ GRAVEL (SM)** - dk yellowish brn (10YR4/4), 25% subang to subrnd up to 4cm met gravel, 60% well graded f to c sand, 15% fines, wet, no odor	
155			4	SW	**WELL GRADED SAND w/ SILT AND SAND (SW)** - dr yellowish brn (10YR4/4), 10% subang to subrnd up to 3cm met gravel, 75%well graded f to c sand, 15% fines, moist to wet	
			2	SW	**SILTY SAND (SM)** - brn (7.5YR4/4), 5% ang to subrnd met gravel up to 1.5cm increasing with depth, 85% poorly graded m to c sand, 10% fines, loose, wet	
			2	SM	**SILTY SAND w/ GRAVEL (SM)** - dk yellowish brn (10YR4/4), 15% subang to subrnd up to 2.5cm met gravel, 75% well graded f to c sand, 10% fines, mostly met, trace chert, loose, wet, no odor	Collected Isoflow sample
160			4	SM	**SILTY SAND W/ GRAVEL (SM)** - brn (7.5YR4/4), 25% subang to subrnd gravel up to 6.5cm, 60% m to c sand, 15% silty fines, well graded, m consolidated, met, wet, no odor	Drill rate = 0.75' to 1.5' / min
165			4	SW	**SILTY SAND (SW)** - mottled dk reddish brn (5YR3/4), 10% subang to subrnd gravel up to 2.5cm, 50% well graded f to m sand, 40% silt, metamorphic, dry to damp, no odor, interbedded sandy silt laminations	
170			5.5	SW	**SAND w/ GRAVEL (SW)** - dk reddish brn (5YR3/4), 20% subang to subrnd gravel up to 5cm, 75% f to c sand, 5% fines, well graded, loose, met, wet	
175			2.5	SM	**SILTY SAND w/ GRAVEL (SM)** - brn (7.5YR4/4), 15% subang to subrnd gravel, 70% f to m sand, 15% fines, poorly graded, met,increasingly consolidated, slightly to moderately calcareous, moist to wet	

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:
326128.01.16.EN	MW-47

SOIL BORING LOG - DRAFT FOR DISCUSSION

PROJECT NAME: IMPM Drill Program		**HOLE DEPTH (ft):** 288.0	**DRILLING CONTRACTOR:** Prosonic Corp. Phoenix, AZ	
SURFACE ELEVATION: 482.6 ft. MSL	**NORTHING (CCS NAD 27 Z 5):** 2,103,450.05	**EASTING (CCS NAD 27 Z 5):** 7,615,629.49	**DATE STARTED:** 02/27/2006	**DATE COMPLETED:** 03/13/2006
DRILLING METHOD: Rotosonic			**DRILLING EQUIPMENT:** Sonic AT (track mounted)	
LOCATION: PG&E Compressor Station - Flood Plain, Topock, California			**LOGGED BY:** B. Moayyad, K. Ebel	

DEPTH BGS (feet)	SAMPLE INTERVAL	SAMPLE TYPE/ NUMBER	SAMPLE RECOVERY (ft)	USCS CODE	SOIL DESCRIPTION SOIL NAME, USCS SYMBOL, COLOR, PERCENT COMPOSITION, GRADING, GRAIN SHAPE, MINERALOGY, DENSITY/CONSISTENCY, STRUCTURE, MOISTURE.	COMMENTS DRILLING OBSERVATIONS AND OPERATIONS, DAILY START AND END TIMES , DRILL RATE, REFUSALS, SAMPLING AND TESTING NOTES.
285			0	BR	**MIOCENE CONGLOMERATE BEDROCK (BR)** - 60% well graded subang to rnd gravel up to 10cm, 30% well graded sand, 10% fines, very calcareous, well consolidated to mostly hard, mod to very altered locally, mostly met, dry to moist	
					Boring Terminated at 288 ft	

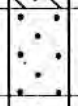
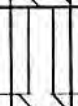
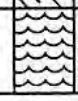
ABBREVIATIONS

cc = continuous core run
brn = brown
lt = light
dk = dark
vf = very fine-grained
f = fine-grained
m = medium-grained
c = coarse-grained
vc = very coarse-grained
ang = angular
subang = subangular
subrnd = subrounded
rnd = rounded
br = bedrock formation
ss = sandstone
conglom = conglomerate
comptd = compacted
qtz = quartz

CH2MHILL

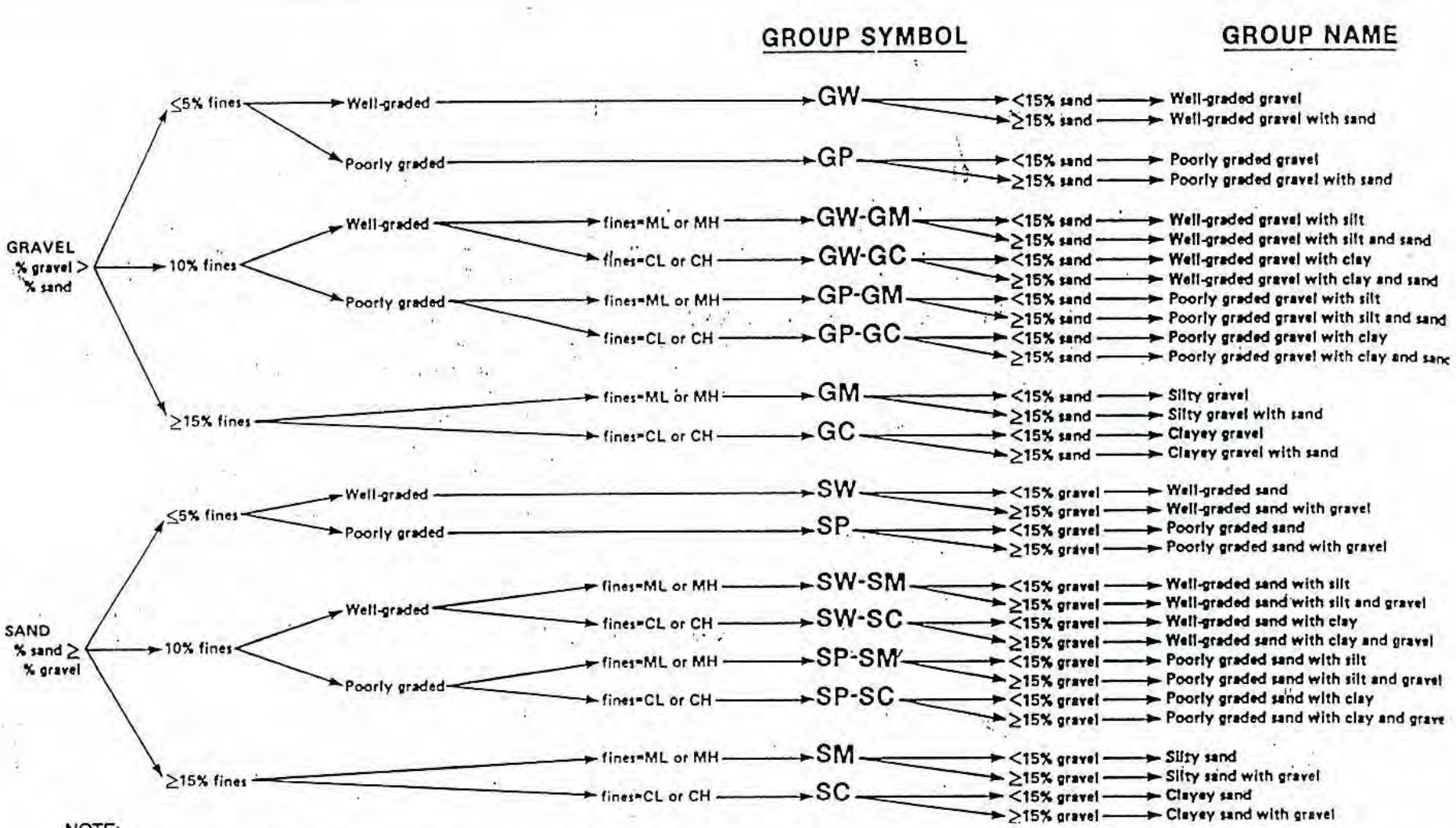
ATTACHMENT B

Unified Soil Classification System and Logging Criteria

GENERAL SOIL CATEGORIES			SYMBOLS		TYPICAL SOIL TYPES
COARSE GRAINED SOILS More than half is larger than No. 200 sieve	GRAVEL More than half coarse fraction is larger than No. 4 sieve size	Clean Gravel with little or no fines	GW		Well Graded Gravel, Gravel-Sand Mixtures
			GP		Poorly Graded Gravel, Gravel-Sand Mixtures
		Gravel with more than 12% fines	GM		Silty Gravel, Poorly Graded Gravel-Sand-Silt Mixtures
			GC		Clayey Gravel, Poorly Graded Gravel-Sand-Clay Mixtures
	SAND More than half coarse fraction is smaller than No. 4 sieve size	Clean sand with little or no fines	SW		Well Graded Sand, Gravelly Sand
			SP		Poorly Graded Sand, Gravelly Sand
		Sand with more than 12% fines	SM		Silty Sand, Poorly Graded Sand-Silt Mixtures
			SC		Clayey Sand, Poorly Graded Sand-Clay Mixtures
FINE GRAINED SOILS More than half is smaller than No. 200 sieve	SILT AND CLAY Liquid Limit Less than 50%		ML		Inorganic Silt and Very Fine Sand, Rock Flour, Silty or Clayey Fine Sand, or Clayey Silt with Slight Plasticity
			CL		Inorganic Clay of Low to Medium Plasticity, Gravelly Clay, Sandy Clay, Silty Clay, Lean Clay
			OL		Organic Clay and Organic Silty Clay of Low Plasticity
	SILT AND CLAY Liquid Limit Greater than 50%		MH		Inorganic Silt, Micaceous or Diatomaceous Fine Sandy or Silty Soils, Elastic Silt
			CH		Inorganic Clay of High Plasticity, Fat Clay
			OH		Organic Clay of Medium to High Plasticity, Organic Silt
HIGHLY ORGANIC SOILS			PT		Peat and Other Highly Organic Soils

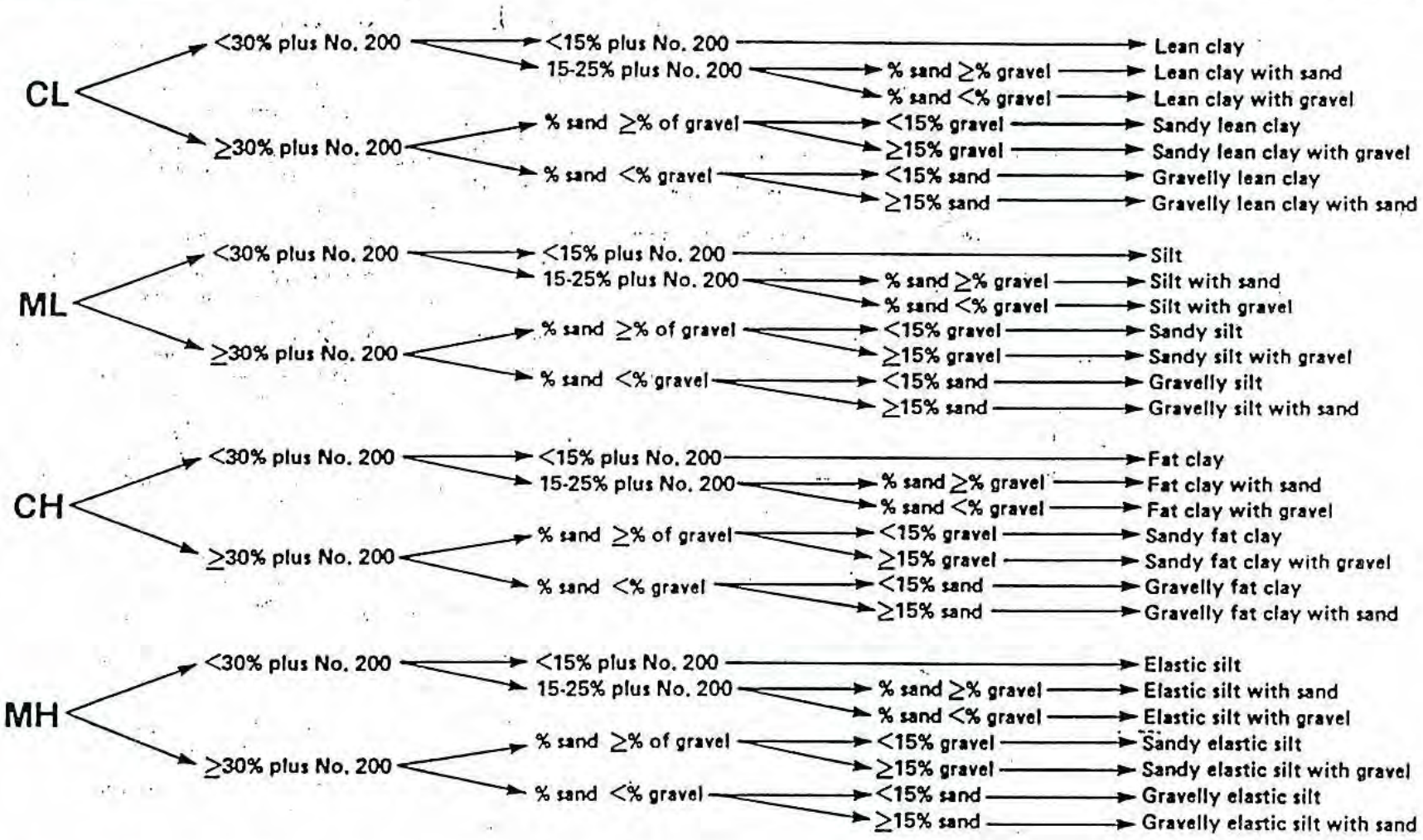
UNIFIED SOIL CLASSIFICATION SYSTEM

JOB NUMBER	DATE	APPROVED	PLATE



NOTE:
Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5%
(After ASTM Designation D2488 Standard Test Method for Classification of Soils for Engineering Purposes)

Flow Chart for Classifying Coarse-grained Soil
(50% or more retained on No. 200 sieve)
Field Guide for Soil Classification and Logging Procedures



NOTE:
Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5%
(After ASTM Designation D2488 Standard Test Method for Classification of Soils for Engineering Purposes)

Flow Chart for Classifying Fine-grained Soil
(50% or more passing No. 200 sieve)
Field Guide for Soil Classification and Logging Procedures

similar, the material is classified as poorly graded or well sorted. If fines represent less than 5 percent of the total mass, the symbol SP is used for a poorly-graded sand and SW for a well graded sand. If silts and/or clays exceed 12 percent, the symbols GC, SC, GM, and SM are used, respectively.

If the silts and clays are between 5 to 12 percent of the total sample weight, a dual classification with two group symbols is used. The first symbol is GW, GP, SW, or, SP, and the second is GC, GM, SC, or SM. The group name corresponds to the first group symbol plus the modifying words "with clay" or "with silt" to indicate the plasticity characteristics. If the fines plot on the CL-ML range on the plasticity chart (Figure 2-2), possible dual classification group names are:

GW-GM	well graded gravel with silt
GW-GC	well graded gravel with clay
GP-GM	poorly graded gravel with silt
GP-GC	poorly graded gravel with clay
SW-SM	well graded sand with silt
SW-SC	well graded sand with clay
SP-SM	poorly graded sand with silt
SP-SC	poorly graded sand with clay

If silts and clays exceed 12 percent of the total weight of sample, the modifiers "M" and "C" are used, respectively. If a sand or gravel has more than 15 percent of the other coarse-grained constituent, the words "with gravel" or "with sand" are added to the group name. A flow chart for classifying coarse-grained soils is presented in Figure 2-3.

2.2 Fine-grained Soils

Particles passing the No. 200 sieve are silts (M) and clays (C). These soils must undergo testing in order to differentiate between them. Typical tests used are: dry strength, dilatancy, toughness, and plasticity. These terms are further discussed in Tables 2-2 through Table 2-6. Silts have little or no dry strength when dry, while clays have considerable dry strength. Dry strength, dilatancy, and toughness are also used to identify the fine-grained fraction of coarse-grained soils.

TABLE 2-2
Criteria for Describing Dry Strength

Description	Criteria
None	The dry specimen crumbles into powder with the mere pressure of handling.
Low	The dry specimen crumbles into powder with some finger pressure.
Medium	The dry specimen breaks into pieces or crumbles with considerable finger pressure.
High	The dry specimen cannot be broken with finger pressure. The specimen will break into pieces between the thumb and a hard surface.
Very high	The dry specimen cannot be broken between the thumb and a hard surface.

TABLE 2-3
Criteria for Describing Dilatancy

Description	Criteria
None	There is no visible change in the specimen.
Slow	Water appears slowly on the surface of the specimen during shaking, and does not disappear, or disappears slowly upon squeezing.
Rapid	Water appears quickly on the surface of the specimen during shaking, and disappears quickly upon squeezing.

TABLE 2-4
Criteria for Describing Toughness

Description	Criteria
Low	Only slight pressure is required to roll the thread near the plastic limit. The thread and the lump are weak and soft.
Medium	Medium pressure is required to roll the thread to near the plastic limit. The thread and the lump have medium stiffness.
High	Considerable pressure is required to roll the thread to near the plastic limit. The thread and the lump have very high stiffness.

TABLE 2-5
Identification of Inorganic Fine-grained Soils from Manual Tests

Soil Symbol	Dry Strength	Dilatancy	Toughness
ML	None to low	Slow to rapid	Low or thread cannot form
CL	Medium to high	None to slow	Medium
MH	Low to medium	None to slow	Low to medium
CH	High to very high	None	High

TABLE 2-6
Criteria for Describing Plasticity

Description	Criteria
Nonplastic	A 1/8-inch (3-mm) thread cannot be rolled at any water content.
Low	The thread can barely be rolled, and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll, and not much time is required to read the plastic limit. The thread cannot be re-rolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be re-rolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier that the plastic limit.

Fine-grained soils are accurately determined in the laboratory using the Atterberg Limits test. This test include liquid limit, plastic limit, and plasticity index measurements. The liquid limit is the water content of a soil at the point of transition from a plastic to a liquid state. The plastic limit is the water content of a soil at the point of transition from a semisolid to a plastic state. The plasticity index is the difference between the liquid limit and the plastic limit.

As shown in the Figure 2-2, five fields have been identified. These include:

- Silty Clays (CL), Organic Silts (OL) or Organic Silty Clays (OL) of low plasticity
- Fat Clays (CH) and Organic Clays (OH)
- Inorganic Silts (ML) and Organic Silty Clays (OL) of low plasticity
- Silts (MH) and Organic Clays (OH) of a high plasticity
- Silty Clays to Clayey Silt (CL-ML) of low plasticity

Fine-grained soils with a liquid limit > 50 are modified by the symbol H (MH or CH), and those with a liquid limit < 50 are modified by the symbol L (ML or CL). Fine-grained soils containing 30 percent or more coarse-grained fraction should be modified by descriptive terms, such as "gravelly" or "sandy." If the coarse fraction is between 15 and 30 percent, the words" with sand and/or gravel" should be added to the group name. A flow chart for classifying fine-grained soils is presented in Figure 2-4.

2.3 Organic Soils

To classify organic soils, the percentage organic material present in the soil as well as the non-organic fines must be estimated. When the organic content ranges from 18 to 36 percent, the material is an organic clay or an organic silt, depending on the nature of the fine-grained constituents. When the organic content is between 36 and 90 percent, the material is designated a muck or peaty muck (OL or OH). A flow chart for classifying organic soil is presented in Figure 2-4. The term "peaty" is added if the organic remains are

SOP-B3

Borehole Sampling and Logging of Soil Borings
Standard Operating Procedures for PG&E Topock Program

This standard operating procedure (SOP) provides guidance for sample collection from soil borings during the drilling process, and proper documentation necessary. Detailed guidance for sample collection, preservation and handling is provided in Section 4.0 of the site Quality Assurance Project Plan (QAPP) and in the Topock Program *Sampling, Analysis, and Field Procedures Manual* (Procedures Manual). SOP-B2 provides detailed guidance for soil characterization and logging.

REQUIRED DOCUMENTS

1) Event-specific sampling and analysis plan (SAP), work plan or event-specific field instructions. Planned borehole depth, proposed well construction/specifications, and field sampling summary table, if available.

2) Applicable project work plan or monitoring plan. Refer to the Procedures Manual and QAPP, as required.

3) Topock Program Health and Safety Plan (HSP).

4) Previous sampling, drilling, or well construction logs from other boreholes or wells in the vicinity, if available.

5) Blank sampling log and field notebook.

PREPARATION AND SETUP

1) Review event-specific work plan or event-specific field instructions, previous sampling logs, Procedures Manual, and HSP.

2) Initiate field logbook for sampling activity.

3) Review sampling procedures and equipment, and planned sample depths with drilling contractor and field crew.

Equipment List

- Field logbook
- Borehole log
- Blue or black waterproof or permanent ink
- pens Trash bags
- Plastic sandwich bags
- Paper towels

- Stainless steel sampling equipment (provided by driller)
- Decontamination equipment (Alconox® solution in spray bottle, brushes, buckets, rinse water spray bottle)
- Soil sample containers appropriate for sample analysis and preservation as called for in SAP and QAPP (glass jars, brass sleeves, Encore® containers, sandwich bags, etc.)
- Soil sampling equipment not provided by driller (spatula or putty knife, stainless steel compositing bowl, hand auger, etc.)
- Groundwater sample containers appropriate for sample analysis and preservation as called for in SAP and QAPP (glass jars, VOA vials, plastic jars, etc.)
- Groundwater sample equipment not provided by driller (pump, filters, tubing, power supply, etc.)
- Water quality meters
- Water level indicator
- Distilled water
- Coolers with ice
- Protective waterproof gloves (nitrile or latex)

GUIDELINES

Soil Boring Logs Documentation

Soil boring logs will be completed on the soil boring log forms during the drilling activities at the time of the logging and soil descriptions. Information collected will be consistent with the standard CH2M HILL form (See SOP-B2 attachment A). Sample data may also be documented in the comments section of the boring log.

Items documented on the borehole log include:

1) **Sample Interval:** The top and bottom depth of each sample run should be recorded on the borelog. Sampling includes samples collected for analysis as well as core retrieved for logging purposes.

2) **Sample Type and Number:** Enter the sample type and number consistent with the sampling and analysis plan at the correct depth intervals. An "x" should be placed across the vertical interval where the environmental soil, grab groundwater, or geotechnical sample was collected.

3) **Sample Recovery:** Enter the length of retrieved core to the nearest 0.1 foot of sample recovered, and record the value in feet. Do not count slough or caved material as part of the total recovered length of core. Record total length and percent of sample recovered. If using a 5-foot sample barrel, multiply the total length by 2 and 100 to get a percentage number. Similarly, if using a 2.5-foot sampler, multiply by 4 and 100 to get the percent recovery.

4) **Sampling:** Sampling difficulties shall be noted. Disturbed samples shall be noted on the log as well as the sample recovery. The top of the sample shall be marked on the container.

5) **Water Levels:** Water-level measurements, where groundwater is encountered, are required for each boring. Changes in soil moisture shall be noted and, if there is no water encountered, a note to that effect shall be included on the borehole log. The date and time of water-level measurements shall be documented.

At a minimum, sample identifiers (IDs) should be noted on boring logs at the depth collected. When time and space allows, a summary of analytical sample information can be included. When inclusion of these data prevents documentation of drilling information, sample data should be omitted in order to document drilling.

Borehole Sampling by Drilling—General Procedure

Split-spoon sampling procedures shall be executed in accordance with American Society for Testing and Materials (ASTM) D1586, "Standard Method for Penetration Test and Split-barrel Sampling of Soils" (ASTM 1984). California (2-inch) or Modified California (2.5-inch) split-barrel samplers may also be used.

1) The split-spoon or split-barrel sampler shall be advanced to the top of the sampling interval using a wire-line or sample rods such as A or AW. The larger-diameter samplers may be fitted with three 6-inch-long stainless-steel sleeves. The sampler shall be driven 18 inches or to refusal, with a 140-pound hammer dropping repeatedly 30 inches. Refusal shall be defined as requiring 50 blows with the hammer to advance the sampler less than 6 inches.

2) The number of blows required to drive the sampler each 6 inches shall be recorded on the borelog.

3) As the sample tubes are disassembled, an organic vapor monitor probe shall be inserted into the gap between two sample liners, and the liner exhibiting the highest reading shall be selected for analysis.

4) In general, the middle liner is collected for laboratory analysis, and 10 percent of the bottom liners are collected for quality assurance testing. A sample of the soil in the top liner typically is placed in a re-sealable plastic bag or 8-ounce clear glass jar and left in the sun for approximately 15 minutes to allow any volatile organic compounds (VOC) to volatilize.

5) After the 15 minute volatilization period, the soil vapor in the plastic bag is then measured for VOCs by taking a reading of the headspace. Background VOCs for the bag are determined by monitoring the air in an empty bag.

6) Results of the organic vapor monitoring are recorded on the boring log.

7) Small portions of soil at the ends of the sleeve are scraped off for classification.

Borehole Sampling by Drilling—Split Spoon Sampling

1) Samples collected for laboratory analysis using split spoon sampling device will be separated and transferred from the split-spoon halves into sample jars by clean stainless-steel utensils.

2) Samples for VOCs will be separated and collected first, followed by semivolatile organic compounds samples.

3) For VOC samples, avoid mixing the soil before sampling and sample directly from the split spoon. See SOPs for guidance on homogenizing soil samples and for VOC sampling using EnCore samplers, respectively.

Borehole Sampling by Drilling—Direct-push Sampling

1) Samples collected for laboratory analysis using a direct-push sampling drill rig will be handled by either opening the tube and placing the soil in sample jars or cutting the acetate tube and submitting it the laboratory directly.

2) For samples that will be removed from the acetate tube, the tube will be cut open longitudinally using a double-bladed razor knife.

   - Soil will be inspected and logged prior to removal of soil samples.
   - A short section of soil will be removed from the acetate sleeve using a stainless-steel utensil, homogenized in a clean stainless-steel bowl, and placed in sample jars.
   - Soil collected for VOC analysis will be sampled directly from the split acetate sleeve using EnCore samplers.

3) Alternatively, a short (6-inch) length of liner will be cut from the acetate sleeve and collected directly for laboratory analysis.

   - The section of acetate liner will be removed, capped with Teflon sheeting and plastic end caps at both ends, and taped with clear label or packing tape.
   - Labels shall be affixed to the liners with job designation, time, boring number, sample depth interval, sample number, date sampled, and the initials of the sampler clearly marked.
   - The samples shall then be enclosed in a plastic bag and stored in a cooler maintained at 4˚C.
   - Sample information shall be placed on the chain-of-custody, the borelog, and the field logbook. All samples shall be handled in accordance with *Chain of Custody Procedures*.

Borehole Sampling by Drilling—Split-barrel Sampling

Soil samples can also be collected using a 3-foot-long or 5-foot-long split-barrel sampler. The split-barrel sampler is similar to the split-spoon sampler that is used to hold steel or brass sampling sleeves, but the split-barrel sampler typically is not used to hold sample sleeves.

1) The sampler is lowered to the base of the drill bit and is advanced slightly ahead of the drill bit and augers (or conductor casing). The weight of the drill string and sample barrel along with the drilling and cutting action of the drill bit advances the face of the split-barrel sampler into the formation.

2) Once the desired depth interval is reached, the split-barrel sampler is retrieved using a cable or tool steel sections.

3) The retrieved sampler is unscrewed, and one or both halves are laid on the sample table. The soil typically will form a continuous column of soil in one of the split-barrel halves.

4) The soil column is split longitudinally for soil descriptions using a putty knife or spatula.

5) Samples for VOC analysis are collected immediately directly from the soil column.

6) Other soil samples are collected after the core section has been described and logged. The soil is described following the procedures in the following sections.

Groundwater Sampling

1) Groundwater samples can be collected by hydropunch by bailer or by pumping from an isolated zone. Collection of groundwater by bailing is not an accurate method of collection depth discrete groundwater samples, as the zone sampled is poorly isolated.

2) Hydropunch samples are collected below the bit of the drill stem, in relatively undisturbed soil zone. This method of sample collection may be difficult in fine-textured soils and in very rocky soils. To collect these samples, a point is driven below the depth of the drill bit, then a screen zone is opened within this point and water allowed to flow in. The hydropunch tool must be decontaminated between samples.

Groundwater can also be collected from the open or cased borehole with a bailer. A disposable or decontaminated stainless-steel bailer is lowered into the boring, and water is collected. This method is preferable for collection of groundwater from the water table. Attempts can be made to collect discrete groundwater samples beneath the water table; however, the boring must be cased with watertight, stainless-steel pipe, and the boring must be evacuated prior to collection of samples.

Alternatively, discrete groundwater samples can be collected by isolating a zone with casing and packers. To collect these samples, the borehole is first advanced to the depth at which a sample is required. Then casing is advanced to within 20 feet of the sample zone. Next, a pump and packers are lowered into the hole. The zone from which samples are to be collected is isolated with a packer, and water is pumped directly from the target zone.

Sample Handling

Sample preservation and sampling procedures are detailed in Section 4.0 of the QAPP. Additional information is provided in the Procedures Manual and in the appropriate SAP.

KEY CHECKS AND ITEMS

- Check entries to the soil boring log and field logbook in the field during sampling activities because the samples will be disposed at the end of the fieldwork, confirmation and corrections cannot be made later.

- Check that the sample numbers and intervals are properly specified.
- Ensure that drilling equipment is decontaminated prior to the beginning of work and between each borehole.
- All materials generated during sampling (debris, PPE, decontamination liquids, etc.) will be placed in 55-gallon drums or roll-off bins for storage pending analysis and disposal off site, as outlined in SOP 39, Standard of Practice H-83, and Appendix D of the project *Soil and Groundwater Management Plan*.

ATTACHMENT A

Examples of Soil Bore Logs

CH2MHILL

PROJECT NUMBER	BORING NUMBER SHEET OF

SOIL BORING LOG

PROJECT _____ LOCATION _____

ELEVATION _____ DRILLING CONTRACTOR _____

DRILLING METHOD AND EQUIPMENT _____

WATER LEVELS _____ START _____ FINISH _____ LOGGER _____

DEPTH BELOW SURFACE (FT)	SAMPLE			STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS
	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION

SHEET 1 of 9	PROJECT NUMBER: 326128.01.16.EN	BORING NUMBER: *MW-47*

SOIL BORING LOG - DRAFT FOR DISCUSSION

PROJECT NAME: IMPM Drill Program		HOLE DEPTH (ft): 288.0	DRILLING CONTRACTOR: Prosonic Corp. Phoenix, AZ	
SURFACE ELEVATION: 482.6 ft. MSL	NORTHING (CCS NAD 27 Z 5): 2,103,450.05	EASTING (CCS NAD 27 Z 5): 7,615,629.49	DATE STARTED: 02/27/2006	DATE COMPLETED: 03/13/2006
DRILLING METHOD: Rotosonic			DRILLING EQUIPMENT: Sonic AT (track mounted)	
LOCATION: PG&E Compressor Station - Flood Plain, Topock, California			LOGGED BY: B. Moayyad, K. Ebel	

DEPTH BGS (feet)	SAMPLE INTERVAL	SAMPLE TYPE/ NUMBER	SAMPLE RECOVERY (ft)	USCS CODE	SOIL DESCRIPTION SOIL NAME, USCS SYMBOL, COLOR, PERCENT COMPOSITION, GRADING, GRAIN SHAPE, MINERALOGY, DENSITY/CONSISTENCY, STRUCTURE, MOISTURE.	COMMENTS DRILLING OBSERVATIONS AND OPERATIONS, DAILY START AND END TIMES , DRILL RATE, REFUSALS, SAMPLING AND TESTING NOTES.
5			6	SP	**POORLY GRADED SAND (SP)** - very lt brn (10YR7/3), =2% fines, 98% f to m lithic quartz sand, subang to subrnd, dry - fine roots, iron staining, some iron oxide coating on grains	Hand augured to 5' bgs
10			10	SP	- slightly moist - dry	Rapid drill rate, no chatter
15						
20			16	SW	**WELL GRADED SAND w/ GRAVEL (SW)** - lt yellowish brn (10YR6/4), 45% gravel up to 7cm, 50% f to m sand, 5% fines, loose, met subang gravel, dry(moist@ 17') - cobble present in slough - one subrnd chert gravel - Possible Fluvially Reworked Alluvium - lt grey (10YR7/2), subang to rnd met gravel up to 9cm, 2% to 5% fines - dk yellowish brn (10YR4/4), mostly c sand subang to ang, met, some Miocene conglomerate gravel	
25				SW	- 65% sand, 30% gravel up to 4cm, 5% fines	
30				SW	**WELL GRADED SAND w/ GRAVEL (SW)** - dk yellowish brn (10YR3/6), 35% gravel up to 4cm, 55% m to c sand, 10% silty fines, met clasts are grain supported some mm siltstone - some oxide staining	
35				SW	**WELL GRADED SAND w/ GRAVEL AND CLAY (SW)** - dk yellowish brn (10YR3/6), 30% subang met gravel up to 7 cm, 55% subrnd to subang m to c sand, 15% clayey fines, m density, moist	Drill rate slowed to clean out 8" pipe

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PROJECT NUMBER: 326128.01.16.EN

BORING NUMBER: *MW-47*

SOIL BORING LOG - DRAFT FOR DISCUSSION

PROJECT NAME: IMPM Drill Program		**HOLE DEPTH (ft):** 288.0	**DRILLING CONTRACTOR:** Prosonic Corp. Phoenix, AZ	
SURFACE ELEVATION: 482.6 ft. MSL	**NORTHING (CCS NAD 27 Z 5):** 2,103,450.05	**EASTING (CCS NAD 27 Z 5):** 7,615,629.49	**DATE STARTED:** 02/27/2006	**DATE COMPLETED:** 03/13/2006
DRILLING METHOD: Rotosonic			**DRILLING EQUIPMENT:** Sonic AT (track mounted)	
LOCATION: PG&E Compressor Station - Flood Plain, Topock, California			**LOGGED BY:** B. Moayyad, K. Ebel	

DEPTH BGS (feet)	SAMPLE INTERVAL	SAMPLE TYPE/ NUMBER	SAMPLE RECOVERY (ft)	USCS CODE	SOIL DESCRIPTION SOIL NAME, USCS SYMBOL, COLOR, PERCENT COMPOSITION, GRADING, GRAIN SHAPE, MINERALOGY, DENSITY/CONSISTENCY, STRUCTURE, MOISTURE.	COMMENTS DRILLING OBSERVATIONS AND OPERATIONS, DAILY START AND END TIMES , DRILL RATE, REFUSALS, SAMPLING AND TESTING NOTES.
			2.5	SW	**WELL GRADED SAND w/ GRAVEL (SW)** - dr yellowish brn (10YR3/6), 30% gravel, 60% sand, 10% silty fines	Drilling smooth but preceeds less rapidly
40					**WELL GRADED SAND w/ GRAVEL (SW)** - 40% subang met gravel up to 6cm, 55% subrnd to ang sand, 5% fines - more gravel below 38'	
			10	SW	- gravel is mostly fine	
45						
				SW	**WELL GRADED SAND w/ GRAVEL (SW)** - Pale brn (10YR6/3), 30% subang met gravel up to 5cm, 60% subrnd to subang m to c met sand, 10% silty fines, wet	Soil sample collected
50			10			
				SP	**POORLY GRADED SAND w/ GRAVEL (SP)** - pale brn (10TR6/3), 30% f subang gravel up to 2 cm, 65% mostly c sand, =2% fines	
55				SW	**WELL GRADED SAND w/ GRAVEL (SW)** - yellowish brn (10YR5/4), 40% subang met gravel up to 9cm, 55% f to c met sand, 5% silty fines, clast supported, m density, wet	
					WELL GRADED GRAVEL w/ SILT AND SAND (GW) - brn (7.5YR5/4), 55% subang to ang met gravel up to 4cm, 25% f to c sand, 20% silty fines, dense, moist to dry	
60					- soil dries out	Collected Isoflow sample
			9.5	GW	- lt grey (10YR7/2) and powder dry	Drill rate slows to 2' / min
65					- moist sandy zone, 55% gravel, 35% sand, 10% fines - dry silty lt grey GW below 65'	
				SW	**WELL GRADED SAND w/ GRAVEL (SW)** - yellowish brn (10YR5/4), 35% subang met gravel up to 4cm, 60% subrnd sand, 5% silty fines, loose, moist to wet	Moderate Drill Rate
70						

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PROJECT NUMBER: 326128.01.16.EN

BORING NUMBER: *MW-47*

SOIL BORING LOG - DRAFT FOR DISCUSSION

PROJECT NAME: IMPM Drill Program		**HOLE DEPTH (ft):** 288.0	**DRILLING CONTRACTOR:** Prosonic Corp. Phoenix, AZ	
SURFACE ELEVATION: 482.6 ft. MSL	**NORTHING (CCS NAD 27 Z 5):** 2,103,450.05	**EASTING (CCS NAD 27 Z 5):** 7,615,629.49	**DATE STARTED:** 02/27/2006	**DATE COMPLETED:** 03/13/2006
DRILLING METHOD: Rotosonic			**DRILLING EQUIPMENT:** Sonic AT (track mounted)	
LOCATION: PG&E Compressor Station - Flood Plain, Topock, California			**LOGGED BY:** B. Moayyad, K. Ebel	

DEPTH BGS (feet)	SAMPLE INTERVAL	SAMPLE TYPE/ NUMBER	SAMPLE RECOVERY (ft)	USCS CODE	SOIL DESCRIPTION SOIL NAME, USCS SYMBOL, COLOR, PERCENT COMPOSITION, GRADING, GRAIN SHAPE, MINERALOGY, DENSITY/CONSISTENCY, STRUCTURE, MOISTURE.	COMMENTS DRILLING OBSERVATIONS AND OPERATIONS, DAILY START AND END TIMES , DRILL RATE, REFUSALS, SAMPLING AND TESTING NOTES.
			6	SP	**POORLY GRADED SAND w/ SILT (SP)** - brn (7.5YR4/4), 5% subrnd to subang met gravel up to 4cm, 85% f to c sand, 10% fines, poorly graded, wet, no odor	
145			3	SM	**SILTY SAND W/ GRAVEL (SM)** - brn (7.5YR4/4), 20% subang to subrnd gravel up to 6cm, 60% f to c sand, 20% silty fines, well graded, m consolidated, met, wet, no odor	
150			5	SM	**SILTY SAND w/ GRAVEL (SM)** - dk yellowish brn (10YR4/4), 25% subang to subrnd up to 4cm met gravel, 60% well graded f to c sand, 15% fines, wet, no odor	
155			4	SW	**WELL GRADED SAND w/ SILT AND SAND (SW)** - dr yellowish brn (10YR4/4), 10% subang to subrnd up to 3cm met gravel, 75%well graded f to c sand, 15% fines, moist to wet	
			2	SW	**SILTY SAND (SM)** - brn (7.5YR4/4), 5% ang to subrnd met gravel up to 1.5cm increasing with depth, 85% poorly graded m to c sand, 10% fines, loose, wet	
			2	SM	**SILTY SAND w/ GRAVEL (SM)** - dk yellowish brn (10YR4/4), 15% subang to subrnd up to 2.5cm met gravel, 75% well graded f to c sand, 10% fines, mostly met, trace chert, loose, wet, no odor	Collected Isoflow sample
160			4	SM	**SILTY SAND W/ GRAVEL (SM)** - brn (7.5YR4/4), 25% subang to subrnd gravel up to 6.5cm, 60% m to c sand, 15% silty fines, well graded, m consolidated, met, wet, no odor	Drill rate = 0.75' to 1.5' / min
165			4	SW	**SILTY SAND (SW)** - mottled dk reddish brn (5YR3/4), 10% subang to subrnd gravel up to 2.5cm, 50% well graded f to m sand, 40% silt, metamorphic, dry to damp, no odor, interbedded sandy silt laminations	
170			5.5	SW	**SAND w/ GRAVEL (SW)** - dk reddish brn (5YR3/4), 20% subang to subrnd gravel up to 5cm, 75% f to c sand, 5% fines, well graded, loose, met, wet	
175			2.5	SM	**SILTY SAND w/ GRAVEL (SM)** - brn (7.5YR4/4), 15% subang to subrnd gravel, 70% f to m sand, 15% fines, poorly graded, met,increasingly consolidated, slightly to moderately calcareous, moist to wet	

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PROJECT NUMBER:	BORING NUMBER:
326128.01.16.EN	MW-47

SOIL BORING LOG - DRAFT FOR DISCUSSION

PROJECT NAME: IMPM Drill Program		**HOLE DEPTH (ft):** 288.0	**DRILLING CONTRACTOR:** Prosonic Corp. Phoenix, AZ	
SURFACE ELEVATION: 482.6 ft. MSL	**NORTHING (CCS NAD 27 Z 5):** 2,103,450.05	**EASTING (CCS NAD 27 Z 5):** 7,615,629.49	**DATE STARTED:** 02/27/2006	**DATE COMPLETED:** 03/13/2006
DRILLING METHOD: Rotosonic			**DRILLING EQUIPMENT:** Sonic AT (track mounted)	
LOCATION: PG&E Compressor Station - Flood Plain, Topock, California			**LOGGED BY:** B. Moayyad, K. Ebel	

DEPTH BGS (feet)	SAMPLE INTERVAL	SAMPLE TYPE/ NUMBER	SAMPLE RECOVERY (ft)	USCS CODE	SOIL DESCRIPTION SOIL NAME, USCS SYMBOL, COLOR, PERCENT COMPOSITION, GRADING, GRAIN SHAPE, MINERALOGY, DENSITY/CONSISTENCY, STRUCTURE, MOISTURE.	COMMENTS DRILLING OBSERVATIONS AND OPERATIONS, DAILY START AND END TIMES , DRILL RATE, REFUSALS, SAMPLING AND TESTING NOTES.
285			0	BR	**MIOCENE CONGLOMERATE BEDROCK (BR)** - 60% well graded subang to rnd gravel up to 10cm, 30% well graded sand, 10% fines, very calcareous, well consolidated to mostly hard, mod to very altered locally, mostly met, dry to moist	
					Boring Terminated at 288 ft	

ABBREVIATIONS

cc = continuous core run
brn = brown
lt = light
dk = dark
vf = very fine-grained
f = fine-grained
m = medium-grained
c = coarse-grained
vc = very coarse-grained
ang = angular
subang = subangular
subrnd = subrounded
rnd = rounded
br = bedrock formation
ss = sandstone
conglom = conglomerate
comptd = compacted
qtz = quartz

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PROJECT NUMBER	BORING NUMBER SHEET OF

SOIL BORING LOG

PROJECT _____ LOCATION _____

ELEVATION _____ DRILLING CONTRACTOR _____

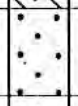
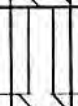
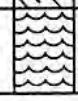
DRILLING METHOD AND EQUIPMENT _____

WATER LEVELS _____ START _____ FINISH _____ LOGGER _____

DEPTH BELOW SURFACE (FT)	SAMPLE			STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS
	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)	6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION

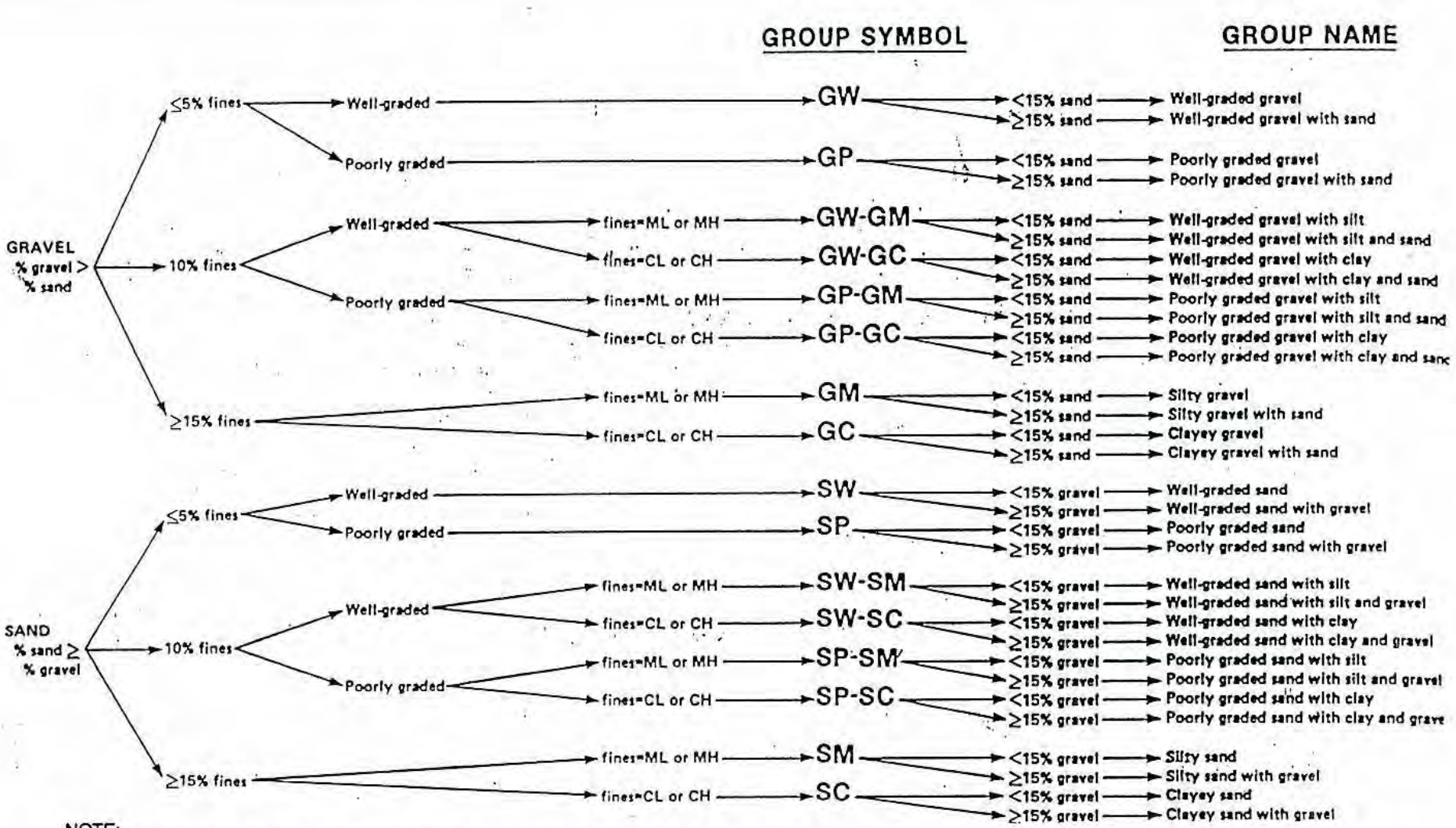
ATTACHMENT B

Unified Soil Classification System and Logging Criteria

GENERAL SOIL CATEGORIES			SYMBOLS		TYPICAL SOIL TYPES
COARSE GRAINED SOILS More than half is larger than No. 200 sieve	GRAVEL More than half coarse fraction is larger than No. 4 sieve size	Clean Gravel with little or no fines	GW		Well Graded Gravel, Gravel-Sand Mixtures
			GP		Poorly Graded Gravel, Gravel-Sand Mixtures
		Gravel with more than 12% fines	GM		Silty Gravel, Poorly Graded Gravel-Sand-Silt Mixtures
			GC		Clayey Gravel, Poorly Graded Gravel-Sand-Clay Mixtures
	SAND More than half coarse fraction is smaller than No. 4 sieve size	Clean sand with little or no fines	SW		Well Graded Sand, Gravelly Sand
			SP		Poorly Graded Sand, Gravelly Sand
		Sand with more than 12% fines	SM		Silty Sand, Poorly Graded Sand-Silt Mixtures
			SC		Clayey Sand, Poorly Graded Sand-Clay Mixtures
FINE GRAINED SOILS More than half is smaller than No. 200 sieve	SILT AND CLAY Liquid Limit Less than 50%		ML		Inorganic Silt and Very Fine Sand, Rock Flour, Silty or Clayey Fine Sand, or Clayey Silt with Slight Plasticity
			CL		Inorganic Clay of Low to Medium Plasticity, Gravelly Clay, Sandy Clay, Silty Clay, Lean Clay
			OL		Organic Clay and Organic Silty Clay of Low Plasticity
	SILT AND CLAY Liquid Limit Greater than 50%		MH		Inorganic Silt, Micaceous or Diatomaceous Fine Sandy or Silty Soils, Elastic Silt
			CH		Inorganic Clay of High Plasticity, Fat Clay
			OH		Organic Clay of Medium to High Plasticity, Organic Silt
HIGHLY ORGANIC SOILS			PT		Peat and Other Highly Organic Soils

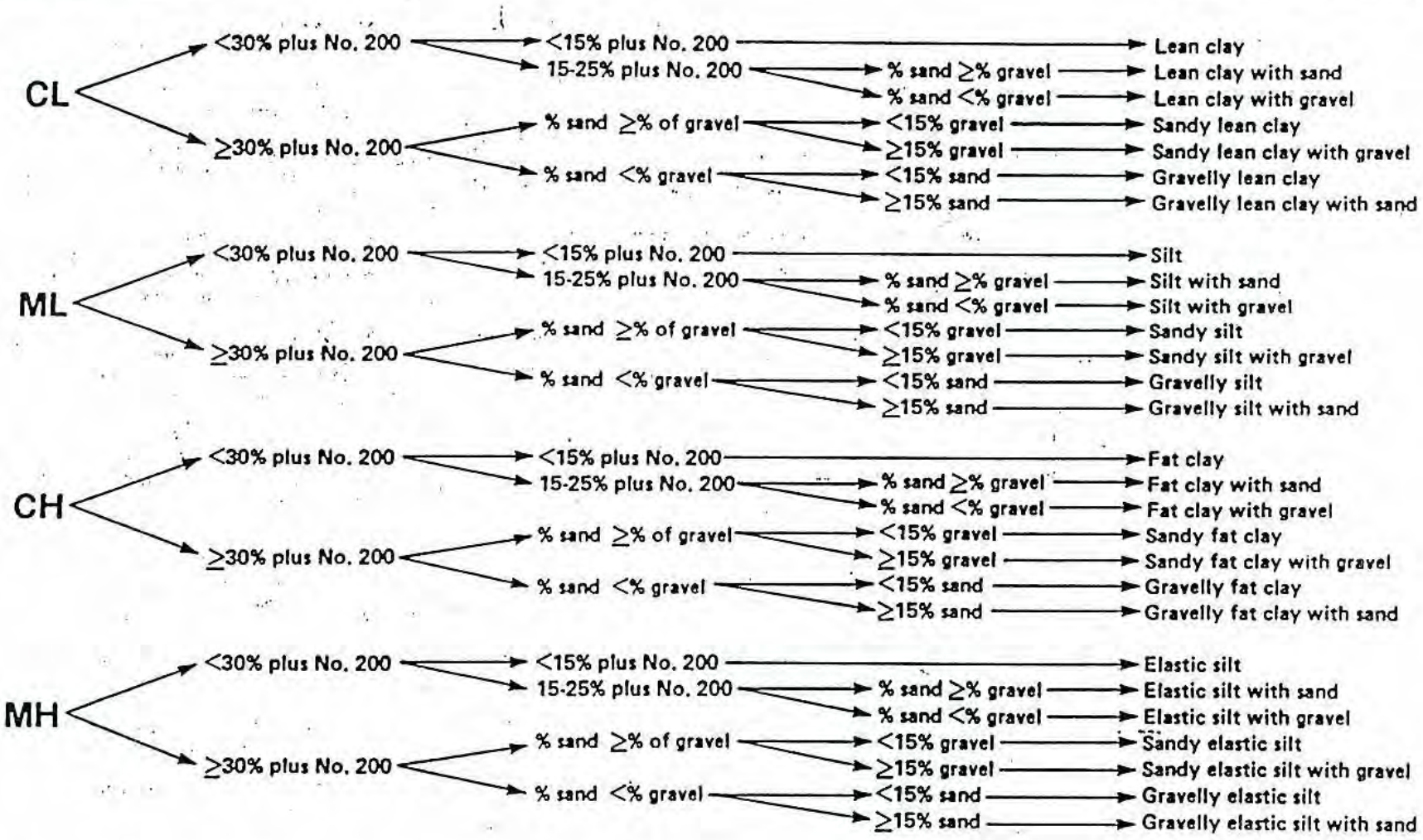
UNIFIED SOIL CLASSIFICATION SYSTEM

JOB NUMBER	DATE	APPROVED	PLATE



NOTE:
Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5%
(After ASTM Designation D2488 Standard Test Method for Classification of Soils for Engineering Purposes)

Flow Chart for Classifying Coarse-grained Soil
(50% or more retained on No. 200 sieve)
Field Guide for Soil Classification and Logging Procedures



NOTE:
Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5%
(After ASTM Designation D2488 Standard Test Method for Classification of Soils for Engineering Purposes)

Flow Chart for Classifying Fine-grained Soil
(50% or more passing No. 200 sieve)
Field Guide for Soil Classification and Logging Procedures

similar, the material is classified as poorly graded or well sorted. If fines represent less than 5 percent of the total mass, the symbol SP is used for a poorly-graded sand and SW for a well graded sand. If silts and/or clays exceed 12 percent, the symbols GC, SC, GM, and SM are used, respectively.

If the silts and clays are between 5 to 12 percent of the total sample weight, a dual classification with two group symbols is used. The first symbol is GW, GP, SW, or, SP, and the second is GC, GM, SC, or SM. The group name corresponds to the first group symbol plus the modifying words "with clay" or "with silt" to indicate the plasticity characteristics. If the fines plot on the CL-ML range on the plasticity chart (Figure 2-2), possible dual classification group names are:

GW-GM	well graded gravel with silt
GW-GC	well graded gravel with clay
GP-GM	poorly graded gravel with silt
GP-GC	poorly graded gravel with clay
SW-SM	well graded sand with silt
SW-SC	well graded sand with clay
SP-SM	poorly graded sand with silt
SP-SC	poorly graded sand with clay

If silts and clays exceed 12 percent of the total weight of sample, the modifiers "M" and "C" are used, respectively. If a sand or gravel has more than 15 percent of the other coarse-grained constituent, the words "with gravel" or "with sand" are added to the group name. A flow chart for classifying coarse-grained soils is presented in Figure 2-3.

2.2 Fine-grained Soils

Particles passing the No. 200 sieve are silts (M) and clays (C). These soils must undergo testing in order to differentiate between them. Typical tests used are: dry strength, dilatancy, toughness, and plasticity. These terms are further discussed in Tables 2-2 through Table 2-6. Silts have little or no dry strength when dry, while clays have considerable dry strength. Dry strength, dilatancy, and toughness are also used to identify the fine-grained fraction of coarse-grained soils.

TABLE 2-2
Criteria for Describing Dry Strength

Description	Criteria
None	The dry specimen crumbles into powder with the mere pressure of handling.
Low	The dry specimen crumbles into powder with some finger pressure.
Medium	The dry specimen breaks into pieces or crumbles with considerable finger pressure.
High	The dry specimen cannot be broken with finger pressure. The specimen will break into pieces between the thumb and a hard surface.
Very high	The dry specimen cannot be broken between the thumb and a hard surface.

TABLE 2-3
Criteria for Describing Dilatancy

Description	Criteria
None	There is no visible change in the specimen.
Slow	Water appears slowly on the surface of the specimen during shaking, and does not disappear, or disappears slowly upon squeezing.
Rapid	Water appears quickly on the surface of the specimen during shaking, and disappears quickly upon squeezing.

TABLE 2-4
Criteria for Describing Toughness

Description	Criteria
Low	Only slight pressure is required to roll the thread near the plastic limit. The thread and the lump are weak and soft.
Medium	Medium pressure is required to roll the thread to near the plastic limit. The thread and the lump have medium stiffness.
High	Considerable pressure is required to roll the thread to near the plastic limit. The thread and the lump have very high stiffness.

TABLE 2-5
Identification of Inorganic Fine-grained Soils from Manual Tests

Soil Symbol	Dry Strength	Dilatancy	Toughness
ML	None to low	Slow to rapid	Low or thread cannot form
CL	Medium to high	None to slow	Medium
MH	Low to medium	None to slow	Low to medium
CH	High to very high	None	High

TABLE 2-6
Criteria for Describing Plasticity

Description	Criteria
Nonplastic	A 1/8-inch (3-mm) thread cannot be rolled at any water content.
Low	The thread can barely be rolled, and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll, and not much time is required to read the plastic limit. The thread cannot be re-rolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be re-rolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier that the plastic limit.

Fine-grained soils are accurately determined in the laboratory using the Atterberg Limits test. This test include liquid limit, plastic limit, and plasticity index measurements. The liquid limit is the water content of a soil at the point of transition from a plastic to a liquid state. The plastic limit is the water content of a soil at the point of transition from a semisolid to a plastic state. The plasticity index is the difference between the liquid limit and the plastic limit.

As shown in the Figure 2-2, five fields have been identified. These include:

- Silty Clays (CL), Organic Silts (OL) or Organic Silty Clays (OL) of low plasticity
- Fat Clays (CH) and Organic Clays (OH)
- Inorganic Silts (ML) and Organic Silty Clays (OL) of low plasticity
- Silts (MH) and Organic Clays (OH) of a high plasticity
- Silty Clays to Clayey Silt (CL-ML) of low plasticity

Fine-grained soils with a liquid limit > 50 are modified by the symbol H (MH or CH), and those with a liquid limit < 50 are modified by the symbol L (ML or CL). Fine-grained soils containing 30 percent or more coarse-grained fraction should be modified by descriptive terms, such as "gravelly" or "sandy." If the coarse fraction is between 15 and 30 percent, the words" with sand and/or gravel" should be added to the group name. A flow chart for classifying fine-grained soils is presented in Figure 2-4.

2.3 Organic Soils

To classify organic soils, the percentage organic material present in the soil as well as the non-organic fines must be estimated. When the organic content ranges from 18 to 36 percent, the material is an organic clay or an organic silt, depending on the nature of the fine-grained constituents. When the organic content is between 36 and 90 percent, the material is designated a muck or peaty muck (OL or OH). A flow chart for classifying organic soil is presented in Figure 2-4. The term "peaty" is added if the organic remains are

SOP-B4

Boring Abandonment
Standard Operating Procedures for PG&E Topock Program

The purpose of this standard operating procedure (SOP) is to describe methods to abandon drill borings to the surface. The guideline covers all drilling methods and includes borings through surface casings.

REQUIRED DOCUMENTS

1) Event-specific sampling and analysis plan, work plan or event-specific field instructions. Planned borehole depth, proposed well construction/specifications, and field sampling summary table, if available.

2) Applicable project work plan or monitoring plan. Refer to Topock Program *Sampling, Analysis, and Field Procedures Manual* and *Quality Assurance Project Plan* (Procedures Manual), as required.

3) San Bernardino County Department of Health well abandonment (destruction) permit.

4) Topock Program Health and Safety Plan (HSP).

5) Blank sampling log and field notebook.

PREPARATION AND SETUP

1) Review event-specific work plan or event-specific field instructions, previous sampling logs, Procedures Manual, and HSP.

2) Initiate field logbook for sampling activity.

3) Review sampling procedures and equipment, and planned sample depths with drilling contractor and field crew.

4) Inspect all required field equipment.

Equipment List

- Truck-mounted drilling rig, skid rig, or barge-mounted tripod rig
- Hollow-stem augers and associated equipment or either rotary-drilling or sonic- drilling equipment
- Steel or Schedule 40 PVC casing, of appropriate diameter for required installations (at least 6.25-inch inside diameter if surface casing is required)
- Approved water source
- Cement
- Bentonite

GUIDELINES

California Department of Water Resources, June 1991, Bulletin 74-90 (Supplement to Bulletin 74-81) *California Well Standards*.

PROCEDURES

Abandonment

1) The borehole will be grouted from total depth to the surface with bentonite-cement grout. The cement-bentonite grout will be installed continuously in one operation from the bottom of the space to be grouted to the ground surface.

2) The grout mixture will consist of 94 pounds of cement (1 bag) per 6 gallons of water and 2 to 3 pounds of powdered bentonite per bag of cement to reduce shrinkage.

3) The source of the water used in the grout mixture must be from a pre-approved source.

4) If there is any risk of borehole collapse upon removal of the drill casing, then the grout will be added prior to the removal of the drill casing. The grouting can be completed in stages, grouting 50 to 100 feet at a time, removing 50 to 100 feet of drill casing, and then repeating until the grout has reached the surface and the final casing removed.

5) When installing grout in soil borings, the grout will be installed through a tremie pipe that is placed inside the drill casing to the bottom of the borehole.

6) The production of grout will be completed to eliminate the preparation of excess/waste grout.

Waste Disposal

1) The soil cuttings are to be drummed and managed as described in SOP *Disposal of Waste Fluids and Soils* and the investigation-derived waste management plan.

2) Minimal quantities of grout may be included in the water or soil waste streams. The quantity of grout will be limited to that produced during cleaning of grouting equipment or decontamination of drill casing.

KEY CHECKS AND PREVENTATIVE MAINTENANCE

- Check that the drilling rig or soil-coring rig is in working order.
- Check that the borehole is grouted to the ground surface at the completion of drilling and sampling.

SOP-B5

Decontamination of Personnel and Equipment, Well Drilling, and Subsurface Sampling and Investigations
Standard Operating Procedures for PG&E Topock Program

This standard operating procedure provides general guidelines for the decontamination of personnel, sampling equipment, and monitoring equipment used in potentially-contaminated areas.

REQUIRED DOCUMENTS

1) Event-specific sampling and analysis plan (SAP).

2) Applicable project work plan or monitoring plan, which includes a health and safety plan. Refer to Topock Program *Sampling, Analysis, and Field Procedures Manual* and *Quality Assurance Project Plan*, as required.

PREPARATION AND SETUP

1) Initiate field log sampling book for activity.

2) Inspect all equipment necessary to carry out activities detailed in event-specific SAP.

3) Review decontamination guidelines for equipment necessary to carry out activities.

Equipment List

- Demonstrated analyte-free, deionized water (specifically, ASTM Type II water)
- Distilled water
- Potable water; must be from a municipal water supplier, otherwise an analysis must be run for appropriate volatile and semivolatile organic compounds and inorganic chemicals (e.g., Target Compound List and Target Analyte List chemicals)
- 2.5% (W/W) Liquinox® and water solution
- Large plastic pails or tubs for Liquinox® and water, scrub brushes, spray or squirt bottles for Liquinox® solution, and distilled or deionized water, plastic bags, and sheets
- Department of Transportation (DOT)-approved 55-gallon drum for disposal of waste
- Nitrile or latex gloves
- Decontamination pad and steam cleaner/high pressure cleaner for large equipment

GUIDELINES

Personnel Decontamination

Decontamination should be performed after completion of tasks whenever personnel come in contact with contaminated (or potentially-contaminated) soils or fluids. Full or emergency decontamination should be performed when contaminant concentrations are not known and when potentially-contaminated fluids come into contact with skin beneath clothing, eyes, nose, or ears.

Procedures for full/emergency decontamination are to:

1) Remove contaminated clothing.

2) Step into containment area (decontamination pad or large pail).

3) Rinse away fluids and soil.

4) Wash skin with Liquinox® solution in such a way as to not abrade skin. (Liquinox® solution should be made with potable water and sufficient detergent to create foamy suds.) Eyes and mucus membranes in contact with contaminants must be washed with eye wash or drinking water continuously for at least 15 minutes.

5) Rinse with potable water.

6) If no other clothes are available, wash affected clothes in Liquinox® solution prior to donning. If other clothes are available, contaminated clothes may be isolated for later wash or disposed of along with personal protective equipment (PPE).

7) Any PPE worn (including disposable latex booties, gloves, and disposable coveralls) should be discarded into DOT-approved 55-gallon drum located at the MW-20 bench.

8) Dispose of wash and rinseate water in an appropriate container with other chromium contaminated fluids. These fluids may be taken to the MW-20 bench for treatment or to a Baker® tank within the PG&E facility for containerization.

9) Replace all appropriate clothing and PPE before resuming work or departing site.

Moist soil or water containing known concentrations of hexavalent chromium less than 50 parts per billion that comes into contact with hands need not require full decontamination. Dry soil containing chromium that comes into contact with clothing can also be decontaminated in an abbreviated manner.

Daily decontamination and minor exposure contact decontamination procedures are to:

1) Wash hands and skin that comes in contact with soils or water that may contain small concentrations of chromium as soon as possible after contact. Wash with Liquinox® solution and rinse with potable water.

2) If contaminated soil or water contacts hands through hole or over lip of gloves, remove gloves and wash hands thoroughly before donning new gloves.

3) Discard gloves into DOT-approved 55-gallon drum located on the MW-20 bench at the end of the day or event.

4) Remove coveralls or dry soils from clothing before leaving site. Clothing contaminated by moist soil or water containing hexavalent chromium should be removed and promptly washed.

5) At the end of the work day, shower entire body, including hair, either at the work site or at hotel.

Sampling Equipment Decontamination—Groundwater Sampling Pumps

Sampling pumps are decontaminated after each use as follows:

1) Don waterproof (nitrile or latex) gloves.

2) Run pump and reusable tubing through with Liquinox® solution (made with potable water) so that the pump and all portions or the tubing have been flushed with the solution for at least 30 to 60 seconds. More time is required if water is present in the tubing. If unsure, run for 2.5 minutes. Outside of the tubing should also be submerged and washed in the solution.

3) Run pump and reusable tubing through first rinse (with potable or distilled water) so that the pump and all portions or the tubing have been flushed with the solution for at least 60 seconds. More time is required if any suds are present in the pump or tubing.

4) Run pump and reusable tubing through second rinse (with distilled water) so that the pump and all portions or the tubing have been flushed with the solution for at least 30 seconds. More time is required if water from first rinse is present in tubing.

5) Equipment blank samples may be taken at this point using ASTM Type II water or distilled water as required by laboratory.

Sampling Equipment Decontamination—Other Equipment

Reusable sampling equipment is decontaminated after each use as follows:

1) Don nitrile or latex gloves.

2) Wash all equipment surfaces that contacted the potentially contaminated soil/water with Liquinox® solution (made from potable water). Water quality meters that are not placed within wells should not be washed with detergent, as this will degrade sensors; these meters should be double-rinsed. Any portion of equipment that is placed inside wells (including cables and pipe) and that comes in contact with moisture should be washed with detergent.

3) Rinse equipment and supplies with potable water, if the equipment is not used to collect groundwater or soil samples. Equipment used to collect samples or take water quality parameters should be rinsed with distilled water.

4) Air dry or towel dry with paper towels.

5) Collect all rinseate and dispose of in Baker® tank within the PG&E facility or Denbeste® tank at the MW-20 bench.

6) Decontamination materials (e.g., plastic sheeting, tubing, etc.) that have come in contact with used decontamination fluids or sampling equipment will be disposed of in DOT-approved 55-gallon drums if highly contaminated. If not contaminated, equipment can be washed and disposed of in trash.

7) Preserved bottles may need to be washed before being packed or handed without gloves. The outsides of filled bottles should be rinsed and toweled dry to prevent contact with strong acids or based.

Heavy Equipment and Tools

Heavy equipment such as drilling rigs, drilling rods/tools, and the backhoe will be decontaminated upon arrival at the site and between locations as follows:

1) Set up a decontamination pad in designated area.

2) Steam clean heavy equipment until no visible signs of dirt are observed. This may require wire or stiff brushes to dislodge dirt from some areas.

KEY CHECKS AND ITEMS

- Clean with solutions of Liquinox® and potable water. Rinse with distilled or deionized water if equipment is used to collect samples or water readings; otherwise, rinse with potable water.
- Equipment placed within wells should be thoroughly decontaminated and before being placed in a well. All potions of this equipment that come into contact with moisture should be decontaminated.
- Decontaminate filled sample bottles before relinquishing them to anyone.

SOP-B7

Homogenization of Soil and Sediment Samples
Standard Operating Procedures for PG&E Topock Program

The homogenization of soil and sediment samples is performed to minimize any bias of sample representativeness introduced by the natural stratification of constituents within the sample. Standard techniques for soil and sediment homogenization and equipment are provided in this SOP. These procedures do not apply to aliquots collected for volatile organic compounds (VOCs) or field gas chromography screening; samples for these analyses should NOT be homogenized.

REQUIRED DOCUMENTS

1) Event-specific sampling and analysis plan (SAP).
2) Applicable project work plan or monitoring plan. Refer to Topock Program *Sampling, Analysis, and Field Procedures Manual* and *Quality Assurance Project Plan,* as required.
3) Topock Program Health and Safety Plan (HSP).
4) Previous sampling logs.
5) Blank sampling logs and field notebook.

PREPARATION AND SETUP

1) Review event-specific SAP or event-specific field instructions, previous sampling logs, Procedures Manual, and HSP.
2) Initiate field logbook for sampling activity.

EQUIPMENT LIST

- Sample containers
- Stainless-steel spoons or spatulas
- Stainless-steel pans
- Phthalate-free gloves

PROCEDURES

Sample Homogenization

1) Soil and sediment samples to be analyzed for semivolatiles, pesticides, polychlorinated biphenyls, metals, cyanide, or field x-ray fluorescence screening should be homogenized in the field.
2) After a sample is taken, a stainless-steel spatula should be used to remove the sample from the split spoon or other sampling device. The sampler should not use fingers to do this, as gloves may introduce organic interferences into the sample.

3) Samples for VOCs should be taken immediately upon opening the spoon and should not be homogenized.

4) Prior to homogenizing the soil or sediment sample, any rocks, twigs, leaves, or other debris should be removed from the sample.

5) The sample should be placed in a decontaminated stainless-steel pan and thoroughly mixed using a stainless-steel spoon. The soil or sediment material in the pan should be scraped from the sides, corners, and bottom, rolled into the middle of the pan, and initially mixed.

6) The sample should then be quartered and moved to the four corners of the pan. Each quarter of the sample should be mixed individually, then rolled to the center of the pan and mixed with the entire sample again.

Equipment Decontamination

1) All stainless-steel spoons, spatulas, and pans must be decontaminated following procedures specified in SOP *Decontamination of Personnel and Equipment* prior to homogenizing the sample.

2) A composite equipment rinse blank of homogenization equipment should be taken each day it is used.

SOP-B9

Drilling--Sonic Method
Standard Operating Procedures for PG&E Topock Program

REQUIRED DOCUMENTS

1) Event-specific sampling and analysis plan (SAP), Work Plan or event-specific field instructions. Planned borehole depth, proposed well construction/specifications, and field sampling summary table, if available.

2) Applicable project work plan or monitoring plan. Refer to Topock Program Sampling, Analysis, and Field Procedures Manual and QAPP (Procedures Manual), as required.

3) Topock Program Health and Safety Plan (HSP)

4) Previous sampling, drilling, or well construction logs from other boreholes or wells in the vicinity, if available

5) Blank sampling log and field notebook

Equipment List:

- Drilling rig (Sonic)
- Drill rods and core barrel

GUIDELINES

PRIOR TO INTRUSIVE ACTIVITIES AT ANY DRILLING LOCATION THE AREA WILL HAVE BEEN CLEARED OF ALL UTILITIES AND THE CLEARANCE RECORDED IN THE FIELD LOGBOOK. It is also the field team leader's responsibility to confirm that all required access permits are in place.

Prior to the start of drilling, the area of site activity will be identified and delineated using stakes and/or flagging. The extent of impact will be mineralized at all times and the delineated area of activity decreased when possible. All sensitive vegetation or habitats will be delineated with stakes and/or flagging and no impact will occur in these areas.

Sampling depths and total depths of holes shall be determined by temporary marking of drill equipment, by reference to standard equipment dimensions (for example, 5-foot hollow-stem auger flights), or by measurement using a fiberglass tape. Final total depth measurements will be confirmed using a weighted fiberglass tape. Observations by the field geologist or engineer shall be recorded directly in the borehole log.

The field borehole log is the standard form used to document subsurface geologic conditions. The borehole log is divided into two areas. One portion contains spaces for noting information on the drilling and sampling methods. The second portion contains space for noting lithologic descriptions. All sheets shall be filled out completely, legibly, and in ink. The borehole log will be filled out in the field at the time of the drilling and sampling. The original logs shall be permanent records, and information on the logs may not be

erased. If corrections are needed, information shall be crossed out with a single line and the correction shall be initialed and dated.

The use of water and drilling fluid to assist in sonic drilling for monitoring well installation will be avoided, unless required for such conditions as running sands or drilling bedrock formations.

Temporary outer casing, drill rods, core barrels, and other downhole drilling tools will be properly decontaminated prior to the initiation of drilling activities and between each borehole location. Core barrels and other downhole soil sampling equipment will also be properly decontaminated before and after each use.

Sonic inner casing (sample tube) will have an inside diameter of at least 3.25 inches. Samples may be collected for chemical analysis. For sonic drilling, these samples are collected in a metal trough. A continuous core is collected and the sample interval is selected from the length of core run.

Surface casing may be installed where soil borings will penetrate a confining layer or when there is risk of eroding soil during the drilling process if water is used.

PROCEDURES

Instructions for Completing Soil Boring Logs

Soil boring logs will be completed in the field log books. Information collected will be consistent with that required for Form D1586 (attached), a standard CH2M HILL form or an equivalent form that supplies the same information. Procedures will follow the SOP "*Soil*

Non-Core Collection Drilling

At locations or depths from which core collection is not required, drilling may proceed without the recovery of soil cores. The drilling will include advancing the larger outer casing and the use of water to facilitate cuttings removal from the boring. The inner casing drill rods may or may not be used, depending on the cuttings recovery when drilling with the larger outer casing.

Continuous Core Drilling

At locations or depths when core collection is required, drilling will proceed using an outer casing and an inner core sample tube. The inner core sampling tube will be advanced first without the use of water. Before removal of the sampling tube, the outer casing will be advanced, using water only as needed for cuttings removal, to the same total depth as the inner casing. The outer casing will stabilize the boring when the sampling tube is removed. The process is repeated in 10 to 20 foot intervals, as the lithology of the boring permits.

The length of each drilling interval should be adjusted depending on the lithology and the quality and recovery percentage of the sample cores retrieved. At locations with very hard drilling (i.e. with large cobbles or hard materials) or when percent recovery decreases, the drilling interval should be decreased until such time that the conditions change.

After retrieval of the inner sampling core tube, the minimally disturbed sample cores will be collected into plastic liner sleeves in intervals of 2 to 3 feet. The plastic sleeves will be

immediately sealed on both ends. The cores will be used for visual descriptions and may be used for analysis for geochemical and geotechnical parameters.

KEY CHECKS AND ITEMS

- Check entries to the soil boring log and field logbook in the field during sampling activities because the cores will be disposed at the end of the fieldwork, confirmation and corrections cannot be made later.
- Check that the sample numbers and intervals are properly specified.
- Ensure that drilling equipment is decontaminated prior to the beginning of work and between each borehole.
- All materials generated during sampling (debris, PPE, decontamination liquids, etc.) will be placed in approved IDW storage containers pending analysis and disposal off site as outlined in SOP-B6, *Disposal of Waste Fluids and Solids (IDW)*.

SOP-B11

Site Clearance and Permitting
Standard Operating Procedures for PG&E Topock Program

This standard operating procedure (SOP) addresses the procedures for site clearance and permitting at the Topock site. This SOP should be used to obtain proper site clearance and permits before any work is performed at a site.

REQUIRED DOCUMENTS

1) Applicable project work plan, event-specific sampling and analysis plan (SAP), and/or Procedures Manual, if applicable.

2) Topock Program Health and Safety Plan (HSP).

3) Site map with work locations identified.

PREPARATION AND SETUP

1) Review applicable project work plan, event-specific SAP, Procedures Manual, and HSP.

2) Identify locations where work will be performed, determine if any subsurface work will be needed.

3) Before the start of any work obtain approval by the appropriate land agencies (such as BLM, USFWS, County of San Bernardino). Activities located on PG&E property fall under the jurisdiction of the County; however, approval may also be required from BLM and/or USFWS for activities such as access, waste management, etc. Work in Topock, Arizona falls under the jurisdiction of the Arizona Department of Water Resources.

4) Before the start of any work obtain appropriate approval by the regulatory agencies. These include at a minimum the DTSC if in California, and ADEQ is in Arizona. Other regulatory approvals that may be required include, but are not limited to CDFG, USFWS, USACE and RWQCB. Approval from the Arizona Land Department may also be required for wells drilled in Arizona.

If subsurface work will be involved, follow the following steps:

1) Follow the guidelines of the Southern California Underground Service Alert (USA) agency to mark the edges of the work location as outlined on their web page (http://www.digalert.org). If in Arizona, the Arizona Blue Stake should be contacted for location of buried facilities (www.azbluestake.com). Make sure to:

   - Identify delineated areas with white markings with the requesters company name or logo within the pre-marked zones

   - Delineate the exact area of excavation with white paint through the use of dots or dashes, or a continuous solid line. Limit the size of each dash to approximately 6" in length and 1" width with interval spacing not less that approximately 4 feet. Dots of

approximately 1" diameter are typically used to define arcs or radii and may be placed at closer intervals in lieu of dashes. Limit width of lines to 1".

- For point locations (such as a soil boring or well) mark the exact location in the USA or Blue Stake box with a stake. Make sure the delineated area around the stake is of adequate radius (50 to 100 feet is appropriate for drilling).

2) Call USA at 1-800-227-2600 or Arizona Blue Stake at 1-800-782-5348 at least three working days before the start of work at the identified location and provide them with the information requested on the location request form. Be ready to give the location in terms of feet relative to I-40 and to Park Moabi Road when calling. You will be assigned a Dig Alert Number, file this number until work at the delineated area is complete. (The number does expire after two weeks and a new number may need to be obtained if work has been delayed.)

3) Mark the Dig Alert Number in the delineated area using white paint as soon as possible after calling USA or Arizona Blue Stake.

4) If the location is in a developed area, contact a private utility locator and have them perform a sweep of the delineated work area. Util-Locate at (866) 421-5325 is typically used for this service.

5) In some cases the utility companies may need to be contacted directly by CH2M HILL. If the following companies do not respond to the USA or Blue Stake ticket or if we are working in their easements, use the following contact information and procedures:

Southwest Gas: Main contact is Jim Default/702-365-2097 (The required minimum clearance distance from gas pipelines is 18-inches**.** Potholing may need to be performed in advance of design completion Southwest Gas should be called prior to construction activities). If Southwest Gas does not come to the site after the USA call, contact them at their Bullhead City office at (928) 763-7766

Southern California Gas Co.: Main contact is Frank Castro/818-701-4566; secondary contact is Martin Woodsworth/818-701-4543. If we need to work in their easement, we must provide a letter from BLM giving us permission to be on the property. Southern California Gas Co. also requires advance notification of construction activities. They may also require a copy of the design drawing, potholing activities, and the issuance of a "Non-Interference" letter, if applicable, before work can proceed. One of their representatives may need to be in the field when digging is occurring near their pipeline.

TransWestern Pipeline Co.: Main contacts are Ron Westbrook (ROW Department)/713-345-3067 and Mike Baxter (Operations)/928-757-3620. They may require potholing if proposed construction activities are near their pipelines. Crossing pipeline requires filling out a simple form.

Burlington Northern Santa Fe Railroad: Main contact is Greg Rousseau (BNSF)/909-386-4079. Prior to work in their easements submit the proper application with the $250 fee to the Staubach Company.

City of Needles Utility Dept: Main contact is Ron Myers/760-326-5700 (ext. 7 for the utilities department). Work activities may need to be a minimum of 10 to 15 feet from their utility poles.

6) Do not start subsurface work at the site until the delineated area has been marked or cleared by the appropriate utility agencies.

If the work includes a performing a well installation or abandonment, or drilling a boring in California:

1) Apply for a San Bernardino County well permit two to three weeks before the start of drilling (one permit per well; cost is /$212.00 per well). Obtain a permit application by calling the Environmental Health Services Department at 1-909-387-4666 (open Monday through Friday, 8:00 a.m. to 5:00 p.m. The fee schedule for permits is located at http://www.sbcounty.gov/ dehs/FEESCHEDULE/feeschedule.htm#wateranchor. Fill out the appropriate permit form and provide it to the California-licensed driller contracted to perform the well installation. The driller is expected to review and file the permit with the San Bernardino County Department of Environmental Health Services (Steve Sesler), address below.

Environmental Health Services
385 N. Arrowhead, 2nd Floor
San Bernardino, CA 92415-0160

2) A well permit needs to be obtained from San Bernardino County for well abandonment by the same procedure described in #11. Check the 'destruction' box on the same permit form used for well installation.

3) A permit also needs to be obtained from San Bernardino County for any boring that reaches to or below the water table, even if a well is not actually installed. The permit process is the same as described in #11.

If the work includes a performing a well installation or abandonment, or drilling a boring in Arizona:

1) Apply for an Arizona Department of Water Resources (DWR) well permit two to three weeks before the start of drilling (one permit per well; cost is /$150.00 per well). Obtain a permit application by calling the DWR at 1-(602) 771-8500 (open Monday through Friday, 8:00 a.m. to 5:00 p.m. MST). All ADW permits and instructions can be found at http://www.azwater.gov/dwr/Content/Find_by_Category/Permits_Forms_Applications/default.htm
Fill out the appropriate permit form (55-44A) and provide it to the Arizona-licensed driller contracted to perform the well installation. The driller is expected to review and file the permit with the Arizona Department of Water Resources address below.

Arizona Department of Water Resources
3550 N. Central Avenue
Phoenix, AZ 85012

Upon completion of the well, the driller must submit a Driller Report and Well Log (Form 55-55) to the DWR within 30 days. The form and instructions can be found on the DWR webpage.

2) A well abandonment permit needs to be obtained from the Arizona Department of Water Resources prior to well abandonment (form 55-38). Exploratory wells that are abandoned before the drill rig leaves the site are exempt from the well abandonment permit requirements. The well abandonment form and instructions are included as Attachment 4 and can be found at the ADW webpage . No fee is required for filing this form.

   Within 30 days of well abandonment a Well Abandonment Completion Report (Form 55-58) must be filed with the DWR.

SOP-B15

Volatile Organic Compound (VOC) Soil Sampling
Standard Operating Procedures for PG&E Topock Program

This standard operating procedure (SOP) provides guidance for Volatile Organic Compound (VOC) sample collection from soil. Additional guidance for sample collection, preservation and handling is provided in Section 4.0 of the PG&E Quality Assurance Project Plan (QAPP). SOP-B2 and SOP-B3 *Sampling, Analysis, and Field Procedures Manual, PG&E Topock Program* (CH2M HILL, 2005) provides additional guidance for soil characterization and logging.

Required Documents

1) Event-specific planned sample table (PST).
2) Applicable project work plan or monitoring plan. Refer to the Procedures Manual and QAPP as required.
3) Topock Program Health and Safety Plan (HSP).
4) Previous sampling, drilling, or well construction logs from other boreholes or wells in the vicinity, if available.
5) Field notebook.
6) Database generated sampling logs.

Preparation and Setup

1) Review event-specific PST or event-specific field instructions, previous sampling logs, Procedures Manual, and HSP.
2) Coordinate with the Project Chemist for coolers, sample containers, and courier pickup of the samples.
3) Initiate field logbook for sampling activity.
4) Review sampling procedures and planned sample depths with field crew.
5) Field-check and set up equipment for sampling, decontamination, spill prevention, and health and safety.

Equipment List

- Pre-labeled soil sample containers appropriate for sample analysis and preservation as called for in PST and QAPP (Pre-weighed Vials, glass jars, auger sleeves, etc.)
- Soil sampling equipment (stainless steel trowel, spatula, EnCore™ Sampler, EasyDraw Syringe®, or a disposable plastic syringe with a barrel smaller than the neck of the soil vial with the cap removed from the plunger, etc.)
- Field notebook

- Sediment sampling logs generated from database
- Blue or black waterproof or permanent ink pens
- Trash bags
- Paper towels
- Decontamination equipment (Alconox® solution in spray bottle, brushes, buckets, rinse water spray bottle)
- Water level indicator
- Distilled water
- Coolers with ice
- Protective waterproof gloves (nitrile or latex)

SOIL SAMPLING LOGS DOCUMENTATION

Soil sampling logs or boring logs (SOP-B2 and SOP-B3 *Sampling, Analysis, and Field Procedures Manual, PG&E Topock Program* [CH2M HILL, 2005]) will be completed at the time of sample collection. Items to be documented on the sampling log include:

6) **Sample Interval:** The top and bottom depth of each sample run should be recorded on the log. Sampling includes samples collected for analysis as well as retrieved for logging purposes.

7) **Sample Type and Number:** Enter the sample type and number consistent with the sampling and analysis plan at the correct depth intervals. An "x" should be placed across the vertical interval where the environmental soil, grab groundwater, or geotechnical sample was collected.

8) **Sample Recovery:** Enter the length of retrieved sample to the nearest inch of sample recovered. Record total length and percent of sample recovered.

9) **Sampling:** Sampling difficulties shall be noted. The top of the sample shall be marked on the container.

10) **Water Levels:** Water-level measurements, where groundwater is encountered, are required for each boring. Changes in soil moisture shall be noted and, if there is no water encountered, a note to that effect shall be included on the sediment sampling log. The date and time of water-level measurements shall be documented.

At a minimum, sample identifiers (IDs) should be noted on sampling logs at the depth collected. When time and space allows, a summary of analytical sample information can be included.

VOLATILE ORGANIC COMPOUNDS (VOC) SOIL SAMPLING - COLLECTION OF SAMPLES FOR ANALYSIS

It is recommended (EPA Method 5035A) that VOC soil samples be collected in a coring device to minimize volatilization and soil disturbance to prevent constituent losses. After

collection, the sample shall be immediately transferred to the sample vial (to be used for analysis) and stored for no longer than 48 hours at 4 C ± 2° C prior to analysis. Freezing the samples between -7 and -20° C within 48 hours and maintaining them frozen until analysis allows a 14 day holding time. Chemical preservation techniques are also available as options.

Use either a commercially available sampler (such as the EnCore™ Sampler or EasyDraw Syringe®) or a disposable plastic syringe to collect VOC soil samples. To use a syringe, cut the syringe end of the barrel off and removed the rubber 'cap' from the plunger, prior to sampling (barrel of the syringe needs to be smaller than the neck of the soil vial). One sampler is needed for each sample aliquot to be collected (typically the laboratory will supply the sampler along with the sample vials, but arrangements must be made prior to sampling).

11) Weigh 3 empty samplers and note the weight. Using the same 3 samplers collect several trial samples (try to collect 5.0 ± 0.2g). Weigh each trial sample (total weight – syringe weight = sample weight) and note the length of the soil column in the syringe. Use the data to determine the length of soil in the syringe that corresponds to 5.0 grams. The length of the soil column equal to 5 grams becomes the volume for the project location. Discard each trial sample.

12) The VOC sample collection process should be completed in the least amount of time as possible in order to minimize the loss of VOCs. Sample collection should be done with the least amount of disturbance/disruption as possible. Additional, exposure of the sampling location's surface layers should be considered if the material may have already lost VOCs or if it may have been contaminated by other means. Removal of surface layers can be accomplished by scraping the surface using a clean spatula, scoop, knife, or shovel.

13) Insert a clean coring tool into a freshly exposed surface; do not trap air between the sample and the plunger. For greater ease in pushing into the solid matrix, the front edge of these tools can be sharpened. The optimum diameter of the coring tool depends on the size of the opening of the collection vial (tool should fit inside mouth), the sample characteristics (e.g., particles size, cohesion), and volume of sample required for analysis. After an undisturbed sample has been obtained by pushing the barrel of the coring tool into a freshly exposed surface, quickly wipe the exterior of the barrel with a clean disposable towel. Transfer the sample into a pre-weighted vial by gently pushing the plunger, (use extreme care to ensure none of the preservative is lost if the sample is collected into a pre-preserved vial – water, methanol or NaHSO4), verify the sealing surfaces are clean, and secure the cap (the transfer should take less than 10 seconds). **Note: Samples are collected in pre-weighed and pre-labeled vials provided by the laboratory; no additional labels are to be added to the vials!** Complete the label attached by the laboratory (fill in sample ID-only). All vials from one sample location will be placed into a zip-lock bag and the sample information shall be recorded on a label attached to the bag.

14) As a last resort non-cohesive granular samples (sand, gravel, or a mixture of gravel and fines) that can not be easily obtained or transferred using coring tools, can be quickly sampled using a decontaminated stainless steel spatula or scoop. Decontamination is

covered in section 3.3 of the PG&E Program QAPP and in SOP-B5 *Sampling, Analysis, and Field Procedures Manual, PG&E Topock Program* (CH2M HILL, 2005).

15) As with the collection of aqueous samples for volatiles, collect at least 3 replicate samples. This will allow the laboratory an additional sample for reanalysis, if needed. The replicate samples should be taken from the same soil stratum or the same section of the solid waste being sampled, and within close proximity to the location from which the original sample was collected.

16) In addition, if a VOC sample is the only sample to be collected at a given location, collect at least one additional aliquot for the determination of percent moisture. Trip blanks and equipment blanks should be collected per the PG&E Program QAPP. However, trip blanks do not apply to samples that have been frozen upon collection.

17) Transport the sample at 4^{o} C, to the lab in less than 48 hours or freeze (reagent water preserved samples to between -7 and -20^{o} C) within 48 hours and transport frozen.

18) Complete Soil Sampling Logs and Chain of Custody Logs.

SOP-B16

Field-portable X-Ray Fluorescence Soil Sampling
Standard Operating Procedures for PG&E Topock Program

This Standard Operating Procedure (SOP) describes the analysis of in situ and ex situ soil and debris samples using a field portable x-ray fluorescence (XRF) instrument. SOP-B2 and SOP-B3 in the *Sampling, Analysis, and Field Procedures Manual, PG&E Topock Program* (SAFPM) (CH2M HILL, 2005) provides additional guidance for soil characterization and logging.

Required Documents

1. Event-specific planned sample table (PST).
2. Applicable project work plan or monitoring plan. Refer to the SAFPM and the *PG&E Program Quality Assurance Project Plan, Revision 2, Topock Compressor Station, Needles, California* (CH2M HILL, 2012) as required.
1. Topock Program Health and Safety Plan.
3. Field notebook.
4. Database generated chain-of-custody.
5. XRF Functional Check Log

Preparation and Setup

1. Review event-specific PST or event-specific field instructions, previous sampling logs, SAFPM, and health and safety plan.
2. Coordinate with the project chemist for coolers, sample containers, and courier pickup of the samples.
3. Initiate field logbook for sampling activity.
4. Initiate electronic file for XRF instrument download.
5. Review sampling procedures and planned sample depths with field crew.
6. Field-check and set up equipment for functional checks, sampling, decontamination, spill prevention, and health and safety.

Equipment List

- Niton XRF meter and stand
- Spare battery chargers
- Field notebook
- Trowel for smoothing soil surfaces

- Reusable plastic bags or stainless steel tray
- Disposable sample cups with x-ray film and lids
- X-ray window film (Mylar, Kapton, Spectrolene, polypropylene, or equivalent; 2.5 to 6.0 micrometers thick)
- Disposable scoops, stainless-steel spoons, or other appropriate mixing tools
- Appropriate quality assurance/quality control (QA/QC) standards and blank sand
- Chemwipes
- Decontamination equipment (Alconox solution [or equivalent] in spray bottle, brushes, buckets, rinse water spray bottle) for mixing tools and trowels
- Protective waterproof gloves (nitrile or latex)

XRF Analysis Documentation

The XRF sample results will be recorded by the associated software in an Excel format. The files will be downloaded at the end of each day and emailed to the project chemist for review. Any additional sample logging and sample collection should follow the protocol and procedures found in the appropriate SOP. Detailed notes should be recorded in the sampler's field notebook or in a log generated from the field database. Items to be documented on the sampling log include (include as much of the following information in the XRF software as possible):

1. Record type of boring or excavation equipment and the total boring or excavation depth.
2. If multiple samples are being collected at one location at a variety of depths, record all sample depths.
3. Record date and time of sample collection in addition to the full sample ID that is listed in the PST.
4. Sampling difficulties shall be noted (that is, difficult slope or abnormal debris in sample location).
5. Analysis start time and the source count time (that is, 60, 90, or 120 seconds, etc.) will be documented on sample collection sheet. Analysis and count time are automatically recorded in the XRF software.

Field-portable XRF Soil Sampling, Collection of Samples for Analysis

In Situ Sample Preparation

When the soil moisture is less than 20 percent, the error associated with moisture may be minimal. If areas are encountered where the moisture content is greater than 20 percent (moisture is visible), consult with the project chemist for options available for proceeding with field analysis.

For in situ analysis of soil:

1. Remove large or nonrepresentative debris from the selected location. This debris includes rocks, gravel, vegetation, and concrete.
2. Homogenize the location chosen for analysis by mixing in place an area approximately 4 inches by 4 inches by 3 inches deep using a clean (or decontaminated) stainless-steel or disposable spoon. Smooth and firmly tamp the location to provide as flat and smooth an area as possible.
3. Stretch a section of x-ray window film over the area to be tested to maintain a dust-free environment for the nose of the instrument. (Use in situ analysis for metals-only samples.)
4. To initiate a reading, position the nose of the XRF against the x-ray film, squeeze the shutter release, and firmly press the instrument flat against the surface. Source count times for in situ analysis usually range from 3 to 5 minutes, varying among instruments and depending on requirement detection limits.
5. After the in situ field screening is performed, inspect the nose of the instrument for contamination, which may affect future analysis. If necessary, clean it with a soft cloth or tissue.

For confirmation samples, or where samples for organic analysis are to be collected, the soil samples should be treated as ex situ samples, below.

For in situ analysis of debris:

1. In some cases, the large or nonrepresentative debris removed in Step 1 above may need analysis. The debris for analysis can include rocks, wood, concrete, etc.
2. Analyze debris that is too large or difficult to homogenize by locating multiple locations on the surface of the debris that are as flat and smooth as possible. Scan a minimum of three locations or approximately 10 percent of the surface area (whichever is greater).
3. Stretch a section of x-ray window film over the area to be tested to maintain a dust-free environment for the nose of the instrument. (Use in situ analysis for metals only samples.)
4. To initiate a reading, position the nose of the XRF against the x-ray film, squeeze the shutter release, and firmly press the instrument flat against the surface. Source count times for in situ analysis usually range from 3 to 5 minutes, varying among instruments and depending on requirement detection limits.

After the in situ field screening is performed, inspect the nose of the instrument for contamination, which may affect future analysis. If necessary, clean it with a soft cloth or tissue.

Ex Situ Sample Preparation

For ex situ analysis:

There are several possible correct methods for the ex situ analysis of samples. The area that previously would have been homogenized for the in situ analysis should be scooped out and placed into a clean (or decontaminated) stainless-steel or disposable pan (do not use

plastic if organic analysis will be performed on any of this homogenized sample) using a stainless-steel or disposable spoon or spatula (do not use plastic if organic analysis are associated with the homogenized sample). The sample should then be thoroughly mixed (homogenized) using the same spoon or spatula.

1. The preferred method is to setup the portable field stand in an area where the XRF can be stationed and left in place for the day. Use the Niton software and a laptop computer to setup the method criteria and control the XRF instrument during the soil analysis.

    a. Starting with the previously homogenized sample, use the supplied soil sieves, bowl, and mortar to generate a finely ground well homogenized sample. (Note: This step is not required if the soil sample was passed through a sieve during the homogenization step.)

    b. Transfer the prepared sample into a new sample cup (order replacement supplies from Niton), place the X-ray film over the cup, and snap the lid in place. Place the sample cup in the portable field test stand. The XRF points upward, the sample rests on top of the XRF with the X-ray film directly in contact with the nose of the XRF cup lid facing down.

    c. Using the computer, start the analysis. The source count time should be at least 2 minutes for chromium. Consult previous analysis to determine if multiple scan frequencies are required (or contact the project chemist).

    d. Prepare the next sample while the XRF is analyzing the current sample.

2. An alternative method to using the portable field stand is to identify the sample for XRF analysis and homogenize the sample (as described above).

    a. Transfer the sample to a re-sealable plastic bag and firmly molded into a flat smooth surface.

    b. Use the Niton software and a laptop computer or the included PDA to setup the method criteria.

    c. To start the analysis, position the nose of the XRF against the flat smooth surface of the sample and squeeze the shutter release (or press the start button on the laptop or PDA). Be sure to maintain constant pressure against the sample. If contact is broken, the analysis will need to be restarted. The source count time for ex situ analysis usually range from one to two minutes, depending on the required detection limits (see 1c above for count times).

    d. After the ex situ field screening is performed, inspect the nose of the instrument for contamination, which may affect future analysis. If necessary, clean it with a soft cloth or tissue.

3. Transfer the sample to a labeled glass jar for shipment to the confirmation laboratory (if applicable).

Sample Analysis

In today's modern XRF models:

1. An X-ray source is used for detection. Expose the sample to the X-ray source for a minimum of 1 minute. Longer exposure times may be needed depending on the media that is being analyzed and the required detection levels. The time needed for analysis will be determined in the field by analyzing standards that have concentrations of the metals of concern near the required detection levels. Better detection limits can usually be obtained by homogenizing the sample, increasing the exposure time, and using two or more scan frequencies. Use a minimum of a 2-minute exposure for chromium analysis.
2. When the XRF instrument displays the results they include the analyte, the result, and a percent confidence (displayed as a ± value). The result is displayed as nondetect for analytes that do not meet the percent confidence established in the instrument. The lower the required detection levels, the longer the analysis time required to meet the percent confidence.
3. Download saved data from XRF instrument daily (if data are collected in PDA). Foreword the data files to the project chemist daily.
4. All samples collected for offsite confirmation will also be analyzed using the XRF and will be treated as ex situ samples.

Using older models:

1. Expose the sample to the energy source for a minimum of 1 minute. Longer exposure times may be needed depending on the media that is being analyzed as well as the age of the detector (non X-ray detectors). The time needed for analysis will be determined in the field by analyzing standards that have concentrations of the metals of concern near the required detection levels. Better detection limits can usually be obtained by homogenizing the sample, increasing the exposure time. Use a minimum of a 2-minute exposure for chromium).
2. When the XRF instrument indicates the results for the suite of analyzed elements and their concentrations, it includes a standard deviation for the reported concentrations. An analyte concentration is considered **not detected** if the result value is **less than two times the standard deviation**. The lower the required detection levels, the longer the analysis time required to reduce the result's standard deviation.
3. Record the readings (electronically or documented on the sampling log). Review the standard deviations for the elements of interest and determine if a longer analysis time is needed to reduce the standard deviations, thereby allowing the desired accuracy and precision for the concentrations. The standards will be analyzed using increasingly longer times until the required detection level is achieved.
4. Record values in field notebooks.
5. Download saved data from XRF instrument daily.
6. Samples collected for offsite confirmation will also be analyzed using the XRF and will be treated as ex situ samples.

Calibration

Two forms of calibration are important with XRF testing: an energy calibration and a sample matrix calibration.

Energy Calibration

The Niton XLi 702 automatically re-calibrates the energy scale when powered on. The energy scale can also be re-calibrated by pressing "Reset" on the instrument. The energy calibration should be performed every two hours.

Sample Matrix Calibration

Modern XRF instruments, such as the Niton Xli 702, do not require site specific calibrations to account for sample matrix effects. United States Environmental Protection Agency Method 6200 allows both fundamental parameters and Compton normalization as two techniques to eliminate site specific calibrations. Niton uses the Compton normalization method to automatically correct for sample specific matrix effects. The XRF is calibrated internally at the factory on NIST standard reference soil samples. Ensure the annual factory calibration certification is on file. This internal calibration is used for subsequent field work, without need for adjustment or recalibration at other sites.

Quality Assurance and Quality Control (Functional Checks)

Even though no onsite calibration will be performed, the method does require QA/QC functional check-testing protocols. The QA/QC that will be used to document that the XRF is operating properly will have the following steps:

- A startup operations check
- Analysis of a blank sample (clean sand)
- Analysis of standard sample(s)
- Analysis of duplicate samples
- QA/QC procedures will be compliant with manufacturer's instructions.

1. At the beginning of each day perform QA/QC functional check procedure or when the instrument is turned on after more than 2 hours of down time or if the operating environment changes, such as a temperature change of more than 20 degrees Fahrenheit.

2. Two types of blanks should be analyzed, an instrument blank and a method blank. An instrument blank sample (silicon dioxide, provided by Niton) will be analyzed at the start and end of each day and once every 20 samples, to confirm proper zero calibration of the XRF. The blank will be analyzed following the procedure for the ex situ sample analysis. A method blank is used to monitor for any field induced contamination. The method blank should follow any preparation procedures performed on the samples, such as mixing or ex situ analysis. **A method blank will be analyzed each day**.

3. A set of three to ten QC samples will be collected from the site during the initial field activities. These samples will be well homogenized, and a portion sent to the offsite laboratory for characterization. The remaining sample will be collected in re-sealable bags, labeled, and stored with the XRF for use as standards. Three to five of the on-site standards will be analyzed at the start of each day. The results of the standards will be plotted against the original XRF results and a correlation value will be calculated. A

correlation coefficient of 0.90 or greater must be achieved to meet the project objectives. A running log of all onsite standards analyzed will be maintained. One of the standards will be analyzed after every 20 samples. The readout from the XRF **must be within 20 percent relative percent difference of the known QC sample concentration**.

4. The last QA/QC step will be to analyze duplicate samples (two separate aliquots) at a rate of 1 in 10. These duplicate measurements must be within 35 percent of each other for the analysis to continue. If the sample results are not in agreement, then the reason for this discrepancy must be determined.

5. The Niton XL3t 600 displays both concentration and precision for each sample analyte measurement. The precision displayed by the Niton's 95 percent (2-sigma level) confidence intervals; whereas the precision calculated in EPA method 6200 is at a 68 percent (1-sigma) level. The Niton also calculates and displays detection limits for analytes if the concentration is below three standard deviations. This bypasses the need for replicate measurements on low-level standards.

Note: Volatile organic compounds, semivolatile organic compounds, and other organic samples cannot be collected from the homogenized soil if plastic is used for homogenizing or after XRF analysis, if contacted by plastic.

STANDARD OPERATING PROCEDURE B17

Standard Operating Procedure for the Installation of Permanent Soil Gas Sampling Implants

This procedure is recommended as a practical approach for installation of permanent soil gas implants using a hand auger or hydrovac where the intent is to collect shallow soil vapor samples, and continuing with hydrovac and/or hollow-stem auger to collect deeper soil vapor samples. This SOP should be used where its application is consistent with the project's data quality objectives and in conjunction with SOP B18 *Standard Operating Procedure for the Collection of Soil Gas Samples from Soil Gas Probes Using Summa™ Canisters.* Only persons trained in the collection of soil gas samples should attempt this procedure.

1. Implant/Probe System Set-up

1.1 Obtain all necessary equipment for hand auguring or hydrovac to 5 feet below ground surface (BGS), and for hydrovac or hollow stem augering to depth greater than 5 feet BGS.

1.2 This technique can only be used in the vadose zone, not below the water table.

1.3 Several screen lengths are available (3", 6", 14", 21") but for discrete intervals required in Vapor Intrusion investigations, a 6" screen is recommended.

1.4 It is necessary to coordinate the hardware (i.e. size of tubing, fittings, sampling interface assembly, etc.) that mates the soil gas probe sampling line to the sampling system (i.e. Tedlar bags, Summa canisters, etc.). This step is critical to achieve a leak free system. All connections should be inert gas tight compression fittings (i.e. Swagelok® or equal) and all sample transfer lines should be made of Teflon® tubing.

1.5 Prior to installation of implants at a given location a utility survey must be completed, the necessary permits acquired, and in the case of private property - permission granted.

1.6 The drilling system must be decontaminated prior to use. Steam cleaning is the preferred method of decontamination. Once decontaminated, the auger/drill rod must be shown to be free of contaminates. As a minimum, a suitably sensitive organic vapor meter should be used for this purpose. Any probe that does not pass decontamination should not be used.

1.7 Handle and store decontaminated hand augers and drill rods in a manner that prevents contamination.

2. Implant Installation

2.1 Assemble the hand auger and/or other coring device. Auger/hydrovac/drill to the desired depth. Be sure that the final depth of the hole includes extra depth to include length of the screen. (i.e. for 5' BGS with a 6" screen, push the probe to 5'6", for 15' BGS with a 6" screen, push the probe to 15'6").

2.2 Attach the ¼" Teflon tubing to the implant. Use sufficient tubing so that at least 2' will be left above ground. Plug the exposed end of the tubing with a cap.

2.3 Remove the auger/drill rod and put a section of PVC pipe down the hole. The PVC pipe is helpful to help center the implant in the middle of the hole and to be sure that the filter

pack material makes it to the bottom of the hole. Thread the implant and tubing down the inside of the PVC pipe until it reaches the bottom.

2.4 Determine the volume of glass beads or sand (#2/12 or #2/16) needed to fill the space around the implant plus an additional 6″ space above the implant. Pour the sand/beads into the hole as the PVC pipe is slowly removed. Do not pull on the tubing. Remove the PVC pipe from the hole completely once the filter pack material has been set in place.

2.5 Determine the volume of dry bentonite needed to fill the next 1 foot of hole. Pour dry bentonite into the hole until it measures 1 foot above the sand pack.

2.6 Determine the volume of hydrated bentonite needed to fill the hole to 6″ below the upper nested probe. Place hydrated bentonite to the point 6″ below the upper nested probe. Measure the depth to make sure the upper probe will be installed at 5′6″ BGS.

2.7 Follow steps 2.2 through 2.4 for the installation of the upper nested probe.

2.8 Determine the volume of dry bentonite needed to fill the next 1 foot of hole. Pour dry bentonite into the hole until it measures 1 foot above the upper sand pack.

2.9 Determine the amount of hydrated bentonite needed to complete the hole. Pour in granular bentonite and hydrate. Repeat the procedure in 6″ increments to ground level.

2.10 Optional: Enlarge the hole and install the flushmount so that it is flush with the ground surface. Label probe tubing with location and depth. Coil the extra tubing inside the enclosure and cover.

2.11 Wait at least 48 hours before sampling.

2.12 When calculating dead volume, use the internal volume of the Teflon tubing, the internal volume of the implant, and the volume of the glass bead pack (assume 30% porosity).

2.13 The ground surface shall be replaced and repaired to original condition.

STANDARD OPERATING PROCEDURE B18

Collection of Soil Gas Samples from Temporary and Permanent Soil Gas Probes using SUMMA Canisters and a Helium Leak Check

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1. Scope and Application

This procedure offers a practical approach for the collection of soil gas samples from soil gas probes from permanently installed vapor points into SUMMA canisters. Soil gas sample integrity is verified by using a real time helium leak checking procedure before taking each sample. This must be done after probe installation and before sampling as well as before each subsequent sample for permanent probes. This standard operating procedure (SOP) should be used in conjunction with CH2M HILL's SOPs: "Soil Gas Probe Installation SOP" or "Soil Gas Implant Installation SOP," and when its application is consistent with the project's data quality objectives. Only persons trained in the collection of soil gas samples should attempt this procedure.

2. Site-Specific Considerations

2.1. Prior to attempting soil gas sampling there should be an understanding of subsurface conditions at the site.

2.1.1. Depth to Groundwater – soil gas samples should be collected in the vadose zone (and above the capillary fringe). Generally, soil gas samples should not be collected at a depth above 5 feet below ground surface (bgs). Sampling at multiple depths should be considered.

2.1.2. Soil permeability **-** It may not be feasible to collect soil gas from tighter grain soils with little pore volume, such as clays; if there are clay layers present in the subsurface, these intervals should be avoided. For sampling in these soils, it is recommended to uses soil gas implants with a wider bore hole. Care should be taken during purging and sampling so that the vacuum in the sampling system never exceeds 7 "Hg (100 "water).

3. Other Considerations

3.1. A utility clearance should be performed prior to mobilization, as with all intrusive site work.

3.2. Soil gas sampling should not be performed until 48 hours after a significant rain event (>1 inch of rainfall).

4. Apparatus and Materials

4.1. The soil gas probes should be installed by a licensed driller.

4.2. Teflon tubing, ¼-inch outer diameter sample tubing.

4.3. Swagelok® ¼-inch nut and ferrule sets for connecting the probe tubing to the sampling manifold.

4.4. The helium leak check equipment, including the enclosure, helium cylinder (high purity helium), and helium detector (Dialectric MGD is preferred). The enclosure may be provided by the driller or can be constructed from polyvinyl chloride (PVC) pipe. The helium detector can be rented from an equipment rental company.

4.5. MultiRae five gas meter. (Optional if onsite atmospheric gas analysis is required)

4.6. Air pump for purging and electric supply for the pump (either generator or power inverter with adapter for car battery). Must be capable of a flow of 200 mls/min and a vacuum of 20 "Hg.

4.7. Sampling manifold consisting of Swagelok® gas tight fittings with three valves and one pressure gauge to attach the probe to the air pump and the sample canister. This manifold must be clean, free of oils, and flushed free of volatile organic compounds (VOCs) prior to use.

4.8. Canister, SUMMA polished, certified clean and evacuated. (Canisters are typically provided by the laboratory.)

4.9. Flow controller or critical orifice, certified clean and set at desired sampling rate. These are typically provided and set by the laboratory.

4.10. Negative pressure gauge, oil-free and clean, to check canister pressure. The pressure gauges are typically provided by the laboratory. The laboratory may either provide one pressure gauge to be used with all of the canisters, or a pressure gauge for each canister to be left on during sample collection. Sometimes the canisters are fitted with built-in pressure gauges that are not removable.

4.11. Shipping container, suitable for protection of canister during shipping. Typically, strong cardboard boxes are used for canister shipment. The canisters should be shipped back to the laboratory in the same shipping container in which they were received.

4.12. Wrenches and screw driver (clean and free of contaminants), various sizes as needed for connecting fittings and making adjustment to the flow controller A 9/16-inch wrench fits the ¼-inch Swagelok® fittings, which most canisters and flow controllers have.

5. System Set-up

5.1. Acquire all the necessary hardware and sampling equipment shown in Figure 1. Be sure to use ¼-inch outside diameter Teflon sample tubing. ***Do not connect the canister at this time***.

5.2. Assemble or obtain the necessary fittings and vacuum gauge to create a soil gas probe and sampling manifold as shown in Figure 1. This manifold must be clean, free of oils, and flushed free of VOCs prior to use. Note: use only gas tight fittings such as Swagelok® or equivalent. Be sure to place the helium leak check enclosure over the probe, and push the sample tubing through the hole in the cap before attaching the sampling manifold.

5.3. Adjust the purge system evacuation pump sampling rate to achieve the desired flow rate of 200 milliliters/min. This should be performed at the outlet of the vacuum pump prior to purging, either by using a suitable flow meter, or determining the amount of time required to fill a 1- liter Tedlar bag.

5.4. Summa canisters are pre-evacuated by the laboratory. The vacuum will need to be verified in the field prior to use with a pressure gauge.

5.5. Flow controllers (if used) should come pre-set by the laboratory to sample at a pre-determined rate based on specific project requirements (see Table 1 for the most common options). In some cases [that is, project-specific quality assurance (QA)], the flow rate will need to be verified in the field prior to use. This is accomplished with a bubble meter, vacuum source, and instructions supplied by the laboratory.

6. System Leak Checking and Purging

6.1. ***Physical Leak Check*** - Perform a leak check of the sample manifold system by:

6.1.1. Make sure the gas probe valve (valve #1) is closed and the sample valve (valve #2) is open.

6.1.2. Open the purge valve (valve #3) and start the purge pump. Verify that the flow is set to 200 milliliters per minute (ml/min).

6.1.3. Close the sample valve (valve #2) and achieve a vacuum gauge reading of approx. 15 inches of mercury ("Hg).

6.1.4. A leak-free system will be evident by closing off the purge valve (valve #3), turning off the purge pump, and observing no loss of vacuum within the sampling manifold system for a period of 30 seconds. Repair any leaks prior to use.

6.1.5. Record the leak check date and time on the field sampling log.

6.2. ***System Purge and Helium Leak Check*** -A purge of the soil gas probe and sampling manifold system is required before taking each sample. The helium leak check procedure is also performed during this step. This leak check will verify the integrity of the implant as well as the probe and ground interface. This is accomplished by:

6.2.1. Where the ground surface is soft, the helium leak check enclosure is pressed down slightly into the ground surface. In situations where the ground surface is hard (for example, asphalt), apply a slight downward pressure to achieve a buildup of helium in the leak check enclosure.

6.2.2. Start the flow of helium under the leak check enclosure at 200 ml/min. Try and position the tube so the helium is directed at the interface of the probe and the ground. Let the helium fill the enclosure for a couple of minutes.

6.2.3. Turn the helium leak detector on and make sure that the detector is not reading any helium before proceeding. Verify that the helium concentration inside the leak check enclosure is >10% by placing the probe of the helium detector into the hole where the sample tubing comes out or under the enclosure wall. It is not necessary to verify that the helium concentration is 100% as this is bad for the detector. Safety factors will be incorporated into measured purge gas helium concentration to verify the probe seal integrity.

6.2.4. Purging is carried out by pulling soil gas through the system at a rate of 200 ml /min for a time period sufficient to achieve a purge volume that equals at 3 dead volumes (internal volume of the in-ground annular space, sample line, and sampling manifold system). When calculating the dead volume, be sure to take into account the inside diameter and length of the Teflon sample tubing, as well as the probe outside diameter and retract distance for the annular space for temporary probes. For permanent probes, calculate the volume of the annular space using a nominal 30% porosity for the sand or glass bead pack. If during the purge (or sampling) the vacuum exceeds 7 "Hg, then reduce the pump flow rate. The system vacuum must stay below this level at all times.

6.2.5. Open the sample valve (valve #2) and the purge valve (valve #3) and start the purge pump. Verify that the flow rate is still 200 ml/min.

6.2.6. To start the soil gas probe purge, open the gas probe valve (valve #1) and close the sample valve (valve #2) at the same time, and start timing.

6.2.7. During the last 5 minutes of the purge (or the entire purge time if less than 5 minutes), attach a Tedlar bag to the purge pump exhaust on open the bag's valve.

6.2.8. If the vacuum gauge reads >7 "Hg during the purge, then close the purge valve (valve #3) and monitor the vacuum in the manifold and probe. If there is no significant change after a minute, then there is an insignificant amount of soil gas and the vacuum is too great to take

a soil gas sample. Several things can cause this. Consult with the project manager and take corrective action.

6.2.8.1. The soil formation is too 'tight' (that is, high clay or moisture content). Try using a lower flow rate. (temporary or permanent probe)

6.2.8.2. The soil formation is too 'tight'. Try a different depth or location. (temporary probe)

6.2.8.3. With a temporary probe system, the expendable tip may not have released when the probe was retracted. Try retracting the probe a little further, or use a long thin rod to poke the tip loose.

6.2.8.4. If water is visible in the flexible soil gas tubing, stop the purging immediately. It is not possible to take a soil gas sample at that depth or location.

6.2.9. At the end of the pre-determined purge time and after the system is verified to be leak free, close the purge valve (valve #3), close the valve to the Tedlar bag, and turn off the pump. Do not open the purge valve again. Doing so will result in loss of the purge integrity and will require re-purging.

6.2.10. Attach the Tedlar bag to the helium detector using a piece of flexible rubber tubing and open the valve. If a helium reading of >0.1%, or 1000 ppmv, is observed, then the probe leak check has failed and corrective action should be taken. This includes first checking the fittings and connections and trying another purge and leak check. It may also be necessary to remove the soil gas probe and re-install it in a nearby location. Using a limit of 0.1 % allows for a 10x safety margin to verify that the leak check was <1% (verify that this limit is consistent with appropriate project-specific agency guidance).

6.2.11. Remove Tedlar bag and turn off the helium leak detector.

6.2.12. Record the purge date, time, purge rate, leak check result, and purge volume on the field sampling log.

6.2.13. Immediately move on to the sampling phase. Little to no delay should occur between purging and sampling.

7. Sample Collection

7.1. 'Clean' sampling protocols must be followed when handling and collecting samples. This requires care in the shipping, storage, and use of sampling equipment. Cleanliness of personnel who come in contact with the sampling equipment is also important: no smoking, no eating, no drinking, no perfumes, no deodorants, no dry cleaned clothing, etc. Canisters should not be transported in vehicles with gas-powered equipment or gasoline cans. Sharpie markers should not be used for labeling or note-taking during sampling.

7.2. The SUMMA canisters are certified clean and evacuated by the laboratory to near absolute zero pressure. Care should be used at all times to prevent inadvertent loss of canister vacuum. ***Never open the canister's valve unless the intent is to collect a sample or check the canister pressure.***

7.3. Verify that the vacuum pressure of the canister is between 28 – 30 inches Hg. Do not use a canister that has an initial pressure less than 28 inches Hg because that canister likely leaked during shipment.

7.3.1. Remove the protective cap from the valve on the canister.

7.3.2. If using an external gauge, attach the gauge to the canister and open the valve. If the pressure gauge has two openings, make sure that the other opening is closed; the canister cap can be used for this. After taking the reading, close the canister and remove the gauge.

7.3.3. If using assigned pressure gauges, attach the pressure gauge to the canister, then attach the flow controller. When sample collection begins, record the initial pressure.

7.4. Attach the canister to the flow controller and then connect the flow controller to the sample valve (valve #2) on the sampling manifold. Open the sample valve (valve #2)

7.5. Before taking the sample, confirm that the sampling system valves are set as follows: 1) the purge valve (valve #3) is confirmed to be closed, gas probe valve (valve #1) is open, and 2) the sample valve is (valve #2) is open.

7.6. Slowly open the canister's valve approximately one full turn.

7.7. After sampling for the appropriate amount of time (determined from project instructions, see Table 1), close the sample valve (valve #2) and the canister's valve. If the canister has a built-in or assigned pressure gauge, allow the canister to fill until the vacuum pressure reaches 0 – 10 inches Hg. Remove the canister from the sampling manifold.

7.8. If using an external vacuum gauge, re-attach it, open the canister valve, and record the final pressure. Close the valve, remove the gauge, and replace and tighten the cap on the canister. Ideal pressure in the canister is between 0-10 inches Hg. More than 10 inches Hg can greatly increase reporting limits. Consult with the project team if this condition is encountered.

7.9. Record the sampling date, time, canister identification (ID), flow controller ID, and any other observation pertinent to the sampling event on the field sampling log. The temperature and barometric pressure should be recorded.

7.10. Fill out all appropriate documentation (sampling forms, sample labels, chain of custody, sample tags, etc.).

7.11. Disassemble the sampling system.

8. Sample Handling and Shipping

8.1. Fill out all appropriate documentation (chain of custody, sample tags) and return canisters and equipment to the laboratory

8.2. The canisters should be shipped back to the laboratory in the same shipping container in which they were received. The samples do not need to be cooled during shipment. DO NOT put ice in the shipping container.

8.3. When packing the canisters for shipment, verify that the valve (just past finger tight) and valve caps are snug (1/4 turn past finger tight), and use sufficient clean packing to prevent the valves from rubbing against any hard surfaces. Never pack the cans with other objects or materials that could cause them to be punctured or damaged.

8.4. Do not place sticky labels or tape on any surface of the canister!

8.5. Place a custody seal over the openings to the shipping container.

8.6. Make sure to insure the package for the value of the sample containers and flow controllers.

8.7. Ship canisters for overnight delivery.

9. Quality Control

9.1. Canister supplied by the laboratory must follow the performance criteria and quality assurance prescribed in U.S. Environmental Protection Agency (EPA) Method TO-14/15 for canister cleaning, certification of cleanliness, and leak checking. SOPs are required.

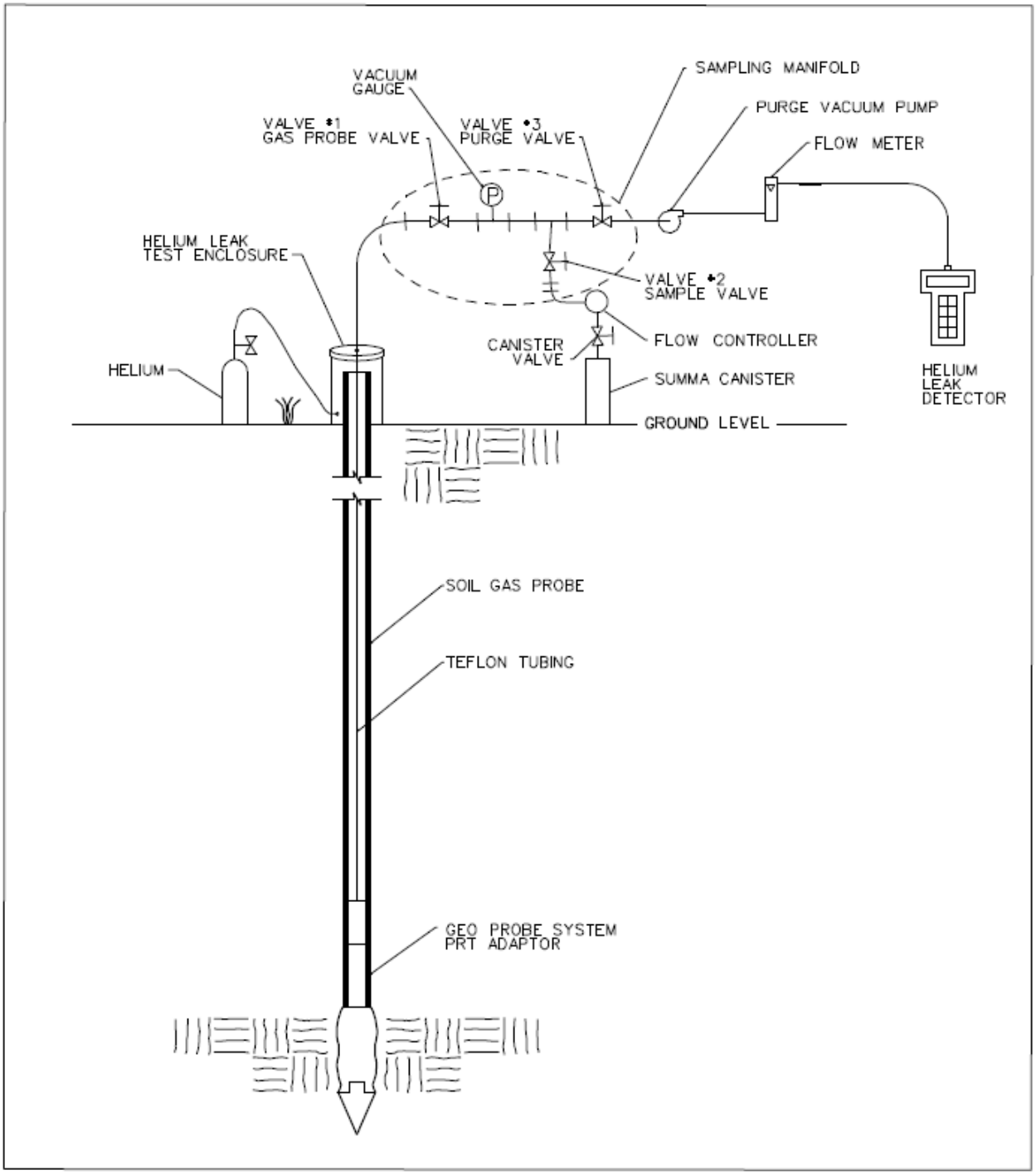
9.2. Flow controllers supplied by the laboratory must follow the performance criteria and QA prescribed in EPA Method TO-14/15 for flow controller cleaning and adjustment. SOPs are required.

Table 1 – Common Sampling Rates for Soil Gas Sampling

Can Size	Length of sampling time	Sampling Flow Rate (ml/min)
6 Liter	1 hour	90
6 Liter	8 hours	11.25
6 Liter	24 hours	3.75
1 Liter	5 minutes	180
1 Liter	1 hour	15
850 ml	5 minutes	150
850 ml	1 hour	12

Figure 1

Soil Gas Sampling System



CH2MHILL *Applied Sciences Laboratory*

Indoor Vapor Intrusion Assessment
Soil Gas Sampling Field Log

Project Info

Project Name: _____ **Project # :** _____

By: _____ **Date:** _____

Structure

Identification: _____

Address: _____

Sample Location type:

- ☐ concrete slab on grade
- ☐ concrete footing w/crawl space
- ☐ basement
- ☐ Yard or Driveway
- ☐ other (describe) _____

Soil Gas Sampling System

Probe type (describe): _____

Probe to sample interface system (describe): _____

Sample collection type: ☐ Syringe ☐ Tedlar bag ☐ Summa canister

Other info (describe other aspects) _____

Soil Gas Probe Purging & Sampling Log

Sample location (show in diagram)	1	2	3	4
Sample Identification (field ID)				
Time Installed				
Depth of installed probe (feet bgs)				
Leak check, vacuum (probe/sampling interface)				
Calculated dead volume (1 purge volume), cc				
Calculated purge volume (3 purge volume), cc				
Purge rate, cc/min.				
Purge duration, min.				
Purge started (time of day)				
Purge vacuum, " Hg				
Max Helium Leak Check Reading				
Purge completed (time of day)				
Sampling period started (time of day)				
Sampling rate, cc/min				
Sampling vacuum, " Hg				
Sampling period ended (time of day)				

Observations and Comments: _____

SOP B-19

Remote Equipment Refueling
Standard Operating Procedures for PG&E Topock Program

Background

Pacific Gas and Electric Company PG&E is conducting a soil investigation near the intersection of Park Moabi Road and Interstate 40, approximately 10 miles west of Needles, California, at and near the PG&E Topock Compressor Station. This Standard Operating Procedure summarizes the methods required to remotely refuel the equipment used during this work. These methods are to be followed by all contractors conducting this work.

Policy and Permission to Proceed

PG&E strongly prefers for equipment refueling to be conducted at commercial fueling stations or at the Topock Compressor Station fueling facilities whenever feasible. However, PG&E also realizes that some refueling is best conducted remotely, when the equipment is located at the worksite and should not be moved.

For onsite refueling at the Topock Compressor Station fueling facilities, the first step is for the contractor to discuss the onsite process and procedures with PG&E's onsite remediation staff (Chris Smith, Curt Russell, or Glen Riddle). This includes the process of filling portable fuel containers at Topock Compressor Station, if PG&E allows.

If the Topock Compressor Station onsite fueling facilities are not the best way to refuel remote equipment, the contractor must receive positive permission from one of the PG&E staff employees listed above before proceeding to remotely refuel equipment following the procedures below. The contractor must also obtain PG&E permission prior to bringing or storing any fuel onsite.

Remote Refueling Procedure

Several steps must be accomplished before remote refueling can be initiated to avoid spills and incident. The following considerations and procedure will be followed during refueling:

Preparation and Pre-fueling Considerations

- Turn off all equipment or engines before refueling.
- Stage/inspect fire extinguisher to ensure that is in within specifications and is accessible.
- Stage spill containment such as a spill pad (bermed) and absorbent pads under the equipment that is being refueled.
- Extinguish all ignition sources (that is, cigarettes, torches, etc.).
- Allow small engines (such as generators) to cool down before refueling because gasoline spilled on hot engine parts may ignite.

- Do not leave the equipment fueling point while refueling to avoid spills and spark ignition. (Do not enter your vehicle during refueling.)
- Never jam or force the hold-open latch open by using some other object.
- Use only an approved container for portable gasoline storage cans.
- When filling a portable container, always place the container on level ground and keep the pump nozzle in contact with the container when refueling to avoid a static electricity ignition of fuel vapors.
- Never store fuel near a generator or near any ignition sources.
- If a flash fire occurs during refueling, you should attempt to stop the flow of fuel before backing away from the equipment or vehicle.

General Remote Fueling Procedure

1. Position the fuel supply source as close to the equipment to be fueled, as practicable and safe. Chock wheels of involved vehicles to avoid adjustments in vehicle position during fueling.
2. Prepare the work area by positioning bermed spill pad(s) at both the fuel source, equipment fill point, and ALL areas between. A spill containment kit containing sorbent pads should be positioned nearby and its contents should be verified prior to fueling.
3. Don appropriate personal protective equipment, as defined in the Health and Safety Plan.
4. Inspect fuel conveyance hose/equipment and all connections and fittings for signs of wear or defects prior to the initiation of fuel pumping or pouring. If pouring fuel from a portable container, a funnel constructed of suitable material must be used to avoid splashing.
5. In the event a defect is identified in fuel conveyance equipment; notify the appropriate personnel, and stand down from fueling operations immediately.
6. Ensure the area is free from ignition sources (that is, hot equipment/work, sources of spark or static electricity).
7. Position one crew member at the fuel pump and one crew member at the equipment fill point and begin fueling. Station fire extinguisher within 10 feet of fueling operations. Only one crew member is required for filling equipment from a portable container. Do not over fill or top off the fuel tank.
8. Once fueling is complete, deactivate the fuel supply pump prior to removing the fill nozzle from the equipment, and ensure that residual fuel has been emptied from the conveyance hose (as appropriate based on design of the equipment used).
9. Replace all fueling equipment and re-inspect for signs of wear or defect (that is, identify areas that may be seeping fuel at a slow rate).
10. Inspect work area for any signs of spills, and remove spill pad(s), as appropriate.

Communication and Contingency Action

If a spill occurs, the appropriate clean-up actions should commence as efficiently and safely as possible. Further, the reason for the spill will be investigated, and the team will modify the fueling procedure or conduct equipment repairs, as determined appropriate to minimize the potential for future spills. Further, the following communication protocol must be followed:

- **If the spill is contained by the spill containment measures:** the contractor's field team leader must be notified.
- **If the spill is not contained by the spill containment measures:** the contractor's field team leader must be immediately notified. Subsequently, the contractor's field team leader must immediately notify Chris Smith, Curt Russell, or Glen Riddle.

Waste Management

Waste generated during refueling, such as oily absorbent pads, must be transported and disposed at Interim Measures No. 3 oil waste-storage area, or as directed by Chris Smith, immediately following generation. Do not dispose of any oil/fuel-contaminated pads or rags in the soil rolloff bins or waste dumpsters.

Attachment B8
X-Ray Fluorescence Screening Locations and Results

Table B8-1
X-Ray Fluorescence Screening Results
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

		Antimony	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Cobalt**	**Copper**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Vanadium**	**Zinc**
Screening Level Type		Ecoogical	Background	Background	Background	Background	Background	Background	Residential	Background	Background	Ecoogical	Background	Background	Background	Background	Background
Screening Level mg/kg		0.285	11	410	1.1	39.8	12.7	16.8	55,000	8.39	402	0.0125	1.37	27.3	1.47	52.2	58
Detection levels mg/kg		12	9	30	9	11	140	20	320	9	70	9	7	42	6	23	14
Sample ID	Date Analyzed																
aoc 1 bcw-13	11/12/2015	ND (12)	ND (9)	ND (30)	ND (9)	23.0	ND (140)	**85.5**	20,306.5	**16.3**	294.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	48.6
aoc 1 bcw-19	11/12/2015	ND (12)	ND (9)	ND (30)	ND (9)	28.3	ND (140)	**94.6**	23,463.6	**17.3**	322.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**60.5**
aoc 1 bcw-21	11/12/2015	ND (12)	ND (9)	ND (30)	ND (9)	22.4	ND (140)	**86.2**	21,458.9	**17.6**	299.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**65.4**
aoc 1 bcw-25	11/12/2015	ND (12)	ND (9)	ND (30)	ND (9)	22.4	ND (140)	**97.9**	17,739.1	**11.2**	259.0	ND (9)	ND (7)	**49.9**	ND (6)	ND (23)	44.6
aoc 10-xrf-01	11/19/2015	**26.8**	ND (9)	89.8	ND (9)	25.7	ND (140)	**76.9**	12,503.1	**17.8**	241.8	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	35.5
aoc 10-xrf-02	11/19/2015	**19.5**	ND (9)	129.5	ND (9)	24.3	ND (140)	**89.9**	23,722.1	**15.9**	**491.4**	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	41.4
aoc 10-xrf-03	11/19/2015	**28.1**	ND (9)	156.8	ND (9)	21.2	ND (140)	**87.8**	23,752.7	**16.2**	**492.0**	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	46.3
aoc 10-xrf-04	11/19/2015	**21.9**	ND (9)	134.9	ND (9)	23.7	ND (140)	**109.9**	25,232.7	**21.4**	290.5	ND (9)	ND (7)	**86.2**	ND (6)	ND (23)	49.7
aoc 10-xrf-05	11/19/2015	**27.7**	ND (9)	136.2	ND (9)	16.3	ND (140)	ND (20)	13,593.0	**12.4**	241.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	28.6
aoc 10-xrf-06	11/19/2015	**24.1**	ND (9)	180.3	ND (9)	30.6	ND (140)	**83.1**	18,519.9	**16.8**	233.8	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	43.8
aoc 10-xrf-07	11/19/2015	**22.6**	ND (9)	ND (30)	ND (9)	12.7	ND (140)	ND (20)	7,548.9	**12.7**	163.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	25.6
aoc 10-xrf-08	11/19/2015	**17.0**	ND (9)	ND (30)	ND (9)	14.5	ND (140)	ND (20)	8,048.5	**12.3**	174.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	20.8
aoc 10-xrf-09	11/19/2015	**16.1**	ND (9)	55.5	ND (9)	21.2	ND (140)	**82.4**	18,923.6	**28.9**	225.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	39.3
aoc 10-xrf-10	11/19/2015	**29.9**	ND (9)	105.9	ND (9)	17.8	ND (140)	ND (20)	12,723.5	**18.0**	211.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	30.0
aoc 10-xrf-11	11/19/2015	**15.7**	ND (9)	ND (30)	ND (9)	20.1	ND (140)	ND (20)	13,577.0	**20.1**	222.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	40.5
aoc 10-xrf-12	11/19/2015	**24.7**	ND (9)	ND (30)	ND (9)	18.7	ND (140)	**91.3**	14,354.0	**11.3**	270.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	35.1
aoc 10-xrf-12-dupe	11/19/2015	**32.2**	ND (9)	ND (30)	ND (9)	18.0	ND (140)	ND (20)	14,307.5	**13.1**	275.3	ND (9)	ND (7)	**63.6**	ND (6)	ND (23)	36.2
aoc 13-13	11/16/2015	**38.1**	ND (9)	164.8	ND (9)	25.2	ND (140)	**88.5**	17,998.4	**13.1**	275.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	43.4
aoc 13-13-e	11/16/2015	**33.1**	ND (9)	147.0	ND (9)	25.0	ND (140)	**81.1**	15,220.2	**12.6**	235.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	48.2
aoc 13-13-n	11/16/2015	**26.0**	ND (9)	181.0	ND (9)	30.6	ND (140)	**79.8**	20,803.1	**11.4**	253.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	50.7
aoc 13-13-s	11/16/2015	**29.3**	ND (9)	165.0	ND (9)	26.2	ND (140)	ND (20)	15,738.3	**12.4**	227.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	48.5
aoc 13-13-w	11/16/2015	**27.9**	ND (9)	144.0	ND (9)	26.9	ND (140)	**85.5**	17,582.6	**15.4**	251.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**61.6**
aoc 13-18	11/9/2015	**27.7**	ND (9)	195.5	ND (9)	34.9	ND (140)	**105.5**	17820.4	**27.1**	242.0	ND (9)	ND (7)	ND (42)	ND (6)	27.1	**91.9**
aoc 13-18-e	11/9/2015	**24.5**	ND (9)	153.4	ND (9)	24.8	ND (140)	**147.2**	18921.0	**35.2**	268.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**101.3**
aoc 13-18-n	11/9/2015	**30.9**	ND (9)	166.8	ND (9)	39.1	ND (140)	**87.4**	18747.4	**21.5**	251.0	ND (9)	ND (7)	**47.2**	ND (6)	25.9	**80.9**
aoc 13-18-s	11/9/2015	**31.9**	ND (9)	225.6	ND (9)	23.1	ND (140)	**137.8**	19749.1	**46.2**	289.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**104.7**
aoc 13-18-w	11/9/2015	**36.3**	ND (9)	229.6	ND (9)	26.3	ND (140)	**137.7**	19609.2	**46.6**	288.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**99.0**
aoc 13-19	11/10/2015	**34.9**	ND (9)	160.1	ND (9)	23.3	ND (140)	**82.5**	15,414.9	**17.5**	239.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	51.5
aoc 13-19-e	11/10/2015	**33.5**	ND (9)	197.4	ND (9)	23.4	ND (140)	**79.1**	19,600.5	**15.2**	281.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	50.2
aoc 13-19-n	11/10/2015	**31.2**	ND (9)	167.5	ND (9)	21.0	ND (140)	**82.3**	18,950.1	**14.0**	254.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	51.1
aoc 13-19-s	11/10/2015	**33.1**	ND (9)	205.2	ND (9)	23.5	ND (140)	**73.9**	18,814.1	**13.2**	280.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	50.5
aoc 13-19-w	11/10/2015	**26.6**	ND (9)	117.6	ND (9)	22.4	ND (140)	**74.6**	15,447.7	**13.2**	235.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	37.3
aoc 13-20	11/10/2015	**27.9**	ND (9)	241.8	ND (9)	20.4	ND (140)	**91.9**	20,090.4	**15.6**	295.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	55.2
aoc 13-20-e	11/10/2015	**25.5**	ND (9)	178.0	ND (9)	19.1	ND (140)	**79.8**	16,214.0	**17.2**	253.8	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	40.3
aoc 13-20-n	11/10/2015	**28.8**	ND (9)	149.8	ND (9)	23.8	ND (140)	**92.9**	17,988.6	**14.2**	256.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	47.1
aoc 13-20-s	11/10/2015	**26.9**	ND (9)	211.7	ND (9)	22.3	ND (140)	**80.2**	19,851.7	**18.6**	321.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	54.1
aoc 13-20-w	11/10/2015	**29.1**	ND (9)	217.3	ND (9)	25.6	ND (140)	**80.9**	18,914.8	**15.9**	246.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**74.8**
aoc 13-21	11/10/2015	**29.1**	ND (9)	299.7	ND (9)	23.3	ND (140)	**81.0**	21,334.3	**19.5**	317.2	ND (9)	ND (7)	**56.0**	ND (6)	ND (23)	**60.4**
aoc 13-21-e	11/10/2015	**31.6**	ND (9)	299.8	ND (9)	19.7	ND (140)	**89.6**	21,660.7	**19.8**	328.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**76.8**
aoc 13-21-n	11/10/2015	**29.7**	ND (9)	266.5	ND (9)	23.3	ND (140)	**86.0**	20,419.3	**14.9**	316.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	51.7

Table B8-1
X-Ray Fluorescence Screening Results
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

		Antimony	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Cobalt**	**Copper**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Vanadium**	**Zinc**
Screening Level Type		Ecoogical	Background	Background	Background	Background	Background	Background	Residential	Background	Background	Ecoogical	Background	Background	Background	Background	Background
Screening Level mg/kg		0.285	11	410	1.1	39.8	12.7	16.8	55,000	8.39	402	0.0125	1.37	27.3	1.47	52.2	58
Detection levels mg/kg		12	9	30	9	11	140	20	320	9	70	9	7	42	6	23	14
Sample ID	Date Analyzed																
aoc 13-21-s	11/10/2015	**32.9**	ND (9)	**413.2**	ND (9)	18.8	ND (140)	**71.6**	15,418.1	**16.5**	264.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	37.8
aoc 13-21-w	11/10/2015	**25.3**	ND (9)	273.6	ND (9)	22.7	ND (140)	**82.5**	17,785.9	**13.9**	274.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	38.7
aoc 13-22	11/11/2015	**29.9**	ND (9)	202.4	ND (9)	17.9	ND (140)	**95.1**	13,523.5	**13.4**	236.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	51.2
aoc 13-22-e	11/11/2015	**34.8**	ND (9)	315.4	ND (9)	19.3	ND (140)	**80.0**	11,931.7	**42.8**	222.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	40.2
aoc 13-22-n	11/11/2015	**31.5**	ND (9)	198.6	ND (9)	19.9	ND (140)	**82.4**	13,062.6	**13.9**	240.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**59.3**
aoc 13-22-s	11/11/2015	**26.1**	ND (9)	180.2	ND (9)	22.9	ND (140)	**83.1**	23,592.6	**14.3**	306.8	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	42.0
aoc 13-22-w	11/11/2015	**32.0**	ND (9)	211.8	ND (9)	26.2	ND (140)	**91.7**	20,442.8	**19.0**	317.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	41.2
aoc 13-23	11/11/2015	**23.9**	ND (9)	126.9	ND (9)	25.3	ND (140)	**93.7**	19,817.8	**22.3**	275.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	41.8
aoc 13-23-e	11/11/2015	**21.4**	ND (9)	106.3	ND (9)	24.5	ND (140)	**98.7**	21,341.5	**22.1**	304.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**79.1**
aoc 13-23-n	11/11/2015	**20.3**	ND (9)	109.4	ND (9)	19.7	ND (140)	**92.5**	17,341.2	**18.1**	328.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	56.4
aoc 13-23-s	11/11/2015	**21.4**	ND (9)	94.0	ND (9)	22.3	ND (140)	**99.1**	24,689.8	**22.9**	379.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**69.0**
aoc 13-23-w	11/11/2015	**19.4**	ND (9)	40.8	ND (9)	19.2	ND (140)	**94.2**	19,496.9	**18.6**	288.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	47.9
aoc 13-24	11/11/2015	**15.4**	ND (9)	ND (30)	ND (9)	25.3	ND (140)	**86.0**	19,124.5	**15.1**	324.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	47.2
aoc 13-24-e	11/11/2015	**28.1**	ND (9)	317.6	ND (9)	17.1	ND (140)	ND (20)	12,855.4	**14.6**	227.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	29.3
aoc 13-24-n	11/11/2015	**32.0**	ND (9)	120.5	ND (9)	21.6	ND (140)	**83.8**	15,952.9	**13.0**	243.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	42.6
aoc 13-24-s	11/12/2015	**14.5**	ND (9)	129.5	ND (9)	21.0	ND (140)	**90.1**	22,258.7	**15.0**	327.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	43.5
aoc 13-24-w	11/12/2015	**26.7**	ND (9)	126.5	ND (9)	21.9	ND (140)	**90.6**	18,839.4	**25.0**	277.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	55.2
aoc 13-25	11/12/2015	**33.9**	ND (9)	201.9	ND (9)	22.1	ND (140)	**85.9**	25,928.8	**17.3**	**435.4**	ND (9)	ND (7)	**58.0**	ND (6)	ND (23)	53.5
aoc 13-25-e	11/12/2015	**21.7**	ND (9)	185.5	ND (9)	13.6	ND (140)	ND (20)	7,273.5	**10.7**	182.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	16.0
aoc 13-25-n	11/12/2015	**32.7**	ND (9)	299.8	ND (9)	21.2	ND (140)	**92.7**	26,654.0	**15.7**	**449.0**	ND (9)	ND (7)	**70.4**	ND (6)	ND (23)	52.7
aoc 13-25-s	11/12/2015	**24.3**	ND (9)	167.7	ND (9)	19.7	ND (140)	**146.6**	24,071.7	**18.2**	396.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	44.0
aoc 13-25-w	11/12/2015	**29.5**	ND (9)	315.9	ND (9)	21.0	ND (140)	**117.8**	22,108.3	**16.6**	361.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	46.2
aoc 13-26	11/17/2015	**26.6**	ND (9)	132.2	ND (9)	22.0	ND (140)	**101.7**	20,258.3	**17.6**	265.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	40.2
aoc 13-26-e	11/17/2015	**20.5**	ND (9)	98.1	ND (9)	26.2	ND (140)	**102.4**	20,706.9	**22.2**	272.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	46.9
aoc 13-26-n	11/17/2015	**28.2**	ND (9)	136.9	ND (9)	22.0	ND (140)	**109.0**	20,301.4	**19.9**	284.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	48.2
aoc 13-26-s	11/17/2015	**19.5**	ND (9)	105.6	ND (9)	17.0	ND (140)	**83.2**	20,969.1	**13.3**	284.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	37.5
aoc 13-26-w	11/17/2015	**21.5**	ND (9)	114.4	ND (9)	19.6	ND (140)	**86.7**	21,401.9	**13.2**	295.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	36.8
aoc 13-27	11/16/2015	**28.1**	ND (9)	126.9	ND (9)	24.6	ND (140)	**82.5**	16,603.9	**16.8**	256.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	55.1
aoc 13-27-e	11/16/2015	**25.5**	ND (9)	126.5	ND (9)	21.4	ND (140)	ND (20)	18,985.2	**15.7**	236.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	41.2
aoc 13-27-n	11/16/2015	**22.1**	ND (9)	133.3	ND (9)	20.8	ND (140)	**96.6**	16,781.4	**17.2**	245.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	53.0
aoc 13-27-s	11/16/2015	**29.2**	ND (9)	165.5	ND (9)	23.0	ND (140)	**88.0**	19,305.1	**14.2**	241.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	41.2
aoc 13-27-w	11/16/2015	**25.3**	ND (9)	194.7	ND (9)	20.7	ND (140)	**84.5**	26,965.4	**18.9**	334.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	52.6
aoc 13-28	11/9/2015	**26.5**	ND (9)	160.9	ND (9)	18.3	ND (140)	**93.1**	16116.7	**15.4**	239.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	41.8
aoc 13-28-e	11/9/2015	**19.1**	ND (9)	67.1	ND (9)	26.5	ND (140)	**84.7**	18028.0	**17.8**	263.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	43.5
aoc 13-28-n	11/9/2015	**29.1**	ND (9)	162.0	ND (9)	21.4	ND (140)	**100.0**	18173.0	**23.9**	256.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**75.9**
aoc 13-28-s	11/9/2015	**26.8**	ND (9)	250.0	ND (9)	21.3	ND (140)	**95.2**	15913.0	**15.5**	261.8	ND (9)	ND (7)	**51.2**	ND (6)	ND (23)	38.6
aoc 13-28-w	11/9/2015	**19.1**	ND (9)	87.9	ND (9)	23.8	ND (140)	**83.0**	17815.9	**20.4**	281.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	46.1
aoc 13-29	11/16/2015	**26.4**	ND (9)	114.6	ND (9)	22.7	ND (140)	**88.5**	20,082.2	**20.1**	277.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	40.7
aoc 13-29-e	11/16/2015	**20.5**	ND (9)	97.2	ND (9)	27.1	ND (140)	ND (20)	17,127.6	**16.1**	259.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	46.1
aoc 13-29-n	11/16/2015	**23.3**	ND (9)	158.3	ND (9)	24.3	ND (140)	ND (20)	21,262.1	**19.3**	291.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	41.7

Table B8-1
X-Ray Fluorescence Screening Results
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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

		Antimony	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Cobalt**	**Copper**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Vanadium**	**Zinc**
Screening Level Type		Ecoogical	Background	Background	Background	Background	Background	Background	Residential	Background	Background	Ecoogical	Background	Background	Background	Background	Background
Screening Level mg/kg		0.285	11	410	1.1	39.8	12.7	16.8	55,000	8.39	402	0.0125	1.37	27.3	1.47	52.2	58
Detection levels mg/kg		12	9	30	9	11	140	20	320	9	70	9	7	42	6	23	14
Sample ID	Date Analyzed																
aoc 13-29-s	11/16/2015	**29.3**	ND (9)	129.4	ND (9)	21.6	ND (140)	ND (20)	18,023.9	**11.8**	254.2	ND (9)	ND (7)	**61.4**	ND (6)	ND (23)	34.0
aoc 13-29-w	11/16/2015	**25.9**	ND (9)	119.4	ND (9)	27.6	ND (140)	**86.0**	17,298.2	**15.8**	245.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	46.2
aoc 13-30	11/11/2015	**22.8**	ND (9)	179.5	ND (9)	27.2	ND (140)	**87.3**	29,821.6	**26.0**	296.4	ND (9)	ND (7)	**62.2**	ND (6)	ND (23)	**103.3**
aoc 13-30-e	11/11/2015	**26.5**	ND (9)	130.0	ND (9)	27.9	ND (140)	**88.7**	21,005.2	**23.8**	269.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	56.5
aoc 13-30-n	11/11/2015	**17.7**	ND (9)	57.2	ND (9)	29.7	ND (140)	**96.2**	31,257.6	**22.2**	313.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**123.9**
aoc 13-30-s	11/11/2015	**22.4**	ND (9)	77.6	ND (9)	28.7	ND (140)	**81.3**	21,091.7	**16.3**	257.4	ND (9)	ND (7)	**50.7**	ND (6)	ND (23)	42.4
aoc 13-30-w	11/11/2015	**24.8**	ND (9)	120.6	ND (9)	31.7	ND (140)	**89.6**	15,535.3	**20.8**	241.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	49.8
aoc 13-31	11/11/2015	**23.6**	ND (9)	78.6	ND (9)	21.9	ND (140)	**81.1**	16,135.8	**19.1**	240.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	42.4
aoc 13-31-n	11/11/2015	**17.9**	ND (9)	37.8	ND (9)	21.4	ND (140)	**85.0**	16,073.7	**17.2**	240.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	38.4
aoc 13-31-s	11/11/2015	**22.1**	ND (9)	89.0	ND (9)	24.0	ND (140)	**85.3**	24,508.8	**18.6**	293.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**62.6**
aoc 13-31-w	11/11/2015	**23.6**	ND (9)	93.8	ND (9)	27.1	ND (140)	**83.3**	19,846.6	**15.7**	270.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	53.4
aoc 13-9*	11/12/2015	**29.0**	ND (9)	154.7	ND (9)	**76.3**	ND (140)	**104.1**	16,702.1	**20.6**	259.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**199.0**
aoc 13-9-e	11/12/2015	**31.2**	ND (9)	139.5	ND (9)	**61.9**	ND (140)	**90.1**	14,612.4	**17.7**	229.8	ND (9)	ND (7)	**46.1**	ND (6)	ND (23)	**144.4**
aoc 13-9-n	11/12/2015	**29.5**	ND (9)	104.4	ND (9)	27.3	ND (140)	**82.1**	14,394.8	**17.0**	218.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	50.3
aoc 13-9-s	11/12/2015	**23.3**	ND (9)	95.9	ND (9)	**41.5**	ND (140)	**81.0**	14,142.6	**16.2**	218.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**104.6**
aoc 13-9-w*	11/12/2015	**31.2**	ND (9)	125.3	ND (9)	**62.7**	ND (140)	**84.9**	15,487.9	**15.1**	225.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**84.2**
aoc 14-xrf-01	11/19/2015	**27.8**	ND (9)	ND (30)	ND (9)	27.3	ND (140)	**122.0**	**68,803.6**	**35.5**	**435.1**	ND (9)	**14.1**	ND (42)	ND (6)	ND (23)	56.8
aoc 14-xrf-02	11/19/2015	**30.9**	ND (9)	125.4	ND (9)	17.1	ND (140)	**83.2**	19,071.4	**44.3**	256.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**75.3**
aoc 14-xrf-03	11/19/2015	**25.2**	ND (9)	71.2	ND (9)	24.7	ND (140)	**79.6**	17,722.2	**44.6**	268.0	ND (9)	**9.1**	ND (42)	ND (6)	ND (23)	**88.2**
aoc 14-xrf-04	11/19/2015	**22.7**	ND (9)	55.4	ND (9)	19.8	ND (140)	**82.9**	17,408.9	**43.4**	251.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**92.2**
aoc 14-xrf-05*	11/19/2015	**23.7**	ND (9)	102.7	ND (9)	15.9	ND (140)	**83.9**	12,777.0	**16.7**	262.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	42.9
aoc 14-xrf-06	11/19/2015	**24.5**	ND (9)	108.3	ND (9)	19.2	ND (140)	ND (20)	16,818.1	**29.3**	245.8	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	46.6
aoc 14-xrf-08	11/19/2015	**31.0**	ND (9)	80.6	ND (9)	17.9	ND (140)	ND (20)	11,671.9	**23.7**	198.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	38.6
aoc 14-xrf-09	11/19/2015	**25.6**	ND (9)	ND (30)	ND (9)	17.6	ND (140)	ND (20)	15,649.4	**14.1**	234.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	39.3
aoc 14-xrf-10	11/19/2015	**25.6**	ND (9)	60.3	ND (9)	19.5	ND (140)	ND (20)	16,341.0	**18.6**	235.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	44.4
aoc 15-1	11/7/2015	ND (12)	ND (9)	158.4	ND (9)	**310.9**	ND (140)	**139.4**	21,128.6	**173.6**	285.2	ND (9)	**3,604.9**	**61.0**	ND (6)	ND (23)	**156.1**
aoc 15-1-e	11/7/2015	ND (12)	ND (9)	148.8	ND (9)	**216.0**	ND (140)	**155.7**	19,451.6	**257.0**	238.5	ND (9)	**2,894.0**	ND (42)	ND (6)	ND (23)	**204.0**
aoc 15-1-n	11/7/2015	**22.0**	ND (9)	144.4	ND (9)	**263.1**	ND (140)	**123.1**	14,183.7	**244.7**	212.3	ND (9)	**192.8**	ND (42)	ND (6)	ND (23)	**160.3**
aoc 15-1-s	11/7/2015	ND (12)	ND (9)	109.9	ND (9)	**422.1**	ND (140)	**218.8**	22,495.0	**1,042.4**	290.4	ND (9)	**2,611.0**	ND (42)	ND (6)	ND (23)	**305.5**
aoc 15-1-w	11/7/2015	**30.3**	ND (9)	250.5	ND (9)	**332.6**	ND (140)	**198.6**	20,028.1	**394.1**	260.4	ND (9)	**1,012.0**	ND (42)	ND (6)	ND (23)	**217.3**
aoc 15-2	11/8/2015	ND (12)	ND (9)	ND (30)	ND (9)	**270.2**	ND (140)	**195.6**	20,003.4	**251.5**	262.2	ND (9)	**2,347.1**	ND (42)	ND (6)	ND (23)	**334.4**
aoc 15-2-n	11/8/2015	ND (12)	ND (9)	ND (30)	ND (9)	**287.8**	ND (140)	**384.7**	28,425.5	**351.5**	310.6	ND (9)	**953.7**	**122.5**	ND (6)	ND (23)	**1,489.2**
aoc 15-2-s	11/8/2015	**30.1**	ND (9)	409.1	ND (9)	**401.1**	ND (140)	**193.6**	17,301.3	**1,458.2**	229.9	ND (9)	**2,479.5**	ND (42)	ND (6)	ND (23)	**340.6**
aoc 15-3	11/7/2015	**22.4**	ND (9)	256.0	ND (9)	**93.1**	ND (140)	**140.2**	11,787.2	**973.6**	193.2	ND (9)	**235.6**	ND (42)	ND (6)	ND (23)	**283.7**
aoc 15-3-e	11/7/2015	**27.2**	ND (9)	124.0	ND (9)	**43.4**	ND (140)	**87.4**	9,137.9	**98.4**	202.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**68.0**
aoc 15-3-n	11/7/2015	**33.0**	ND (9)	192.4	ND (9)	**84.3**	ND (140)	**115.7**	10,425.6	**447.3**	188.3	ND (9)	**48.2**	ND (42)	ND (6)	ND (23)	**168.1**
aoc 15-3-s	11/7/2015	ND (12)	ND (9)	233.5	ND (9)	**84.0**	ND (140)	**284.1**	11,660.6	**1,643.1**	198.7	ND (9)	**324.5**	ND (42)	ND (6)	ND (23)	**337.4**
aoc 15-3-w	11/7/2015	**27.0**	ND (9)	307.0	ND (9)	**97.2**	ND (140)	**292.8**	10,903.8	**939.1**	181.6	ND (9)	**326.9**	ND (42)	ND (6)	ND (23)	**319.4**
aoc 15-4	11/7/2015	**22.1**	ND (9)	124.7	ND (9)	**69.3**	ND (140)	**119.6**	20,475.7	**108.3**	247.5	ND (9)	**578.2**	ND (42)	ND (6)	ND (23)	**145.8**
aoc 15-4-e	11/7/2015	ND (12)	ND (9)	103.1	ND (9)	**94.2**	ND (140)	**221.4**	22,852.3	**519.5**	291.1	ND (9)	**166.4**	ND (42)	ND (6)	ND (23)	**349.7**

Table B8-1
X-Ray Fluorescence Screening Results
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

		Antimony	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Cobalt**	**Copper**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Vanadium**	**Zinc**
Screening Level Type		Ecoogical	Background	Background	Background	Background	Background	Background	Residential	Background	Background	Ecoogical	Background	Background	Background	Background	Background
Screening Level mg/kg		0.285	11	410	1.1	39.8	12.7	16.8	55,000	8.39	402	0.0125	1.37	27.3	1.47	52.2	58
Detection levels mg/kg		12	9	30	9	11	140	20	320	9	70	9	7	42	6	23	14
Sample ID	Date Analyzed																
aoc 15-4-s	11/7/2015	**29.9**	ND (9)	129.0	ND (9)	**83.1**	ND (140)	**136.0**	16,751.2	**119.4**	237.0	ND (9)	**33.0**	ND (42)	ND (6)	ND (23)	**224.4**
aoc 15-4-w	11/7/2015	**29.8**	ND (9)	106.1	ND (9)	**91.2**	ND (140)	**88.0**	14,046.1	**53.7**	229.3	ND (9)	**98.9**	ND (42)	ND (6)	ND (23)	**136.4**
aoc 15-5	11/7/2015	ND (12)	ND (9)	ND (30)	ND (9)	**131.1**	ND (140)	**172.8**	22,395.6	**205.0**	266.6	ND (9)	**532.9**	ND (42)	ND (6)	ND (23)	**204.3**
aoc 15-5-n	11/7/2015	**34.3**	ND (9)	320.8	ND (9)	**139.5**	ND (140)	**111.3**	19,208.8	**508.6**	245.0	ND (9)	**3,885.4**	ND (42)	ND (6)	ND (23)	**165.9**
aoc 15-5-s	11/7/2015	ND (12)	ND (9)	213.8	ND (9)	**71.9**	ND (140)	**128.6**	16,284.9	**142.4**	252.7	ND (9)	**492.7**	ND (42)	ND (6)	ND (23)	**68.7**
aoc 15-5-w	11/7/2015	**27.3**	ND (9)	318.3	ND (9)	**197.8**	ND (140)	**160.6**	19,810.0	**190.8**	270.3	ND (9)	**1,171.6**	**71.7**	ND (6)	ND (23)	**110.1**
aoc 15-6	11/8/2015	**38.0**	ND (9)	102.0	ND (9)	32.4	ND (140)	**95.7**	8,974.9	**87.8**	187.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	52.8
aoc 15-6-e	11/8/2015	**32.6**	ND (9)	134.8	ND (9)	**43.4**	ND (140)	**115.7**	17,046.3	**80.4**	236.4	ND (9)	**7.8**	ND (42)	ND (6)	ND (23)	**132.2**
aoc 15-6-n	11/8/2015	**27.6**	ND (9)	86.7	ND (9)	**62.5**	ND (140)	**226.5**	17,838.3	**151.3**	238.7	ND (9)	**36.1**	ND (42)	ND (6)	ND (23)	**295.1**
aoc 15-6-s	11/8/2015	**36.2**	ND (9)	352.8	ND (9)	**83.3**	ND (140)	**184.1**	13,315.7	**812.8**	218.9	ND (9)	**52.6**	ND (42)	ND (6)	ND (23)	**224.5**
aoc 15-6-w	11/8/2015	**45.2**	ND (9)	267.7	ND (9)	**93.5**	ND (140)	**159.9**	12,865.5	**890.7**	189.0	ND (9)	**261.2**	ND (42)	ND (6)	ND (23)	**339.4**
aoc 15-7	11/7/2015	**27.2**	ND (9)	71.1	ND (9)	25.3	ND (140)	**82.6**	7,796.0	**90.6**	177.9	ND (9)	**9.6**	ND (42)	ND (6)	ND (23)	44.1
aoc 15-7-e	11/7/2015	ND (12)	ND (9)	ND (30)	ND (9)	38.3	ND (140)	**203.2**	15,039.4	**85.5**	221.3	ND (9)	**26.1**	ND (42)	ND (6)	ND (23)	**196.6**
aoc 15-7-n	11/7/2015	**24.4**	ND (9)	157.7	ND (9)	**45.6**	ND (140)	**116.7**	12,455.8	**65.7**	195.7	ND (9)	**7.6**	ND (42)	ND (6)	ND (23)	**82.8**
aoc 15-7-s	11/8/2015	**34.4**	ND (9)	236.6	ND (9)	**61.6**	ND (140)	**158.4**	10,834.8	**1,599.3**	186.9	ND (9)	**263.4**	ND (42)	ND (6)	ND (23)	**237.1**
aoc 15-7-w	11/8/2015	**40.7**	ND (9)	**429.1**	ND (9)	**89.2**	ND (140)	**174.7**	12,854.2	**1,219.7**	216.0	ND (9)	**239.7**	ND (42)	ND (6)	ND (23)	**341.3**
aoc 16-1	11/9/2015	**24.0**	ND (9)	332.0	ND (9)	27.0	ND (140)	**232.7**	32500.7	**71.6**	306.9	ND (9)	**47.0**	**54.1**	ND (6)	ND (23)	**165.3**
aoc 16-1-e	11/10/2015	**28.2**	ND (9)	294.0	ND (9)	31.4	ND (140)	**250.3**	27,824.6	**55.5**	266.9	ND (9)	**42.0**	ND (42)	ND (6)	ND (23)	**92.4**
aoc 16-1-n	11/9/2015	**21.7**	ND (9)	237.9	ND (9)	25.7	ND (140)	**164.1**	20509.0	**60.6**	232.7	ND (9)	**43.1**	**65.5**	ND (6)	51.0	**110.7**
aoc 16-1-s	11/10/2015	**27.1**	ND (9)	216.2	ND (9)	25.0	ND (140)	**122.0**	36,784.2	**28.8**	394.4	ND (9)	**9.2**	ND (42)	ND (6)	ND (23)	**96.2**
aoc 16-1-w	11/10/2015	**30.8**	ND (9)	360.9	ND (9)	37.7	ND (140)	**212.5**	34,645.9	**54.4**	324.8	ND (9)	**49.9**	ND (42)	ND (6)	ND (23)	**124.3**
aoc 16-2	11/10/2015	**31.3**	ND (9)	184.2	ND (9)	30.7	ND (140)	**110.8**	19,707.9	**29.0**	241.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**98.3**
aoc 16-2-e	11/10/2015	**28.0**	ND (9)	148.7	ND (9)	34.6	ND (140)	**150.4**	27,551.4	**38.3**	291.9	ND (9)	**13.5**	ND (42)	ND (6)	ND (23)	**150.3**
aoc 16-2-n	11/10/2015	**24.2**	ND (9)	223.3	ND (9)	21.0	ND (140)	**109.7**	12,630.8	**33.1**	205.3	ND (9)	**7.8**	ND (42)	ND (6)	ND (23)	47.7
aoc 16-2-s	11/10/2015	**21.1**	ND (9)	242.7	ND (9)	27.0	ND (140)	**205.0**	22,364.2	**51.8**	268.2	ND (9)	**19.9**	ND (42)	ND (6)	ND (23)	**531.2**
aoc 16-2-w	11/10/2015	**33.7**	ND (9)	316.7	ND (9)	26.6	ND (140)	**108.9**	16,357.9	**85.1**	222.7	ND (9)	**20.1**	ND (42)	ND (6)	ND (23)	**219.6**
aoc 16-3	11/10/2015	**42.0**	ND (9)	388.2	ND (9)	23.8	ND (140)	**527.5**	43,628.6	**60.7**	255.8	ND (9)	**173.9**	ND (42)	ND (6)	ND (23)	**152.4**
aoc 16-3-e	11/10/2015	**37.3**	ND (9)	269.4	ND (9)	23.4	ND (140)	**421.5**	36,482.4	**44.0**	316.1	ND (9)	**118.7**	ND (42)	ND (6)	ND (23)	**117.8**
aoc 16-3-n	11/10/2015	**27.9**	ND (9)	250.1	ND (9)	**53.5**	ND (140)	**418.7**	**88,914.5**	**60.9**	**715.1**	ND (9)	**84.0**	**96.9**	ND (6)	ND (23)	**289.2**
aoc 16-3-s	11/10/2015	**33.5**	ND (9)	300.1	ND (9)	27.9	ND (140)	**362.2**	31,747.8	**52.4**	298.6	ND (9)	**75.3**	ND (42)	ND (6)	ND (23)	**495.9**
aoc 16-3-w	11/10/2015	**30.1**	ND (9)	345.4	ND (9)	20.1	ND (140)	**237.5**	18,020.0	**28.1**	233.5	ND (9)	**41.0**	ND (42)	ND (6)	ND (23)	**1,007.5**
aoc 16-4	11/10/2015	**31.3**	ND (9)	202.9	ND (9)	23.7	ND (140)	**83.1**	23,459.7	**32.4**	282.5	ND (9)	ND (7)	**50.0**	ND (6)	ND (23)	48.7
aoc 16-4-e	11/10/2015	**25.4**	ND (9)	168.8	ND (9)	20.6	ND (140)	**77.7**	19,497.1	**23.1**	301.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	35.7
aoc 16-4-n	11/10/2015	**39.4**	ND (9)	**412.5**	ND (9)	30.0	ND (140)	**256.0**	28,694.9	**144.7**	290.7	ND (9)	**48.5**	ND (42)	ND (6)	ND (23)	**277.7**
aoc 16-4-w	11/10/2015	**32.7**	ND (9)	372.8	ND (9)	23.8	ND (140)	**191.4**	19,181.0	**131.2**	232.0	ND (9)	**34.7**	ND (42)	ND (6)	ND (23)	**150.1**
aoc 18-1	11/17/2015	**23.9**	ND (9)	97.2	ND (9)	22.7	ND (140)	**87.5**	17,549.0	**17.0**	260.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	47.0
aoc 18-11	11/17/2015	**22.0**	ND (9)	123.6	ND (9)	18.5	ND (140)	**102.5**	17,759.2	**16.0**	279.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	35.7
aoc 18-11-e	11/17/2015	**22.5**	ND (9)	118.2	ND (9)	19.4	ND (140)	**91.1**	18,461.2	**15.8**	286.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	35.3
aoc 18-11-n	11/17/2015	**21.9**	ND (9)	86.9	ND (9)	29.9	ND (140)	**88.8**	21,201.6	**42.1**	288.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**70.2**
aoc 18-11-s	11/17/2015	**21.3**	ND (9)	115.5	ND (9)	20.2	ND (140)	**91.6**	18,788.9	**19.0**	272.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	42.1

Table B8-1
X-Ray Fluorescence Screening Results
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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

		Antimony	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Cobalt**	**Copper**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Vanadium**	**Zinc**
Screening Level Type		Ecoogical	Background	Background	Background	Background	Background	Background	Residential	Background	Background	Ecoogical	Background	Background	Background	Background	Background
Screening Level mg/kg		0.285	11	410	1.1	39.8	12.7	16.8	55,000	8.39	402	0.0125	1.37	27.3	1.47	52.2	58
Detection levels mg/kg		12	9	30	9	11	140	20	320	9	70	9	7	42	6	23	14
Sample ID	Date Analyzed																
aoc 18-11-w	11/17/2015	**20.3**	ND (9)	71.8	ND (9)	32.6	ND (140)	**88.3**	21,463.6	**36.6**	285.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**70.4**
aoc 18-1-e	11/17/2015	**16.6**	ND (9)	105.9	ND (9)	24.6	ND (140)	**91.9**	19,453.2	**16.1**	278.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	43.5
aoc 18-1-n	11/17/2015	**31.9**	ND (9)	171.8	ND (9)	24.2	ND (140)	**120.3**	19,063.5	**23.0**	248.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	53.4
aoc 18-1-s	11/17/2015	**27.4**	ND (9)	177.4	ND (9)	21.3	ND (140)	**128.1**	18,957.8	**23.9**	261.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	55.9
aoc 18-1-w	11/17/2015	**35.7**	ND (9)	169.3	ND (9)	26.3	ND (140)	**87.2**	17,479.6	**22.5**	255.8	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**58.6**
aoc 18-2	11/16/2015	**23.0**	ND (9)	125.8	ND (9)	28.7	ND (140)	**89.4**	19,696.2	**15.6**	252.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	54.9
aoc 18-2-e	11/16/2015	**17.8**	ND (9)	113.0	ND (9)	27.5	ND (140)	**92.7**	19,721.6	**16.8**	265.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	52.9
aoc 18-2-n	11/16/2015	**26.2**	ND (9)	163.4	ND (9)	26.8	ND (140)	**83.5**	16,344.1	**16.6**	236.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	44.0
aoc 18-2-s	11/16/2015	**22.4**	ND (9)	136.2	ND (9)	23.1	ND (140)	**86.5**	16,857.6	**15.9**	244.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	38.9
aoc 18-2-w	11/16/2015	**25.6**	ND (9)	134.8	ND (9)	26.6	ND (140)	**90.0**	16,793.6	**14.1**	248.8	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	38.8
aoc 18-3*	11/16/2015	**31.8**	ND (9)	169.6	ND (9)	21.7	ND (140)	**81.6**	14,716.5	**31.8**	246.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	40.9
aoc 18-3-e	11/16/2015	**28.4**	ND (9)	117.1	ND (9)	19.6	ND (140)	**79.1**	21,659.4	**23.4**	280.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	40.3
aoc 18-3-e-dupe	11/16/2015	**28.8**	ND (9)	126.1	ND (9)	20.2	ND (140)	**95.8**	21,974.7	**22.7**	291.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	41.4
aoc 18-3-n	11/16/2015	**28.5**	ND (9)	155.8	ND (9)	19.6	ND (140)	**85.4**	14,700.6	**27.2**	249.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	36.9
aoc 18-3-s	11/17/2015	**23.6**	ND (9)	115.5	ND (9)	19.6	ND (140)	**78.9**	17,572.3	**19.3**	260.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	40.7
aoc 18-3-w	11/17/2015	**24.0**	ND (9)	134.4	ND (9)	21.0	ND (140)	**88.5**	18,109.1	**13.7**	267.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	35.7
aoc 19-10	11/6/2015	**34.1**	ND (9)	278.9	ND (9)	**180.7**	ND (140)	**325.4**	24,306.3	**419.1**	283.5	ND (9)	**712.4**	ND (42)	ND (6)	ND (23)	**868.0**
aoc 19-10-e	11/6/2015	**18.7**	ND (9)	294.2	ND (9)	**102.9**	ND (140)	**293.1**	32,593.4	**694.3**	315.0	ND (9)	**1,225.0**	ND (42)	ND (6)	ND (23)	**1,330.3**
aoc 19-10-n	11/6/2015	**23.1**	ND (9)	138.2	ND (9)	**156.1**	ND (140)	**169.4**	17,841.9	**415.7**	233.7	ND (9)	**590.8**	ND (42)	ND (6)	ND (23)	**701.0**
aoc 19-10-s	11/6/2015	**36.3**	ND (9)	189.6	ND (9)	**244.5**	ND (140)	**142.4**	13,218.6	**705.5**	217.8	ND (9)	**297.1**	ND (42)	ND (6)	ND (23)	**362.1**
aoc 19-10-w	11/6/2015	**34.7**	ND (9)	259.3	ND (9)	**117.3**	ND (140)	**171.7**	17,169.8	**522.7**	240.2	ND (9)	**816.2**	ND (42)	ND (6)	ND (23)	**637.6**
aoc 19-6	11/6/2015	**31.1**	ND (9)	146.8	ND (9)	**94.1**	ND (140)	**137.4**	12,752.1	**287.3**	222.5	ND (9)	**37.7**	ND (42)	ND (6)	ND (23)	**1,254.1**
aoc 19-6-e	11/6/2015	**21.4**	ND (9)	94.3	ND (9)	**102.1**	ND (140)	**184.7**	9,417.8	**595.9**	195.4	ND (9)	**63.3**	ND (42)	ND (6)	ND (23)	**2,044.6**
aoc 19-6-n	11/6/2015	ND (12)	ND (9)	34.4	ND (9)	**253.0**	ND (140)	**633.5**	18,600.4	**5,599.3**	262.6	ND (9)	**40.7**	ND (42)	ND (6)	ND (23)	**1,614.9**
aoc 19-6-s	11/6/2015	**26.8**	ND (9)	178.2	ND (9)	34.6	ND (140)	**605.7**	48,335.5	**162.9**	**624.7**	ND (9)	**725.0**	ND (42)	ND (6)	ND (23)	**266.4**
aoc 19-6-w*	11/6/2015	**31.9**	ND (9)	137.6	ND (9)	**88.0**	ND (140)	**95.1**	9,176.3	**100.4**	195.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**201.8**
aoc 19-7	11/6/2015	ND (12)	ND (9)	74.4	ND (9)	**133.3**	ND (140)	**126.9**	18,326.1	**768.6**	246.6	ND (9)	**135.4**	ND (42)	ND (6)	ND (23)	**718.1**
aoc 19-7-e	11/6/2015	ND (12)	ND (9)	97.3	ND (9)	**254.1**	ND (140)	**123.4**	16,149.7	**445.3**	228.1	ND (9)	**85.9**	ND (42)	ND (6)	ND (23)	**543.4**
aoc 19-7-n	11/6/2015	**26.5**	ND (9)	180.3	ND (9)	38.9	ND (140)	**277.3**	30,375.9	**151.8**	371.7	ND (9)	**993.7**	ND (42)	ND (6)	ND (23)	**289.6**
aoc 19-7-s	11/6/2015	ND (12)	ND (9)	ND (30)	ND (9)	**84.7**	ND (140)	**128.1**	20,500.5	**651.8**	254.3	ND (9)	**49.0**	ND (42)	ND (6)	ND (23)	**321.7**
aoc 19-7-w	11/6/2015	**21.5**	ND (9)	271.9	ND (9)	**289.3**	ND (140)	**275.8**	14,556.3	**2,037.4**	214.9	ND (9)	**43.4**	ND (42)	ND (6)	ND (23)	**934.8**
aoc 19-8	11/7/2015	**21.9**	ND (9)	149.0	ND (9)	**205.7**	ND (140)	**153.2**	17,627.9	**294.3**	242.1	ND (9)	**1,100.7**	ND (42)	ND (6)	ND (23)	**403.5**
aoc 19-8-e	11/7/2015	**28.7**	ND (9)	236.3	ND (9)	**139.6**	ND (140)	**130.2**	17,847.2	**520.2**	236.6	ND (9)	**669.8**	**85.3**	ND (6)	ND (23)	**554.1**
aoc 19-8-n	11/7/2015	**20.6**	ND (9)	191.2	ND (9)	**157.7**	ND (140)	**172.4**	23,432.5	**371.7**	272.3	ND (9)	**588.8**	ND (42)	ND (6)	ND (23)	**511.6**
aoc 19-8-s	11/7/2015	**22.1**	ND (9)	204.8	ND (9)	**106.5**	ND (140)	**206.7**	25,246.9	**138.9**	257.2	ND (9)	**568.9**	ND (42)	ND (6)	ND (23)	**382.3**
aoc 19-8-w	11/7/2015	**28.1**	ND (9)	255.8	ND (9)	**424.7**	ND (140)	**213.3**	21,255.3	**371.4**	298.3	ND (9)	**96.6**	**61.7**	ND (6)	ND (23)	**1,120.7**
aoc 21-1	11/9/2015	**29.3**	ND (9)	149.2	ND (9)	22.3	ND (140)	**90.9**	17368.2	**16.9**	243.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	52.7
aoc 21-1-e*	11/9/2015	**24.0**	ND (9)	208.3	ND (9)	26.6	ND (140)	**114.3**	21235.2	**18.4**	280.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**60.6**
aoc 21-1-n*	11/9/2015	**34.2**	ND (9)	157.2	ND (9)	25.7	ND (140)	**79.3**	17957.3	**20.1**	237.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	36.6
aoc 21-1-s	11/9/2015	**26.6**	ND (9)	276.3	ND (9)	18.7	ND (140)	**145.1**	12368.6	**12.4**	231.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	29.9

Table B8-1
X-Ray Fluorescence Screening Results
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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

		Antimony	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Cobalt**	**Copper**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Vanadium**	**Zinc**
Screening Level Type		Ecoogical	Background	Background	Background	Background	Background	Background	Residential	Background	Background	Ecoogical	Background	Background	Background	Background	Background
Screening Level mg/kg		0.285	11	410	1.1	39.8	12.7	16.8	55,000	8.39	402	0.0125	1.37	27.3	1.47	52.2	58
Detection levels mg/kg		12	9	30	9	11	140	20	320	9	70	9	7	42	6	23	14
Sample ID	Date Analyzed																
aoc 21-1-w	11/9/2015	**29.3**	ND (9)	154.7	ND (9)	21.0	ND (140)	**84.8**	18118.4	**14.9**	282.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	28.3
aoc 22-1	11/8/2015	**30.5**	ND (9)	ND (30)	ND (9)	**41.0**	ND (140)	**116.4**	14,559.5	**59.1**	239.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**91.2**
aoc 22-1-e	11/8/2015	**38.1**	ND (9)	133.5	ND (9)	29.1	ND (140)	**87.4**	18,596.0	**30.9**	244.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**87.2**
aoc 22-1-n	11/8/2015	**30.1**	ND (9)	90.5	ND (9)	23.9	ND (140)	**92.3**	19,221.1	**30.7**	249.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**75.1**
aoc 22-1-s	11/8/2015	**33.3**	ND (9)	170.4	ND (9)	28.4	ND (140)	ND (20)	19,580.9	**31.5**	248.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**64.3**
aoc 22-1-w	11/8/2015	**21.7**	ND (9)	36.5	ND (9)	22.8	ND (140)	**83.9**	17,904.6	**30.4**	236.4	ND (9)	ND (7)	**50.8**	ND (6)	ND (23)	**64.5**
aoc 22-2	11/8/2015	**41.1**	ND (9)	186.3	ND (9)	21.5	ND (140)	**100.7**	16,298.1	**25.1**	242.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**72.5**
aoc 22-2-e	11/8/2015	**32.0**	ND (9)	57.1	ND (9)	22.3	ND (140)	**88.8**	8,435.7	**27.0**	192.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	41.8
aoc 22-2-n	11/8/2015	**21.8**	ND (9)	ND (30)	ND (9)	24.1	ND (140)	**83.4**	21,459.3	**30.1**	268.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**70.5**
aoc 22-2-s	11/8/2015	**40.5**	ND (9)	126.8	ND (9)	19.4	ND (140)	**90.4**	10,647.2	**24.0**	215.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	51.7
aoc 22-2-w	11/8/2015	**36.1**	ND (9)	157.6	ND (9)	25.5	ND (140)	**95.0**	26,532.7	**39.0**	297.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**91.7**
aoc 23-2	11/8/2015	**31.3**	ND (9)	142.1	ND (9)	25.1	ND (140)	**94.9**	23,033.2	**27.4**	267.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**83.9**
aoc 23-2-e	11/8/2015	**31.7**	ND (9)	149.4	ND (9)	32.2	ND (140)	**102.7**	25,093.0	**34.0**	278.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**162.2**
aoc 23-2-n*	11/8/2015	**39.8**	ND (9)	246.2	ND (9)	33.6	ND (140)	**201.0**	32,796.5	**63.2**	327.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**2,266.9**
aoc 23-2-s	11/8/2015	**35.4**	ND (9)	194.0	ND (9)	27.0	ND (140)	**132.8**	24,705.6	**51.9**	264.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**248.7**
aoc 23-2-w	11/8/2015	**42.7**	ND (9)	177.4	ND (9)	29.6	ND (140)	**90.3**	21,150.5	**47.7**	268.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**100.2**
aoc 23-3	11/8/2015	**32.5**	ND (9)	149.1	ND (9)	**51.9**	ND (140)	**116.5**	23,551.1	**168.9**	257.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**225.6**
aoc 23-3-e	11/8/2015	ND (12)	ND (9)	ND (30)	ND (9)	**47.8**	ND (140)	**107.7**	20,786.4	**76.5**	256.0	ND (9)	**7.1**	**179.5**	ND (6)	ND (23)	**109.5**
aoc 23-3-n	11/8/2015	**26.4**	ND (9)	169.0	ND (9)	21.5	ND (140)	**84.6**	20,567.3	**18.3**	274.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	39.0
aoc 23-3-s	11/8/2015	ND (12)	ND (9)	77.2	ND (9)	**59.1**	ND (140)	**97.4**	24,031.1	**98.6**	283.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**111.7**
aoc 23-3-w	11/8/2015	**27.6**	ND (9)	362.9	ND (9)	**79.5**	ND (140)	**177.1**	29,968.0	**560.7**	309.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**434.9**
aoc 24-1	11/11/2015	**17.0**	ND (9)	38.2	ND (9)	21.6	ND (140)	**86.5**	16,785.9	**15.7**	232.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**71.7**
aoc 24-1-e	11/11/2015	**20.1**	ND (9)	47.1	ND (9)	20.7	ND (140)	**79.9**	13,806.2	**11.7**	211.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	34.3
aoc 24-1-n	11/11/2015	**34.1**	ND (9)	159.6	ND (9)	25.4	ND (140)	**80.9**	12,109.1	**23.7**	196.8	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	55.7
aoc 24-1-s	11/11/2015	**31.3**	ND (9)	146.8	ND (9)	21.0	ND (140)	ND (20)	15,861.2	**15.2**	243.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	36.9
aoc 24-1-w	11/11/2015	**31.4**	ND (9)	119.4	ND (9)	23.5	ND (140)	**83.6**	16,634.7	**20.5**	232.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	49.2
aoc 24-2	11/11/2015	**31.3**	ND (9)	208.9	ND (9)	28.8	ND (140)	ND (20)	19,446.3	**19.1**	256.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	49.8
aoc 24-2-e	11/11/2015	**27.0**	ND (9)	154.5	ND (9)	26.4	ND (140)	**93.3**	18,813.4	**20.9**	264.2	ND (9)	ND (7)	**56.0**	ND (6)	ND (23)	**59.0**
aoc 24-2-n	11/11/2015	**25.2**	ND (9)	122.5	ND (9)	23.3	ND (140)	**83.4**	18,759.9	**14.9**	262.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**88.5**
aoc 24-2-s	11/11/2015	**26.0**	ND (9)	338.0	ND (9)	19.5	ND (140)	**77.4**	12,595.5	**14.2**	246.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	33.5
aoc 24-2-w	11/11/2015	**20.0**	ND (9)	74.2	ND (9)	27.9	ND (140)	**89.5**	18,703.3	**21.8**	271.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	53.1
aoc 26-1	11/16/2015	**28.9**	ND (9)	137.7	ND (9)	20.2	ND (140)	ND (20)	13,264.5	**18.8**	226.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	36.9
aoc 26-1-e	11/16/2015	**28.2**	ND (9)	169.2	ND (9)	21.2	ND (140)	**78.9**	18,033.8	**25.4**	270.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	49.0
aoc 26-1-n	11/16/2015	**24.0**	ND (9)	140.1	ND (9)	20.1	ND (140)	**78.6**	19,004.4	**21.7**	299.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**60.0**
aoc 26-1-s	11/16/2015	**32.6**	ND (9)	180.5	ND (9)	23.5	ND (140)	**82.1**	15,378.7	**21.4**	258.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	53.0
aoc 26-1-w	11/16/2015	**32.6**	ND (9)	152.9	ND (9)	24.2	ND (140)	**83.6**	14,091.3	**17.4**	229.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	57.8
aoc 26-2	11/12/2015	**23.4**	ND (9)	198.3	ND (9)	24.4	ND (140)	**95.2**	20,898.3	**17.6**	279.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**65.3**
aoc 26-2-e	11/12/2015	**23.2**	ND (9)	161.6	ND (9)	19.6	ND (140)	**88.2**	16,041.6	**17.5**	286.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	45.4
aoc 26-2-n	11/12/2015	**25.2**	ND (9)	171.9	ND (9)	27.6	ND (140)	**84.3**	21,443.0	**20.7**	302.2	ND (9)	ND (7)	**46.3**	ND (6)	ND (23)	**61.9**
aoc 26-2-s	11/12/2015	**22.2**	ND (9)	33.4	ND (9)	16.1	ND (140)	ND (20)	12,709.1	**15.1**	233.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	34.9

Table B8-1
X-Ray Fluorescence Screening Results
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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

		Antimony	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Cobalt**	**Copper**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Vanadium**	**Zinc**
Screening Level Type		Ecoogical	Background	Background	Background	Background	Background	Background	Residential	Background	Background	Ecoogical	Background	Background	Background	Background	Background
Screening Level mg/kg		0.285	11	410	1.1	39.8	12.7	16.8	55,000	8.39	402	0.0125	1.37	27.3	1.47	52.2	58
Detection levels mg/kg		12	9	30	9	11	140	20	320	9	70	9	7	42	6	23	14
Sample ID	Date Analyzed																
aoc 26-2-w	11/12/2015	**18.4**	ND (9)	50.3	ND (9)	21.6	ND (140)	**92.8**	14,319.5	**23.9**	247.8	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	53.2
aoc 26-3	11/12/2015	**16.3**	ND (9)	37.9	ND (9)	18.2	ND (140)	ND (20)	13,239.9	**14.5**	236.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	33.8
aoc 26-3-e	11/12/2015	**18.0**	ND (9)	98.7	ND (9)	17.4	ND (140)	**87.9**	16,091.5	**16.7**	280.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	35.1
aoc 26-3-n	11/12/2015	ND (12)	ND (9)	ND (30)	ND (9)	22.2	ND (140)	**96.0**	20,115.7	**22.7**	333.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**108.4**
aoc 26-3-s	11/12/2015	**28.3**	ND (9)	103.6	ND (9)	23.3	ND (140)	**85.6**	14,560.8	**23.4**	240.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	36.7
aoc 26-3-w	11/12/2015	**17.6**	ND (9)	ND (30)	ND (9)	21.9	ND (140)	**80.5**	16,329.8	**23.4**	237.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	47.7
aoc 26-4	11/12/2015	**28.6**	ND (9)	154.6	ND (9)	25.1	ND (140)	**81.8**	16,031.7	**18.4**	240.8	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	38.0
aoc 26-4-e	11/12/2015	**21.5**	ND (9)	249.1	ND (9)	21.6	ND (140)	**111.1**	20,531.1	**13.6**	350.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	43.0
aoc 26-4-s	11/12/2015	**25.8**	ND (9)	100.7	ND (9)	20.5	ND (140)	**79.9**	14,468.5	**18.6**	234.8	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	36.9
aoc 26-4-w	11/12/2015	**28.1**	ND (9)	150.4	ND (9)	26.3	ND (140)	**80.1**	14,803.1	**31.2**	246.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**67.5**
aoc 26-5	11/16/2015	**21.6**	ND (9)	157.2	ND (9)	33.0	ND (140)	**86.8**	21,144.0	**18.1**	303.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**58.7**
aoc 26-5-n	11/16/2015	**23.5**	ND (9)	154.0	ND (9)	25.9	ND (140)	**88.0**	21,287.2	**18.0**	291.3	ND (9)	ND (7)	**44.4**	ND (6)	ND (23)	**59.6**
aoc 26-5-s	11/16/2015	**13.0**	ND (9)	ND (30)	ND (9)	26.2	ND (140)	**97.1**	21,231.2	**18.4**	354.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**209.7**
aoc 26-5-w	11/16/2015	**29.8**	ND (9)	172.7	ND (9)	28.6	ND (140)	**82.3**	16,017.5	**15.3**	286.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**85.3**
aoc 27-10*	11/17/2015	**35.5**	ND (9)	130.4	ND (9)	19.1	ND (140)	ND (20)	12,469.9	**17.3**	206.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	32.1
aoc 27-11	11/17/2015	**26.0**	ND (9)	108.9	ND (9)	19.4	ND (140)	**79.7**	12,164.1	**14.1**	204.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	36.5
aoc 27-12	11/17/2015	**23.2**	ND (9)	52.2	ND (9)	16.1	ND (140)	ND (20)	10,730.4	**13.2**	206.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	51.5
aoc 27-13	11/17/2015	**22.8**	ND (9)	47.5	ND (9)	17.5	ND (140)	**77.2**	10,548.1	**12.7**	223.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	54.6
aoc 27-14	11/17/2015	**24.4**	ND (9)	129.6	ND (9)	25.8	ND (140)	**85.1**	23,246.1	**20.8**	292.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**69.9**
aoc 27-15	11/17/2015	**21.9**	ND (9)	83.7	ND (9)	28.0	ND (140)	**90.4**	23,019.1	**19.5**	297.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**62.4**
aoc 27-16	11/17/2015	**21.4**	ND (9)	61.1	ND (9)	26.1	ND (140)	**83.8**	19,438.9	**15.3**	266.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	43.6
aoc 27-17	11/17/2015	**26.4**	ND (9)	69.2	ND (9)	13.6	ND (140)	**76.0**	11,273.2	ND (9)	197.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	23.2
aoc 27-17-dupe	11/17/2015	**19.7**	ND (9)	82.2	ND (9)	16.4	ND (140)	ND (20)	11,339.9	ND (9)	203.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	23.6
aoc 27-18	11/18/2015	**28.6**	ND (9)	106.7	ND (9)	20.4	ND (140)	**78.4**	12,738.9	**12.4**	205.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	25.7
aoc 27-19	11/18/2015	**21.3**	ND (9)	ND (30)	ND (9)	18.2	ND (140)	ND (20)	11,807.8	**17.4**	213.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	44.1
aoc 27-20	11/18/2015	ND (12)	ND (9)	ND (30)	ND (9)	24.8	ND (140)	**91.0**	27,243.9	**25.4**	311.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**83.7**
aoc 27-21	11/18/2015	ND (12)	ND (9)	62.1	ND (9)	21.8	ND (140)	**87.3**	29,021.8	**15.8**	345.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**59.2**
aoc 27-22	11/18/2015	**19.1**	ND (9)	54.8	ND (9)	23.2	ND (140)	**85.8**	28,563.0	**14.7**	340.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	54.2
aoc 27-23	11/18/2015	**30.4**	ND (9)	150.8	ND (9)	23.8	ND (140)	**80.2**	20,073.6	**16.1**	283.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	56.8
aoc 27-24	11/18/2015	**27.0**	ND (9)	88.3	ND (9)	21.5	ND (140)	ND (20)	15,445.1	**13.6**	246.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	44.1
aoc 27-25	11/18/2015	**19.9**	ND (9)	58.5	ND (9)	18.7	ND (140)	**86.2**	14,600.5	**13.3**	209.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	35.5
aoc 27-26	11/18/2015	**22.9**	ND (9)	91.1	ND (9)	19.9	ND (140)	ND (20)	16,241.0	**20.8**	239.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	37.8
aoc 27-27	11/18/2015	**20.7**	ND (9)	ND (30)	ND (9)	25.6	ND (140)	**95.3**	22,686.7	**26.9**	296.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**69.4**
aoc 27-28	11/18/2015	**33.0**	ND (9)	89.4	ND (9)	19.9	ND (140)	**80.3**	15,340.5	**12.3**	255.8	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	34.7
aoc 27-29	11/18/2015	**24.5**	ND (9)	80.6	ND (9)	22.0	ND (140)	ND (20)	17,965.1	**15.7**	281.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	50.0
aoc 27-30	11/18/2015	**27.2**	ND (9)	170.1	ND (9)	16.7	ND (140)	ND (20)	14,886.5	**12.2**	220.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	32.9
aoc 27-31	11/18/2015	**24.8**	ND (9)	67.0	ND (9)	15.8	ND (140)	**80.8**	10,796.2	**11.6**	199.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	23.3
aoc 27-32	11/18/2015	**20.8**	ND (9)	55.3	ND (9)	16.6	ND (140)	**83.4**	10,669.1	**10.5**	208.8	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	26.3
aoc 27-33	11/18/2015	**12.6**	ND (9)	ND (30)	ND (9)	25.4	ND (140)	**90.2**	21,491.1	**22.1**	301.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**62.2**
aoc 27-34	11/18/2015	**20.2**	ND (9)	74.6	ND (9)	24.1	ND (140)	**90.6**	18,422.0	**17.3**	276.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	43.5

Table B8-1
X-Ray Fluorescence Screening Results
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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

		Antimony	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Cobalt**	**Copper**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Vanadium**	**Zinc**
Screening Level Type		Ecoogical	Background	Background	Background	Background	Background	Background	Residential	Background	Background	Ecoogical	Background	Background	Background	Background	Background
Screening Level mg/kg		0.285	11	410	1.1	39.8	12.7	16.8	55,000	8.39	402	0.0125	1.37	27.3	1.47	52.2	58
Detection levels mg/kg		12	9	30	9	11	140	20	320	9	70	9	7	42	6	23	14
Sample ID	Date Analyzed																
aoc 27-35	11/18/2015	**27.8**	ND (9)	103.9	ND (9)	19.0	ND (140)	**77.2**	12,244.1	**12.7**	210.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	27.9
aoc 27-36	11/18/2015	**22.8**	ND (9)	71.5	ND (9)	29.7	ND (140)	**86.6**	16,242.1	**13.1**	243.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	37.3
aoc 27-37	11/18/2015	**24.7**	ND (9)	93.5	ND (9)	23.4	ND (140)	**80.2**	15,056.5	**15.6**	252.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	37.8
aoc 27-38	11/18/2015	**21.6**	ND (9)	70.8	ND (9)	17.9	ND (140)	**76.2**	12,351.5	**15.9**	202.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	35.9
aoc 27-39	11/18/2015	**28.5**	ND (9)	ND (30)	ND (9)	17.0	ND (140)	**74.7**	7,617.9	**15.7**	169.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	17.9
aoc 27-40	11/18/2015	**23.7**	ND (9)	69.5	ND (9)	19.9	ND (140)	**81.8**	20,018.3	**14.4**	252.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	36.5
aoc 27-41	11/18/2015	**20.0**	ND (9)	57.0	ND (9)	20.3	ND (140)	**87.2**	19,873.3	**14.8**	266.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	40.2
aoc 27-42	11/18/2015	**24.1**	ND (9)	68.4	ND (9)	19.2	ND (140)	**78.8**	15,155.8	**13.7**	237.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	35.7
aoc 27-43	11/18/2015	**29.1**	ND (9)	87.0	ND (9)	20.5	ND (140)	**88.3**	14,263.3	**15.2**	231.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	34.6
aoc 27-44	11/18/2015	**29.1**	ND (9)	53.4	ND (9)	12.4	ND (140)	**85.2**	11,079.5	**11.4**	190.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	23.4
aoc 27-45	11/18/2015	**23.3**	ND (9)	65.8	ND (9)	19.1	ND (140)	**79.9**	13,057.7	**13.3**	222.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	27.8
aoc 27-46	11/18/2015	**17.9**	ND (9)	30.8	ND (9)	22.0	ND (140)	**81.7**	16,948.1	**11.8**	249.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	38.5
aoc 27-47	11/18/2015	**23.7**	ND (9)	94.7	ND (9)	17.7	ND (140)	**80.5**	14,960.0	**13.8**	232.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	31.4
aoc 27-48	11/18/2015	**21.2**	ND (9)	49.9	ND (9)	20.9	ND (140)	**87.4**	14,555.3	**13.9**	234.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	36.1
aoc 27-49	11/18/2015	**17.4**	ND (9)	ND (30)	ND (9)	17.9	ND (140)	ND (20)	12,670.6	**21.6**	197.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	27.2
aoc 27-9	11/17/2015	**31.5**	ND (9)	196.1	ND (9)	30.6	ND (140)	**146.2**	24,959.1	**35.3**	310.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**97.5**
aoc 4-xrf-07	11/19/2015	**27.5**	ND (9)	143.0	ND (9)	17.4	ND (140)	**88.6**	22,997.4	**17.5**	308.9	ND (9)	ND (7)	**74.8**	ND (6)	ND (23)	**62.0**
aoc 5-1	11/9/2015	**22.6**	ND (9)	120.0	ND (9)	**63.5**	ND (140)	**92.8**	14127.3	**36.3**	225.8	ND (9)	**65.5**	**45.3**	ND (6)	ND (23)	**176.2**
aoc 5-1-e*	11/9/2015	**31.4**	ND (9)	102.8	ND (9)	**60.2**	ND (140)	**83.2**	12341.7	**30.9**	212.4	ND (9)	**19.3**	ND (42)	ND (6)	ND (23)	**122.0**
aoc 5-1-n	11/9/2015	**30.9**	ND (9)	139.9	ND (9)	**49.2**	ND (140)	ND (20)	10874.2	**19.1**	201.0	ND (9)	**11.0**	ND (42)	ND (6)	ND (23)	**58.8**
aoc 5-1-s	11/9/2015	**25.0**	ND (9)	110.7	ND (9)	**65.5**	ND (140)	**343.0**	22614.7	**21.4**	330.2	ND (9)	**10.4**	ND (42)	ND (6)	ND (23)	**851.8**
aoc 5-1-w	11/9/2015	**30.5**	ND (9)	153.0	ND (9)	32.6	ND (140)	**124.3**	15747.7	**16.3**	215.9	ND (9)	**22.0**	ND (42)	ND (6)	ND (23)	**201.0**
aoc 5-3	11/9/2015	**33.3**	ND (9)	181.0	ND (9)	**44.3**	ND (140)	**380.4**	22083.7	**27.7**	285.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**1627.0**
aoc 5-3-e	11/9/2015	**29.6**	ND (9)	149.0	ND (9)	**63.3**	ND (140)	**678.2**	23465.3	**28.8**	268.6	ND (9)	**8.7**	**45.2**	ND (6)	ND (23)	**1927.9**
aoc 5-3-n	11/9/2015	**25.1**	ND (9)	157.4	ND (9)	**46.5**	ND (140)	**770.8**	25525.2	**24.7**	291.1	ND (9)	**11.3**	**54.3**	ND (6)	ND (23)	**1357.0**
aoc 5-3-s	11/9/2015	**31.0**	ND (9)	134.2	ND (9)	**72.9**	ND (140)	**416.8**	26791.1	**21.2**	284.5	ND (9)	ND (7)	**104.8**	ND (6)	ND (23)	**292.2**
aoc 5-3-w	11/9/2015	**20.0**	ND (9)	80.3	ND (9)	23.6	ND (140)	**251.7**	21357.2	**21.6**	285.7	ND (9)	**9.2**	**68.5**	ND (6)	26.9	**372.3**
aoc 5-4	11/9/2015	**24.3**	ND (9)	193.8	ND (9)	**121.1**	ND (140)	**114.6**	14987.6	**84.9**	211.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**871.4**
aoc 5-4-e	11/9/2015	**30.9**	ND (9)	139.9	ND (9)	**49.2**	ND (140)	ND (20)	10874.2	**19.1**	201.0	ND (9)	**11.0**	ND (42)	ND (6)	ND (23)	**58.8**
aoc 5-4-n	11/9/2015	**25.9**	ND (9)	129.4	ND (9)	**53.3**	ND (140)	**199.6**	16538.0	**40.7**	247.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**439.5**
aoc 5-4-s	11/9/2015	**27.9**	ND (9)	183.7	ND (9)	**81.2**	ND (140)	**635.4**	22100.6	**43.8**	251.1	ND (9)	**15.9**	ND (42)	ND (6)	ND (23)	**950.2**
aoc 5-4-w	11/9/2015	**31.0**	ND (9)	142.3	ND (9)	**61.4**	ND (140)	**148.4**	15604.1	**41.2**	261.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**268.1**
aoc 5-5	11/9/2015	**17.1**	ND (9)	110.2	ND (9)	**51.0**	ND (140)	**132.6**	16658.0	**26.5**	288.8	ND (9)	**27.8**	ND (42)	ND (6)	ND (23)	**408.6**
aoc 5-5-n	11/9/2015	**30.6**	ND (9)	83.9	ND (9)	**48.2**	ND (140)	**89.3**	9911.5	**23.2**	183.6	ND (9)	**17.0**	ND (42)	ND (6)	ND (23)	**139.7**
aoc 5-5-s	11/9/2015	**25.3**	ND (9)	195.1	ND (9)	**99.0**	ND (140)	**245.8**	25534.3	**28.3**	283.6	ND (9)	**8.2**	**61.5**	ND (6)	ND (23)	**957.2**
aoc 5-5-w	11/9/2015	**28.2**	ND (9)	180.0	ND (9)	**113.6**	ND (140)	**110.7**	10772.1	**78.8**	215.2	ND (9)	**80.4**	ND (42)	ND (6)	ND (23)	**283.6**
aoc 6-1	11/5/2015	ND (12)	ND (9)	135.5	ND (9)	29.1	ND (140)	**345.8**	18,697.4	**20.6**	260.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**449.2**
aoc 6-1-e	11/5/2015	ND (12)	ND (9)	65.9	ND (9)	**45.8**	ND (140)	**474.1**	37,318.7	**34.1**	371.3	ND (9)	**138.4**	ND (42)	ND (6)	ND (23)	**528.5**
aoc 6-1-n	11/5/2015	ND (12)	ND (9)	ND (30)	ND (9)	**51.9**	ND (140)	**343.1**	22,064.6	**28.7**	255.7	ND (9)	**9.1**	ND (42)	ND (6)	ND (23)	**702.6**
aoc 6-1-s	11/5/2015	ND (12)	ND (9)	ND (30)	ND (9)	36.8	ND (140)	**207.6**	23,343.7	**23.6**	258.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**212.9**

Table B8-1
X-Ray Fluorescence Screening Results
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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

		Antimony	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Cobalt**	**Copper**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Vanadium**	**Zinc**
Screening Level Type		Ecoogical	Background	Background	Background	Background	Background	Background	Residential	Background	Background	Ecoogical	Background	Background	Background	Background	Background
Screening Level mg/kg		0.285	11	410	1.1	39.8	12.7	16.8	55,000	8.39	402	0.0125	1.37	27.3	1.47	52.2	58
Detection levels mg/kg		12	9	30	9	11	140	20	320	9	70	9	7	42	6	23	14
Sample ID	Date Analyzed																
aoc 6-1-w	11/5/2015	**23.3**	ND (9)	193.1	ND (9)	37.8	ND (140)	**460.1**	24,162.0	**22.4**	321.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**652.4**
aoc 6-2	11/6/2015	ND (12)	ND (9)	38.4	ND (9)	**45.4**	ND (140)	**106.2**	12,417.1	**20.5**	206.1	ND (9)	**13.6**	ND (42)	ND (6)	ND (23)	**177.5**
aoc 6-2-e	11/6/2015	**20.8**	ND (9)	ND (30)	ND (9)	**52.4**	ND (140)	**106.6**	18,489.5	**24.4**	234.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**192.3**
aoc 6-2-n	11/6/2015	ND (12)	ND (9)	ND (30)	ND (9)	**46.2**	ND (140)	**252.6**	14,155.0	**19.5**	321.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**149.5**
aoc 6-2-s	11/6/2015	ND (12)	ND (9)	35.1	ND (9)	38.6	ND (140)	**81.6**	12,603.3	**26.4**	208.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**98.0**
aoc 6-2-w	11/6/2015	**24.9**	ND (9)	134.4	ND (9)	**56.4**	ND (140)	**190.0**	13,040.3	**21.4**	228.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**324.2**
aoc 6-3	11/5/2015	**20.2**	ND (9)	158.0	ND (9)	26.0	ND (140)	**102.0**	14,763.1	**21.9**	251.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**91.3**
aoc 6-3-n	11/5/2015	**28.8**	ND (9)	93.5	ND (9)	32.3	ND (140)	**112.5**	19,911.9	**41.3**	266.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**116.9**
aoc 6-3-s*	11/5/2015	ND (12)	ND (9)	ND (30)	ND (9)	23.0	ND (140)	**88.4**	15,658.8	**22.6**	238.1	ND (9)	**19.8**	ND (42)	ND (6)	ND (23)	**82.6**
aoc 6-3-w	11/5/2015	**21.4**	ND (9)	100.1	ND (9)	27.6	ND (140)	**96.4**	13,503.4	**17.7**	210.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**63.9**
aoc 6-4	11/5/2015	ND (12)	ND (9)	ND (30)	ND (9)	**43.7**	ND (140)	**105.1**	13,082.5	**23.1**	207.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**89.6**
aoc 6-4-n	11/6/2015	**23.6**	ND (9)	98.6	ND (9)	**46.5**	ND (140)	**84.6**	12,488.0	**19.6**	215.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**69.5**
aoc 6-4-s	11/6/2015	ND (12)	ND (9)	35.5	ND (9)	**60.1**	ND (140)	**157.5**	18,426.5	**46.7**	246.9	ND (9)	**34.9**	ND (42)	ND (6)	ND (23)	**121.3**
aoc 6-4-w	11/6/2015	**54.8**	**11.6**	**454.3**	ND (9)	33.0	ND (140)	**884.8**	**80,744.3**	**21.5**	**648.7**	ND (9)	**123.5**	ND (42)	ND (6)	ND (23)	**450.4**
aoc 6-5*	11/6/2015	ND (12)	ND (9)	ND (30)	ND (9)	27.9	ND (140)	**96.6**	13,971.6	**31.5**	241.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**67.9**
aoc 6-5-e	11/6/2015	ND (12)	ND (9)	38.4	ND (9)	22.6	ND (140)	**130.9**	12,148.6	**12.6**	204.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	37.0
aoc 6-5-n	11/6/2015	**20.1**	ND (9)	ND (30)	ND (9)	22.0	ND (140)	**88.3**	13,273.6	**17.6**	216.8	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**61.3**
aoc 6-5-s	11/6/2015	**23.8**	ND (9)	64.7	ND (9)	28.8	ND (140)	**99.2**	15,528.3	**15.4**	228.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	56.9
aoc 6-5-w	11/6/2015	ND (12)	ND (9)	47.2	ND (9)	23.8	ND (140)	**113.9**	15,232.0	**20.8**	224.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**81.9**
aoc 6-7	11/6/2015	**26.4**	ND (9)	147.6	ND (9)	**86.6**	ND (140)	**181.3**	23,722.8	**24.8**	293.4	ND (9)	**18.6**	ND (42)	ND (6)	ND (23)	**353.2**
aoc 6-7-e	11/6/2015	**23.9**	ND (9)	97.6	ND (9)	**67.4**	ND (140)	**279.8**	26,541.7	**22.5**	321.8	ND (9)	**26.8**	ND (42)	ND (6)	ND (23)	**813.9**
aoc 6-7-n	11/6/2015	ND (12)	ND (9)	164.0	ND (9)	**75.5**	ND (140)	**171.1**	26,832.4	**27.3**	309.7	ND (9)	**17.4**	**66.9**	ND (6)	ND (23)	**1,105.4**
aoc 6-7-w	11/6/2015	ND (12)	ND (9)	ND (30)	ND (9)	37.7	ND (140)	**141.3**	17,184.7	**27.8**	253.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**242.5**
aoc 7-1	11/5/2015	ND (12)	ND (9)	232.6	ND (9)	22.2	ND (140)	**86.5**	22,391.7	**14.1**	287.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**59.0**
aoc 7-1-e	11/5/2015	**20.8**	ND (9)	218.1	ND (9)	28.7	ND (140)	**110.0**	32,162.3	**13.5**	361.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**65.3**
aoc 7-1-n	11/5/2015	ND (12)	ND (9)	162.6	ND (9)	15.4	ND (140)	ND (20)	13,496.0	**15.3**	240.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	35.1
aoc 7-1-s	11/5/2015	ND (12)	ND (9)	88.9	ND (9)	24.2	ND (140)	**81.6**	16,878.5	**26.7**	282.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**110.6**
aoc 7-1-w	11/5/2015	ND (12)	ND (9)	108.8	ND (9)	31.1	ND (140)	**92.3**	33,958.6	**18.2**	352.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**69.8**
aoc 7-2	11/5/2015	ND (12)	ND (9)	70.1	ND (9)	24.1	ND (140)	ND (20)	17,698.1	**14.1**	248.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	46.2
aoc 7-2-e*	11/5/2015	ND (12)	ND (9)	ND (30)	ND (9)	31.4	ND (140)	**91.1**	28,847.8	**11.8**	335.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**59.4**
aoc 7-2-n	11/5/2015	ND (12)	ND (9)	113.1	ND (9)	**41.9**	ND (140)	**98.4**	14,978.8	**57.0**	231.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**58.5**
aoc 7-2-s	11/5/2015	ND (12)	ND (9)	ND (30)	ND (9)	28.5	ND (140)	**87.8**	23,346.0	**13.9**	301.9	ND (9)	ND (7)	**73.8**	ND (6)	ND (23)	54.9
aoc 7-2-w	11/5/2015	ND (12)	ND (9)	ND (30)	ND (9)	24.6	ND (140)	**83.6**	18,868.3	**21.3**	264.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**72.8**
aoc 7-5	11/5/2015	ND (12)	ND (9)	127.0	ND (9)	20.9	ND (140)	**87.7**	27,154.7	**18.0**	299.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**90.1**
aoc 7-5-e	11/5/2015	**20.6**	ND (9)	135.0	ND (9)	24.1	ND (140)	**124.0**	20,234.8	**16.7**	240.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**67.7**
aoc 7-5-n	11/5/2015	**23.3**	ND (9)	140.5	ND (9)	35.7	ND (140)	**97.1**	27,751.0	**33.1**	304.8	ND (9)	ND (7)	**75.2**	ND (6)	ND (23)	**123.9**
aoc 7-5-s	11/5/2015	**25.4**	ND (9)	271.9	ND (9)	24.8	ND (140)	**85.3**	28,888.2	**13.9**	293.8	ND (9)	ND (7)	**48.4**	ND (6)	ND (23)	**81.7**
aoc 7-5-s	11/6/2015	ND (12)	ND (9)	ND (30)	ND (9)	29.7	ND (140)	**113.0**	15,499.1	**26.1**	221.1	ND (9)	**30.1**	ND (42)	ND (6)	ND (23)	**108.9**
aoc 7-5-w	11/5/2015	**22.6**	ND (9)	43.0	ND (9)	26.1	ND (140)	**91.5**	24,789.0	**82.3**	291.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**220.3**
aoc 8-1	11/6/2015	**22.2**	ND (9)	90.4	ND (9)	36.4	ND (140)	**83.0**	21,310.7	**28.6**	234.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**229.4**

Table B8-1
X-Ray Fluorescence Screening Results
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

		Antimony	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Cobalt**	**Copper**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Vanadium**	**Zinc**
Screening Level Type		Ecoogical	Background	Background	Background	Background	Background	Background	Residential	Background	Background	Ecoogical	Background	Background	Background	Background	Background
Screening Level mg/kg		0.285	11	410	1.1	39.8	12.7	16.8	55,000	8.39	402	0.0125	1.37	27.3	1.47	52.2	58
Detection levels mg/kg		12	9	30	9	11	140	20	320	9	70	9	7	42	6	23	14
Sample ID	Date Analyzed																
aoc 8-1-e	11/6/2015	ND (12)	ND (9)	ND (30)	ND (9)	36.0	ND (140)	**86.7**	23,770.9	**15.2**	272.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**73.9**
aoc 8-1-s	11/6/2015	**24.5**	ND (9)	142.5	ND (9)	25.5	ND (140)	**86.0**	21,493.6	**19.0**	282.4	ND (9)	ND (7)	**58.1**	ND (6)	ND (23)	**99.1**
aoc 8-1-w	11/6/2015	**22.2**	ND (9)	51.2	ND (9)	24.5	ND (140)	**86.3**	20,341.9	**14.6**	251.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**64.5**
swmu 11-1	11/5/2015	ND (12)	ND (9)	50.5	ND (9)	**53.6**	ND (140)	**265.1**	16,201.9	**38.1**	277.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**196.4**
swmu 11-5	11/5/2015	**22.8**	ND (9)	108.1	ND (9)	37.2	ND (140)	**89.6**	15,659.3	**17.3**	230.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**114.5**
swmu 11-5-e	11/5/2015	**27.1**	ND (9)	147.7	ND (9)	**43.5**	ND (140)	**236.9**	19,206.0	**25.9**	253.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**395.7**
swmu 11-5-n	11/5/2015	ND (12)	ND (9)	ND (30)	ND (9)	**56.5**	ND (140)	**96.6**	15,051.2	**22.7**	264.2	ND (9)	ND (7)	**44.3**	ND (6)	ND (23)	**201.2**
swmu 11-5-s	11/5/2015	ND (12)	ND (9)	ND (30)	ND (9)	33.4	ND (140)	**93.2**	12,879.7	**16.8**	221.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**109.5**
swmu 11-5-w	11/5/2015	**27.3**	ND (9)	88.8	ND (9)	**62.2**	ND (140)	**93.0**	16,101.4	**19.8**	237.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**171.5**
swmu 5-1	11/17/2015	**21.1**	ND (9)	67.0	ND (9)	20.4	ND (140)	**86.9**	15,977.1	**15.6**	234.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	54.3
swmu 5-1-e	11/17/2015	**20.3**	ND (9)	85.0	ND (9)	24.6	ND (140)	**84.9**	17,682.4	**22.0**	256.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	41.4
swmu 5-1-n	11/17/2015	**19.9**	ND (9)	109.2	ND (9)	19.3	ND (140)	**82.3**	16,006.8	**18.7**	241.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	56.1
swmu 5-1-s	11/17/2015	**16.9**	ND (9)	51.8	ND (9)	22.3	ND (140)	**81.7**	17,706.5	**19.2**	251.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	47.8
swmu 5-1-w	11/17/2015	**19.5**	ND (9)	126.8	ND (9)	22.4	ND (140)	**92.4**	19,742.7	**18.6**	264.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	51.4
swmu 5-2	11/17/2015	**22.6**	ND (9)	77.5	ND (9)	19.4	ND (140)	**91.0**	15,831.1	**15.6**	246.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	44.7
swmu 5-2-e	11/17/2015	**31.0**	ND (9)	141.0	ND (9)	25.4	ND (140)	**88.8**	19,889.7	**22.5**	274.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**72.9**
swmu 5-2-s	11/17/2015	**28.5**	ND (9)	130.7	ND (9)	21.0	ND (140)	**78.3**	13,917.1	**13.8**	227.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	54.5
swmu 5-2-w	11/17/2015	**30.7**	ND (9)	143.5	ND (9)	25.0	ND (140)	**87.1**	19,308.5	**19.5**	275.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**70.8**
xrf-1	11/4/2015	ND (12)	ND (9)	ND (30)	ND (9)	28.0	ND (140)	**92.4**	21,153.6	**69.4**	296.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**234.4**
xrf-10	11/4/2015	**25.0**	ND (9)	163.8	ND (9)	31.1	ND (140)	**106.3**	18,784.8	**35.2**	257.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**138.6**
xrf-11	11/4/2015	ND (12)	ND (9)	74.1	ND (9)	24.9	ND (140)	**87.9**	15,263.0	**26.7**	264.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**73.9**
xrf-13	11/4/2015	ND (12)	ND (9)	ND (30)	ND (9)	18.0	ND (140)	ND (20)	11,920.6	**16.0**	202.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	34.9
xrf-14	11/4/2015	ND (12)	ND (9)	93.4	ND (9)	24.4	ND (140)	**85.5**	18,566.5	**21.7**	257.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**417.2**
xrf-15	11/4/2015	ND (12)	ND (9)	183.4	ND (9)	19.8	ND (140)	**76.7**	15,319.4	**22.5**	231.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**71.2**
xrf-16	11/18/2015	**27.1**	ND (9)	228.4	ND (9)	26.4	ND (140)	**102.4**	43,216.7	**21.2**	**761.1**	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**141.6**
xrf-17	11/4/2015	ND (12)	ND (9)	115.6	ND (9)	30.3	ND (140)	**88.5**	16,013.9	**28.6**	245.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**493.0**
xrf-18	11/4/2015	ND (12)	ND (9)	148.3	ND (9)	31.7	ND (140)	**84.1**	17,430.1	**19.5**	257.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**63.5**
xrf-19	11/4/2015	**26.2**	ND (9)	149.1	ND (9)	34.5	ND (140)	**79.5**	20,377.0	**33.7**	233.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**310.0**
xrf-2	11/4/2015	**23.4**	ND (9)	ND (30)	ND (9)	17.0	ND (140)	**78.3**	10,240.6	**22.7**	187.6	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**92.0**
xrf-20	11/4/2015	ND (12)	ND (9)	60.4	ND (9)	19.6	ND (140)	ND (20)	15,842.0	**16.0**	240.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**425.2**
xrf-21	11/4/2015	ND (12)	ND (9)	ND (30)	ND (9)	24.1	ND (140)	**84.6**	20,869.1	**15.8**	276.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	44.5
xrf-22	11/4/2015	ND (12)	ND (9)	73.9	ND (9)	31.8	ND (140)	**87.3**	29,047.8	**19.7**	326.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**132.0**
xrf-23	11/18/2015	**16.9**	ND (9)	94.6	ND (9)	18.4	ND (140)	**86.1**	16,464.1	**13.7**	241.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	41.8
xrf-24	11/18/2015	**23.1**	ND (9)	75.3	ND (9)	38.9	ND (140)	**100.0**	17,661.9	**27.9**	249.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**92.8**
xrf-24-dupe	11/18/2015	**19.1**	ND (9)	79.9	ND (9)	36.2	ND (140)	**93.4**	17,455.0	**29.9**	251.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**92.2**
xrf-25	11/4/2015	ND (12)	ND (9)	ND (30)	ND (9)	39.5	ND (140)	**84.2**	13,127.5	**38.3**	206.3	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**116.9**
xrf-26	11/4/2015	ND (12)	ND (9)	ND (30)	ND (9)	**69.6**	ND (140)	**88.5**	19,609.3	**76.2**	239.8	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**166.0**
xrf-27	11/4/2015	ND (12)	ND (9)	ND (30)	ND (9)	33.1	ND (140)	**333.8**	26,594.8	**74.5**	282.5	ND (9)	**34.8**	ND (42)	ND (6)	ND (23)	**931.7**
xrf-28	11/4/2015	ND (12)	ND (9)	ND (30)	ND (9)	**91.8**	ND (140)	**120.5**	17,667.0	**55.6**	232.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**234.1**
xrf-29	11/4/2015	ND (12)	ND (9)	ND (30)	ND (9)	**64.6**	ND (140)	**84.6**	18,224.8	**49.3**	198.1	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**165.6**

Table B8-1
X-Ray Fluorescence Screening Results
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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

		Antimony	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Cobalt**	**Copper**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Vanadium**	**Zinc**
Screening Level Type		Ecoogical	Background	Background	Background	Background	Background	Background	Residential	Background	Background	Ecoogical	Background	Background	Background	Background	Background
Screening Level mg/kg		0.285	11	410	1.1	39.8	12.7	16.8	55,000	8.39	402	0.0125	1.37	27.3	1.47	52.2	58
Detection levels mg/kg		12	9	30	9	11	140	20	320	9	70	9	7	42	6	23	14
Sample ID	Date Analyzed																
xrf-3	11/4/2015	ND (12)	ND (9)	ND (30)	ND (9)	ND (11)	ND (140)	**82.9**	10,467.3	**50.7**	248.2	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**150.5**
xrf-30	11/4/2015	ND (12)	ND (9)	ND (30)	ND (9)	25.5	ND (140)	**84.5**	12,470.1	**31.9**	211.8	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**82.4**
xrf-31	11/4/2015	ND (12)	ND (9)	ND (30)	ND (9)	17.7	ND (140)	ND (20)	8,068.2	**14.4**	185.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	35.5
xrf-32	11/4/2015	**24.3**	ND (9)	50.5	ND (9)	19.1	ND (140)	ND (20)	11,150.3	**21.1**	206.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**130.7**
xrf-33	11/4/2015	ND (12)	ND (9)	ND (30)	ND (9)	21.1	ND (140)	ND (20)	8,877.1	**9.6**	182.0	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**87.5**
xrf-34	11/4/2015	ND (12)	ND (9)	187.8	ND (9)	38.5	ND (140)	**100.0**	20,102.8	**67.1**	324.9	ND (9)	**850.9**	ND (42)	ND (6)	ND (23)	**98.5**
xrf-35	11/5/2015	**25.1**	ND (9)	159.8	ND (9)	**73.3**	ND (140)	**243.0**	16,985.7	**45.2**	210.2	ND (9)	**13.3**	**43.8**	ND (6)	ND (23)	**314.6**
xrf-36*	11/5/2015	**24.0**	ND (9)	121.7	ND (9)	28.5	ND (140)	**91.0**	20,765.3	**10.0**	262.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**101.8**
xrf-37	11/5/2015	ND (12)	ND (9)	34.6	ND (9)	**92.1**	ND (140)	**515.4**	20,193.9	**76.0**	258.5	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**553.8**
xrf-38	11/5/2015	ND (12)	ND (9)	ND (30)	ND (9)	**46.1**	ND (140)	**102.5**	15,471.5	**23.4**	235.4	ND (9)	**26.8**	ND (42)	ND (6)	ND (23)	**230.2**
xrf-4	11/4/2015	**26.6**	ND (9)	68.9	ND (9)	ND (11)	ND (140)	**88.3**	13,230.1	**69.5**	204.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**286.1**
xrf-5*	11/18/2015	**20.8**	ND (9)	ND (30)	ND (9)	32.7	ND (140)	**81.9**	13,923.0	**38.5**	230.7	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**151.9**
xrf-6	11/4/2015	ND (12)	ND (9)	ND (30)	ND (9)	37.7	ND (140)	**97.9**	11,679.8	**34.2**	190.2	ND (9)	**9.7**	ND (42)	ND (6)	ND (23)	**339.3**
xrf-7 RE_RUN	11/4/2015	**21.9**	ND (9)	185.6	ND (9)	33.9	ND (140)	**89.9**	16,598.6	**15.3**	226.9	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**93.0**
xrf-8 rerun	11/4/2015	**25.7**	ND (9)	111.5	ND (9)	31.4	ND (140)	**79.6**	13,681.5	**19.8**	237.4	ND (9)	ND (7)	ND (42)	ND (6)	ND (23)	**100.9**
xrf-9	11/4/2015	**22.4**	ND (9)	142.5	ND (9)	32.2	ND (140)	**141.3**	17,884.2	**21.1**	229.3	ND (9)	**34.4**	ND (42)	ND (6)	ND (23)	**139.6**

XRF results are considered screening results and should be considered semi-quantitative.
* sample results are based on the average of two 3 minute runs instead of three 3 minute runs.
Detection limits are estimated based on the uncertainty observed from the sample analysis.
Bold result values exceed the screening level

N

0 65 130 260 Feet

LEGEND

- XRF Sample Location
- Potential Burning Related Location
- Area of Concern
- Solid Waste Management Unit

AOC 30

AOC14-XRF-10
AOC14-XRF-08
AOC14-XRF-06
AOC14-XRF-01
AOC 14
AOC14-XRF-04
AOC14-XRF-05
AOC14-XRF-03
AOC14-XRF-02

AOC1-BCW21
AOC1-BCW25
AOC 1
AOC1-BCW19
AOC1-BCW13
500
510
520

AOC 27
AOC27-11
AOC27-16
AOC27-10
AOC27-12
AOC27-9
AOC27-17
AOC27-15
AOC27-18
AOC27-13
AOC27-19
AOC27-14
AOC27-23
AOC27-24
AOC27-20
AOC27-25
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AOC27-22
AOC27-29
AOC27-31
AOC27-27
AOC27-36
AOC27-37
AOC27-33
AOC27-39
AOC27-34
AOC27-38
AOC27-35
AOC27-41
AOC27-44
AOC27-40
AOC27-43
AOC27-45
AOC27-46
AOC27-49
AOC27-42
AOC27-48
AOC27-47

AOC 11a
AOC 11c
AOC 11e
AOC 11d
AOC 12b
AOC 12c
AOC 11f

XRF-13
XRF-11
XRF-14
XRF-10
XRF-15
AOC 31
AOC6-1
XRF-9
SWMU 11N
XRF-8
AOC13-30
XRF-38
XRF-7
AOC6-7
SWMU11-5
AOC6-2
SWMU 11N
AOC13-19
AOC6-4
AOC 6
XRF-6
AOC13-31
AOC6-3
AOC6-5
XRF-5
XRF-4
XRF-3
XRF-2
XRF-1

AOC 28d
AOC 1

AOC13-20
AOC 24
AOC24-1
AOC24-2
AOC13-21
AOC13-22

AOC 19
XRF-34
AOC19-6
AOC19-10
AOC19-7
XRF-31
AOC 25
AOC19-8
XRF-32
XRF-33
AOC 32

XRF-16
AOC13-23
XRF-17
AOC13-24
SWMU 1
AOC16-1
AOC16-4
AOC 16
AOC26-5
AOC16-3
AOC16-2
AOC13-9
AOC 15
AOC15-1
XRF-30
XRF-18
AOC13-25
AOC26-2
AOC15-5
XRF-29
AOC18-11
SWMU 6
AOC26-1
AOC 26
AOC26-3
AOC15-6
SWMU 9
SWMU 5E
AOC26-4
AOC15-4
AOC15-3
AOC13-26
Unit 4.5
AOC18-1
AOC15-2
XRF-28
SWMU5-1
AOC13-13
AOC15-7
Unit 4.4
SWMU5-2
XRF-19
SWMU 5W
AOC 33
AOC13-27
AOC5-5
XRF-27
Unit 4.3
AOC 21
AOC 25
AOC5-1
XRF-36
AOC21-1
AOC18-3
AOC18-2
SWMU 11S
AOC 17
XRF-26
AOC13-29
AOC 5
XRF-35
XRF-25
AOC5-4
SWMU 11S
AOC 10a
AOC13-28
AOC5-3
SWMU11-1
AOC22-2
XRF-37
AOC23-2
AOC 22
AOC 9
AOC22-1
XRF-20
AOC 23
AOC23-3
AOC13-18
XRF-24
SWMU 8
AOC 8
AOC 7
XRF-23
AOC7-5
XRF-22
AOC8-1
AOC7-2
AOC7-1
XRF-21

AOC10-XRF-11
AOC10-XRF-08
AOC10-XRF-07
AOC 10c
AOC10-XRF-02
AOC10-XRF-10
AOC10-XRF-09
AOC10-XRF-12
AOC 10b
AOC10-XRF-01
AOC10-XRF-05
AOC10-XRF-03
AOC10-XRF-06
AOC10-XRF-04

AOC 4

Inset

Main Map

Figure B8-1

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

UA-2

\\dc1vs01\GISProj\P\PGE\Topock\MapFiles\2021\Soil\RFI\FigX_XRF.mxd

JACOBS

Attachment B9
Asbestos Reports

November 12, 2015

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-00922

Workorder No.: N017526

RE: Groundwater Partners

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on November 06, 2015 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

The attached report is the final hard copy pertaining to the subcontracted tests for the above project.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 or Molky Brar at (562)-881-3622 if we can be of further assistance to your company.

Sincerely,

Molky Brar
Project Manager

Glen Gesmundo
QA Manager

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.3072691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F: 562.219.7436
www.assetlaboratories.com

Email Results to all emails addresses

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: CH2M Hill	**Report to:**	**Bill to:**	**EDD Requirement**	**QA/QC**	**Sampe Receipt Condition**
Address: 2525 Airpark Drive	**Company:** Mike.Cavaliere@CH2M.com	**Address:**	Excel EDD ☐	RTNE ☐	Y N
Address: Redding CA 96001	**Email:** Shawn.Duffy@CH2M.com		Geotracker ☐	RWQCB ☐	1. Chilled ☐ ☐
Phone: (530) 229-3303 **Fax:**	**Address:** dpgengenbacher@terracon.com	**Email to:** **PO#**	Labspec ☐	CalTrans ☐	2. Headspace ☐ ☐
Submitted By: David Gengenbacher	eli@groundwaterpartners.com	**Phone:** **Fax:**	Others ☐	Level III ☐	3. Container Intact ☐ ☐
Title: Senior Project Manager	**Phone:** **Fax:**		Specify:	LEVEL IV ☐	4. Seal Present ☐ ☐
Signature: David Gengenbacher **Date:** 11-6-15	**Sampled By:** David Gengenbacher		Global ID:	Regulatory ☐	5. IR number
I hereby authorize ASSET Labs to perform the tests indicated below:	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.*			Specify State:	6. Method of Cooling
Project Name:	**Signature:** **Date**	**Matrix**	**Analyses Requested**		Sample Temp:
Project Number:		Ground ☐ Sediment ☐ Potable ☐ Soil ☐ NPDES ☐ Other Solid ☐ Surface ☐			Courier: Tracking No.

Item No.	Laboratory Work Order No.	Sample ID/Location	Date	Time	Water	Solid	Others	Turn Around Time	No. of container	Container Type	PRESERVATION	Remarks
1			11-4-15	10:30 - 4:30pm								
2												
3		See Attached COC - Bulk Asbestos PLM 600 Analysis										
4												
5												
6												
7												
8												
9												
10		Call David Gengenbacher										
11		w/ questions @ 562-235-6654										
12												

Relinquished by (Signature and Printed Name):	Date / Time	Received by (Signature and Printed Name):	Date / Time
David Gengenbacher	11-6-15 9:25am	Murphy A.	11-6-15 10:40 AM
Relinquished by (Signature and Printed Name):	Date / Time	Received by (Signature and Printed Name):	Date / Time
Relinquished by (Signature and Printed Name):	Date / Time	Received by (Signature and Printed Name):	Date / Time

Turn Around Time (TAT)
- ☐ A < 24 Hrs or Same Day TAT
- ☐ B = Next Workday
- ☐ C = 2 Workdays
- ☐ D = 3 Workdays
- ☐ E = Routine 5-7 Workdays

TAT Starts at 8 AM the followiing day if samples received after 3:00 PM.

Special Instruction:

Terms
1. All samples will be disposed in 45 days upon receipt and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
   Less than 24 Hrs = 200% Next Day = 100% 2 Workdays = 50% 3 Workdays = 35% 4 Workdays = 20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample
6. ASSET Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 Days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H = HCl	N = HNO_3	S = H_2SO_4	C = 4°C
Z = $Zn(AC)_2$	O = NaOH	T = $Na_2S_2O_3$	
Others/Specify:			

Container Type:

T = Tube	V = VOA	P = Pint
J = Jar	B = Tedlar	G = Glass
M = Metal	P = Plastic	C = Can

White = Laboratory Copy

Yellow = Customer's Copy

Terracon

ASBESTOS INSPECTION CHAIN OF CUSTODY FORM

Laboratory Order ID: _____

EMSL Account #: -

Project Name:	Groundwater Partners	**Project Number:**	60157131	**Project Manager:**	David Gengenbacher
Portfolio Number:		**Terracon Office:**	Orange County	**Email Results To:**	dpgengenbacher@terracon.com

Site: PG&E Topock, CA Site Locations (UA-1A) and (A0C-27)

Sample Identification HA - BS Code - Sample #	Location of Sample Collected		HA/Materials Location(s) (please separate by ;)	HA/Material Description
1-UA1-1A-ACM1	UA-1 Site (see Sample location map)	UA-1 Site	NO17527G-1	Metal Bands with Residual Fibrous Debris
1-UA1-1A-ACM2	UA-1 Site (see Sample location map)		-2	Metal Bands with Residual Fibrous Debris
1-UA1-1A-ACM3	UA-1 Site (see Sample location map)		-3	Metal Bands with Residual Fibrous Debris
2-UA1-1A-ACM4	UA-1 Site (see Sample location map)		-4	Fiber Composite Gasket
2-UA1-1A-ACM5	UA-1 Site (see Sample location map)		-5	Fiber Composite Gasket
2-UA1-1A-ACM6	UA-1 Site (see Sample location map)		-6	Fiber Composite Gasket
1-AOC-27-ACM1	AOC-27 Site (see Sample Loc. map)	AOC-27 Site	NO17526-7	Roofing Felt Debris
1-AOC-27-ACM2	AOC-27 Site (see Sample Loc. map)		-8	Roofing Felt Debris
1-AOC-27-ACM3	AOC-27 Site (see Sample Loc. map)		-9	Roofing Felt Debris
2-AOC-27-ACM4	AOC-27 Site (see Sample Loc. map)		-10	Suspect Asbestos Tile
2-AOC-27-ACM5	AOC-27 Site (see Sample Loc. map)		-11	Suspect Asbestos Tile
2-AOC-27-ACM6	AOC-27 Site (see Sample Loc. map)		-12	Suspect Asbestos Tile
3-AOC-27-ACM7	AOC-27 Site (see Sample Loc. map)		-13	Black Felt Debris

Sampling Date: 11-4-15	**Collected by (print):** David Gengenbacher	**Inspector's Signature:** David Gengenbacher	
Relinquished by: David Gengenbacher	**Date/Time:** 11-6-15 11:00 AM	**Received by:**	**Date/Time:** 11-6-15 11:00 AM
Analysis: PLM EPA 600 X TEM ___ PLM Point Count ___ Other ___		**Special Instructions:**	
Turnaround Time: 3 Hrs ___ 6 Hrs ___ 24 hrs ___ 3 Days ___ 5 Days X			

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	11/6/2015	Workorder:	N017526
Rep sample Temp (Deg C):	NA	IR Gun ID:	NA
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☐ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☑ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☐	No ☐	NA ☑
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☐	No ☐	NA ☑
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments

Checklist Completed B MB

Reviewed By: 11/12/15

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

AmeriSci Los Angeles
24416 South Main Street, Suite 308
Carson, CA 90745

TEL: (310) 834-4868
FAX: (310) 834-4772
Acct #:

Field Sampler:

06-Nov-15

				Requested Tests		
Sample ID	**Matrix**	**Date Collected**	**Bottle Type**	**Asb_PLM**		
N017526-001A / 1-UA1-1A-ACM1	Solid	11/4/2015	4OZG	1		
N017526-002A / 1-UA1-1A-ACM2	Solid	11/4/2015	4OZG	1		
N017526-003A / 1-UA1-1A-ACM3	Solid	11/4/2015	4OZG	1		
N017526-004A / 2-UA1-1A-ACM4	Solid	11/4/2015	4OZG	1		
N017526-005A / 2-UA1-1A-ACM5	Solid	11/4/2015	4OZG	1		
N017526-006A / 2-UA1-1A-ACM6	Solid	11/4/2015	4OZG	1		
N017526-007A / 1-AOC-27-ACM1	Solid	11/4/2015	4OZG	1		
N017526-008A / 1-AOC-27-ACM2	Solid	11/4/2015	4OZG	1		
N017526-009A / 1-AOC-27-ACM3	Solid	11/4/2015	4OZG	1		
N017526-010A / 2-AOC-27-ACM4	Solid	11/4/2015	4OZG	1		
N017526-011A / 2-AOC-27-ACM5	Solid	11/4/2015	4OZG	1		
N017526-012A / 2-AOC-27-ACM6	Solid	11/4/2015	4OZG	1		
N017526-013A / 3-AOC-27-ACM7	Solid	11/4/2015	4OZG	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N17526A. Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Molky at (562)-219-7435. Please e-mail results to reports@assetlaboratories.com by: 5-DAY TAT.

Please analyze Asbestos PLM.

	Date/Time		Date/Time
Relinquished by:		**Received by:**	
Relinquished by:		**Received by:**	

ASSET Laboratories

WORK ORDER Summary

09-Nov-15

WorkOrder: N017526

Client ID: ARCUS02

Project: Groundwater Partners **QC Level:** Level IV **Date Received:** 11/6/2015

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N017526-001A	1-UA1-1A-ACM1	11/4/2015	11/13/2015	Solid	Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017526-002A	1-UA1-1A-ACM2		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017526-003A	1-UA1-1A-ACM3		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017526-004A	2-UA1-1A-ACM4		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017526-005A	2-UA1-1A-ACM5		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017526-006A	2-UA1-1A-ACM6		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017526-007A	1-AOC-27-ACM1		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017526-008A	1-AOC-27-ACM2		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017526-009A	1-AOC-27-ACM3		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017526-010A	2-AOC-27-ACM4		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017526-011A	2-AOC-27-ACM5		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017526-012A	2-AOC-27-ACM6		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017526-013A	3-AOC-27-ACM7		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017526-014A	FOLDER		11/13/2015		Folder	Folder	☐	☐	☐	LAB

Please Reply To:

AmeriSci Los Angeles
24416 S. Main Street, Ste 308
Carson, California 90745
TEL: (310) 834-4868 • FAX: (310) 834-4772

FACSIMILE TELECOPY TRANSMISSION

To:	Ed Romualdo	**From:**	Lateef MacIntosh
	Advanced Technology Laboratories dba Asset L	**AmeriSci Job #:**	915111282
Fax #:		**Subject:**	PLM 5 day Results
		Client Project:	
Email:	puri@assetlaboratories.com,reports@assetlaboratories.com		

Date: Thursday, November 12, 2015
Time: 14:58:52
Comments:

Number of Pages: 5 (including cover sheet)

AmeriSci Los Angeles
24416 S. Main Street, Ste 308
Carson, California 90745
TEL: (310) 834-4868 • FAX: (310) 834-4772

PLM Bulk Asbestos Report

Advanced Technology Laboratories dba
Attn: Ed Romualdo
3151 W Post Road

Las Vegas, NV 89118

Date Received 11/06/15
Date Examined 11/12/15

RE:

AmeriSci Job # 915111282
P.O. # N17526A
Page 1 **of** 3

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
N017526-001A	915111282-01	***Yes***	15 % (by CVES) by Lateef MacIntosh on 11/12/15
Location: 1-UA1-1A-ACM1			
Analyst Description: White/Beige, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** Chrysotile 15.0 % **Other Material:** Non-fibrous 85 %			
N017526-002A	915111282-02	***Yes***	Trace (<1 %) (by CVES) by Lateef MacIntosh on 11/12/15
Location: 1-UA1-1A-ACM2			
Analyst Description: Beige/Silver, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** Chrysotile <1. % **Other Material:** Non-fibrous 100 %			
N017526-003A	915111282-03	***No***	NAD (by CVES) by Lateef MacIntosh on 11/12/15
Location: 1-UA1-1A-ACM3			
Analyst Description: Beige/White, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
N017526-004A	915111282-04	***Yes***	20 % (by CVES) by Lateef MacIntosh on 11/12/15
Location: 2-UA1-1A-ACM4			
Analyst Description: Beige/Blue, Homogeneous, Fibrous, Fibrous Panel **Asbestos Types:** Chrysotile 20.0 % **Other Material:** Non-fibrous 80 %			
N017526-005A	915111282-05	***Yes***	20 % (by CVES) by Lateef MacIntosh on 11/12/15
Location: 2-UA1-1A-ACM5			
Analyst Description: Beige/Blue, Homogeneous, Fibrous, Fibrous Panel **Asbestos Types:** Chrysotile 20.0 % **Other Material:** Non-fibrous 80 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
N017526-006A	915111282-06	*Yes*	20 % (by CVES) by Lateef MacIntosh on 11/12/15
Location: 2-UA1-1A-ACM6			
Analyst Description: Beige/Blue, Homogeneous, Fibrous, Fibrous Panel **Asbestos Types:** Chrysotile 20.0 % **Other Material:** Non-fibrous 80 %			
N017526-007A	915111282-07	*Yes*	20 % (by CVES) by Lateef MacIntosh on 11/12/15
Location: 1-AOC-27-ACM1			
Analyst Description: Beige/Black, Homogeneous, Fibrous, Fibrous Material **Asbestos Types:** Chrysotile 20.0 % **Other Material:** Cellulose 30 %, Non-fibrous 50 %			
N017526-008A	915111282-08	*Yes*	20 % (by CVES) by Lateef MacIntosh on 11/12/15
Location: 1-AOC-27-ACM2			
Analyst Description: Beige/Black, Homogeneous, Fibrous, Fibrous Material **Asbestos Types:** Chrysotile 20.0 % **Other Material:** Cellulose 30 %, Non-fibrous 50 %			
N017526-009A	915111282-09	*Yes*	20 % (by CVES) by Lateef MacIntosh on 11/12/15
Location: 1-AOC-27-ACM3			
Analyst Description: Beige/Black, Homogeneous, Fibrous, Fibrous Material **Asbestos Types:** Chrysotile 20.0 % **Other Material:** Cellulose 30 %, Non-fibrous 50 %			
N017526-010A	915111282-10	*Yes*	20 % (by CVES) by Lateef MacIntosh on 11/12/15
Location: 2-AOC-27-ACM4			
Analyst Description: Beige, Homogeneous, Fibrous, Ceramic Tile **Asbestos Types:** Chrysotile 20.0 % **Other Material:** Non-fibrous 80 %			
N017526-011A	915111282-11	*Yes*	20 % (by CVES) by Lateef MacIntosh on 11/12/15
Location: 2-AOC-27-ACM5			
Analyst Description: Beige, Homogeneous, Fibrous, Ceramic Tile **Asbestos Types:** Chrysotile 20.0 % **Other Material:** Non-fibrous 80 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
N017526-012A	915111282-12	***Yes***	20 % (by CVES) by Lateef MacIntosh on 11/12/15

Location: 2-AOC-27-ACM6

Analyst Description: Beige, Homogeneous, Fibrous, Ceramic Tile
Asbestos Types: Chrysotile 20.0 %
Other Material: Non-fibrous 80 %

N017526-013A	915111282-13	***Yes***	20 % (by CVES) by Lateef MacIntosh on 11/12/15

Location: 3-AOC-27-ACM7

Analyst Description: Beige/Blue, Homogeneous, Fibrous, Fibrous Material
Asbestos Types: Chrysotile 20.0 %
Other Material: Non-fibrous 80 %

Reporting Notes:

Analyzed By: Lateef MacIntosh _____; Date Analyzed: 11/12/2015 11/12/15

*NAD = no asbestos detected; Detection Limit <1%; Reporting Limits: CVES = 1%, 400 Pt Ct = 0.25%, 1000 Pt Ct = 0.1%; NA = not analyzed; NA/PS = not analyzed / positive stop; NVA = No Visible Asbestos; PLM (polarized light microscopy) Bulk Asbestos Analysis by EPA 600/R-93/116, including requirements for EPA 600/M4-82-020 per 40 CFR 763 (NVLAP Lab #200346-0, CA ELAP lab #2322); Note: PLM is not consistently reliable in detecting asbestos in floor coverings and similar NOB materials. TEM is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos-containing in New York State (also see EPA Advisory for floor tile, FR 59, 146, 38970, 8/1/94). NIST Accreditation requirements mandate that this report must not be reproduced except in full with the approval of the laboratory. This PLM report relates ONLY to the items tested.

Reviewed By: _____

9151112 82

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

AmeriSci Los Angeles
24416 South Main Street, Suite 308
Carson, CA 90745

TEL: (310) 834-4868
FAX: (310) 834-4772
Acct #:

Field Sampler:

06-Nov-15

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				Asb_PLM		
N017526-001A / 1-UA1-1A-ACM1	Solid	11/4/2015	4OZG	1		
N017526-002A / 1-UA1-1A-ACM2	Solid	11/4/2015	4OZG	1		
N017526-003A / 1-UA1-1A-ACM3	Solid	11/4/2015	4OZG	1		
N017526-004A / 2-UA1-1A-ACM4	Solid	11/4/2015	4OZG	1		
N017526-005A / 2-UA1-1A-ACM5	Solid	11/4/2015	4OZG	1		
N017526-006A / 2-UA1-1A-ACM6	Solid	11/4/2015	4OZG	1		
N017526-007A / 1-AOC-27-ACM1	Solid	11/4/2015	4OZG	1		
N017526-008A / 1-AOC-27-ACM2	Solid	11/4/2015	4OZG	1		
N017526-009A / 1-AOC-27-ACM3	Solid	11/4/2015	4OZG	1		
N017526-010A / 2-AOC-27-ACM4	Solid	11/4/2015	4OZG	1		
N017526-011A / 2-AOC-27-ACM5	Solid	11/4/2015	4OZG	1		
N017526-012A / 2-AOC-27-ACM6	Solid	11/4/2015	4OZG	1		
N017526-013A / 3-AOC-27-ACM7	Solid	11/4/2015	4OZG	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N17526A. Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Molky at (562)-219-7435. Please e-mail results to reports@assetlaboratories.com by: 5-DAY TAT.

Please analyze Asbestos PLM.

		Date/Time		Date/Time
Relinquished by:		11/6/15 2:45p	**Received by:** Pissamai Jones	11/6/15 14:45
Relinquished by:			**Received by:**	

November 12, 2015

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-00922

Workorder No.: N017527

RE: Groundwater Partners

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on November 06, 2015 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

The attached report is the final hard copy pertaining to the subcontracted tests for the above project.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 or Molky Brar at (562)-881-3622 if we can be of further assistance to your company.

Sincerely,

Molky Brar
Project Manager

Glen Gesmundo
QA Manager

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Email Results to all email addresses

CHAIN OF CUSTODY RECORD

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.3072691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F: 562.219.7436
www.assetlaboratories.com

Client: CH2M Hill
Address: 2525 Airpark Drive
Address: Redding CA 96001
Phone: (530) 229-3303 Fax:
Submitted By: David Gengenbacher
Title: Senior Project Manager
Signature: [signature] Date: 11-6-15
I hereby authorize ASSET Labs to perform the tests indicated below:
Project Name:
Project Number:

Report to:
Company: mike.cavaliere@CH2M.com
Email: Shawn.Duffy@CH2M.com
Address: dpgengenbacher@terracon.com
eli@groundwaterpartners.com
Phone: Fax:
Sampled By: David Gengenbacher
I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.
Signature: Date

Bill to:
Address:
Email to: PO#
Phone: Fax:

EDD Requirement: ☐ Excel EDD ☐ Geotracker ☐ Labspec ☐ Others; Specify:; Global ID:

QA/QC: ☐ RTNE ☐ RWQCB ☐ CalTrans ☐ Level III ☐ LEVEL IV ☐ Regulatory; Specify State:

Sample Receipt Condition (Y / N): 1. Chilled ☐ ☐; 2. Headspace ☐ ☐; 3. Container Intact ☐ ☐; 4. Seal Present ☐ ☐; 5. IR number; 6. Method of Cooling; Sample Temp:

Matrix: ☐ Ground ☐ Sediment ☐ Potable ☐ Soil ☐ NPDES ☐ Other Solid ☐ Surface

Analyses Requested

Courier:
Tracking No.

Item No.	Laboratory Work Order No.	Sample ID/Location	Date	Time	Water	Solid	Others	Turn Around Time	No. of container	Container Type	PRESERVATION	Remarks
1			11-4-15	10:30-4:20pm								
2												
3		See Attached										
4		COC - Bulk										
5		Asbestos										
6		PLM 600 Analysis										
7												
8												
9												
10		Call David Gengenbacher										
11		w/ questions: 562-235-6654										
12												

Relinquished by (Signature and Printed Name):	Date / Time	Received by (Signature and Printed Name):	Date / Time
[signature] David Gengenbacher	11-6-15 9:25am	[signature] Murphy A.	11-6-15 10:40 AM

Turn Around Time (TAT)
- ☐ A < 24 Hrs or Same Day TAT
- ☐ B = Next Workday
- ☐ C = 2 Workdays
- ☐ D = 3 Workdays
- ☐ E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00 PM.

Special Instruction:

Terms
1. All samples will be disposed in 45 days upon receipt and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs = 200% Next Day = 100% 2 Workdays = 50% 3 Workdays = 35% 4 Workdays = 20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. ASSET Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 Days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H = HCl	N = HNO_3	S = H_2SO_4	C = 4°C
Z = Zn(AC)2	O = NaOH	T = $Na_2S_2O_3$	

Others/Specify:

Container Type:

T = Tube	V = VOA	P = Pint
J = Jar	B = Tedlar	G = Glass
M = Metal	P = Plastic	C = Can

White = Laboratory Copy
Yellow = Customer's Copy

Terracon

ASBESTOS INSPECTION CHAIN OF CUSTODY FORM

Laboratory Order ID: _____

EMSL Account #: _____

Sample Identification HA - BS Code - Sample #	Location of Sample Collected		HA/Materials Location(s) (please separate by ;)	HA/Material Description
3-AOC-27-ACM8	AOC-27 Site (see Sample Loc. map)	AOC-27 Site	N017527 - 1	Black Felt Debris
3-AOC-27-ACM9	AOC-27 Site (see Sample Loc. map)		- 2	Black Felt Debris
4-AOC-27-ACM10	AOC-27 Site (see Sample Loc. map)		- 3	Cement Tile
4-AOC-27-ACM11	AOC-27 Site (see Sample Loc. map)		- 4	Cement Tile
4-AOC-27-ACM12	AOC-27 Site (see Sample Loc. map)		- 5	Cement Tile
5-AOC-27-ACM13	AOC-27 Site (see Sample Loc. map)		- 6	Black Mastic Covered Yellow Vinyl
5-AOC-27-ACM14	AOC-27 Site (see Sample Loc. map)		- 7	Black Mastic Covered Yellow Vinyl
5-AOC-27-ACM15	AOC-27 Site (see Sample Loc. map)		- 8	Black Mastic Covered Yellow Vinyl
6-AOC-27-ACM16	AOC-27 Site (see Sample Loc. map)		- 9	Gray Felt Roofing Debris
6-AOC-27-ACM17	AOC-27 Site (see Sample Loc. map)		- 10	Gray Felt Roofing Debris
6-AOC-27-ACM18	AOC-27 Site (see Sample Loc. map)		- 11	Gray Felt Roofing Debris
7-AOC-27-ACM19	AOC-27 Site (see Sample Loc. map)		- 12	Silver Mastic at Large Round Metal Gasket
7-AOC-27-ACM20	AOC-27 Site (see Sample Loc. map)		- 13	Silver Mastic at Large Round Metal Gasket
7-AOC-27-ACM21	AOC-27 Site (see Sample Loc. map)		- 14	Silver Mastic at Large Round Metal Gasket
8-AOC-27-ACM22	AOC-27 Site (see Sample Loc. map)		- 15	Curved Cement Tiles
8-AOC-27-ACM23	AOC-27 Site (see Sample Loc. map)		- 16	Curved Cement Tiles
8-AOC-27-ACM24	AOC-27 Site (see Sample Loc. map)		- 17	Curved Cement Tiles
9-AOC-27-ACM25	AOC-27 Site (see Sample Loc. map)		- 18	Fire Hose Debris
9-AOC-27-ACM26	AOC-27 Site (see Sample Loc. map)		- 19	Fire Hose Debris
9-AOC-27-ACM27	AOC-27 Site (see Sample Loc. map)		- 20	Fire Hose Debris
10-AOC-27-ACM28	AOC-27 Site (see Sample Loc. map)		- 21	Black Hot Tar Debris

Initial: **Date:**

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	11/6/2015	Workorder:	N017527
Rep sample Temp (Deg C):	NA	IR Gun ID:	NA
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☐ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☑ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☐	No ☐	NA ☑
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☐	No ☐	NA ☑
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments

Checklist Completed B MB

Reviewed By: 11/12/15

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

AmeriSci Los Angeles
24416 South Main Street, Suite 308
Carson, CA 90745

TEL: (310) 834-4868
FAX: (310) 834-4772
Acct #:

Field Sampler:

06-Nov-15

				Requested Tests		
Sample ID	**Matrix**	**Date Collected**	**Bottle Type**	**Asb_PLM**		
N017527-001A / 3-AOC-27-ACM8	Solid	11/4/2015	4OZG	1		
N017527-002A / 3-AOC-27-ACM9	Solid	11/4/2015	4OZG	1		
N017527-003A / 4-AOC-27-ACM10	Solid	11/4/2015	4OZG	1		
N017527-004A / 4-AOC-27-ACM11	Solid	11/4/2015	4OZG	1		
N017527-005A / 4-AOC-27-ACM12	Solid	11/4/2015	4OZG	1		
N017527-006A / 5-AOC-27-ACM13	Solid	11/4/2015	4OZG	1		
N017527-007A / 5-AOC-27-ACM14	Solid	11/4/2015	4OZG	1		
N017527-008A / 5-AOC-27-ACM15	Solid	11/4/2015	4OZG	1		
N017527-009A / 6-AOC-27-ACM16	Solid	11/4/2015	4OZG	1		
N017527-010A / 6-AOC-27-ACM17	Solid	11/4/2015	4OZG	1		
N017527-011A / 6-AOC-27-ACM18	Solid	11/4/2015	4OZG	1		
N017527-012A / 7-AOC-27-ACM19	Solid	11/4/2015	4OZG	1		
N017527-013A / 7-AOC-27-ACM20	Solid	11/4/2015	4OZG	1		
N017527-014A / 7-AOC-27-ACM21	Solid	11/4/2015	4OZG	1		
N017527-015A / 8-AOC-27-ACM22	Solid	11/4/2015	4OZG	1		
N017527-016A / 8-AOC-27-ACM23	Solid	11/4/2015	4OZG	1		
N017527-017A / 8-AOC-27-ACM24	Solid	11/4/2015	4OZG	1		
N017527-018A / 9-AOC-27-ACM25	Solid	11/4/2015	4OZG	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N17527A. Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Molky at (562)-219-7435. Please e-mail results to reports@assetlaboratories.com by: 5-DAY TAT.

Please analyze Asbestos PLM.

	Date/Time		Date/Time
Relinquished by:		**Received by:**	
Relinquished by:		**Received by:**	

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

AmeriSci Los Angeles
24416 South Main Street, Suite 308
Carson, CA 90745

TEL: (310) 834-4868
FAX: (310) 834-4772
Acct #:

Field Sampler:

06-Nov-15

				Requested Tests		
Sample ID	**Matrix**	**Date Collected**	**Bottle Type**	**Asb_PLM**		
N017527-019A / 9-AOC-27-ACM26	Solid	11/4/2015	4OZG	1		
N017527-020A / 9-AOC-27-ACM27	Solid	11/4/2015	4OZG	1		
N017527-021A / 10-AOC-27-ACM28	Solid	11/4/2015	4OZG	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N17527A. Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Molky at (562)-219-7435. Please e-mail results to reports@assetlaboratories.com by: 5-DAY TAT.

Please analyze Asbestos PLM.

	Date/Time		Date/Time
Relinquished by:		**Received by:**	
Relinquished by:		**Received by:**	

ASSET Laboratories

WORK ORDER Summary

09-Nov-15

WorkOrder: N017527

Client ID: ARCUS02

Project: Groundwater Partners **QC Level:** Level IV **Date Received:** 11/6/2015

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N017527-001A	3-AOC-27-ACM8	11/4/2015	11/13/2015	Solid	Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017527-002A	3-AOC-27-ACM9		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017527-003A	4-AOC-27-ACM10		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017527-004A	4-AOC-27-ACM11		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017527-005A	4-AOC-27-ACM12		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017527-006A	5-AOC-27-ACM13		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017527-007A	5-AOC-27-ACM14		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017527-008A	5-AOC-27-ACM15		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017527-009A	6-AOC-27-ACM16		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017527-010A	6-AOC-27-ACM17		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017527-011A	6-AOC-27-ACM18		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017527-012A	7-AOC-27-ACM19		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017527-013A	7-AOC-27-ACM20		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017527-014A	7-AOC-27-ACM21		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017527-015A	8-AOC-27-ACM22		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017527-016A	8-AOC-27-ACM23		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017527-017A	8-AOC-27-ACM24		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017527-018A	9-AOC-27-ACM25		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017527-019A	9-AOC-27-ACM26		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017527-020A	9-AOC-27-ACM27		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017527-021A	10-AOC-27-ACM28		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017527-022A	FOLDER		11/13/2015		Folder	Folder	☐	☐	☐	LAB

Please Reply To:

AmeriSci Los Angeles
24416 S. Main Street, Ste 308
Carson, California 90745
TEL: (310) 834-4868 • FAX: (310) 834-4772

FACSIMILE TELECOPY TRANSMISSION

To:	Ed Romualdo	**From:**	Arturo A. Aldana
	Advanced Technology Laboratories dba Asset L	**AmeriSci Job #:**	915111283
Fax #:		**Subject:**	PLM 5 day Results
		Client Project:	

Email: puri@assetlaboratories.com,reports@assetlaboratories.com,molky@assetlaboratories.com

Date: Thursday, November 12, 2015
Time: 17:05:31
Comments:

Number of Pages: 7 (including cover sheet)

AmeriSci Los Angeles
24416 S. Main Street, Ste 308
Carson, California 90745
TEL: (310) 834-4868 • FAX: (310) 834-4772

PLM Bulk Asbestos Report

Advanced Technology Laboratories dba
Attn: Ed Romualdo
3151 W Post Road

Las Vegas, NV 89118

Date Received 11/06/15
Date Examined 11/12/15

RE:

AmeriSci Job # 915111283
P.O. # N17527A
Page 1 **of** 4

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
N017527-001A	915111283-01	*Yes*	40 % (by CVES) by Arturo A. Aldana on 11/12/15
Location: 3-AOC-27-ACM8			
Analyst Description: Black/Brown, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** Chrysotile 40.0 % **Other Material:** Non-fibrous 60 %			
N017527-002A	915111283-02	*Yes*	40 % (by CVES) by Arturo A. Aldana on 11/12/15
Location: 3-AOC-27-ACM9			
Analyst Description: Black/Brown, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** Chrysotile 40.0 % **Other Material:** Non-fibrous 60 %			
N017527-003A	915111283-03	*Yes*	11 % (by CVES) by Arturo A. Aldana on 11/12/15
Location: 4-AOC-27-ACM10			
Analyst Description: Tan/Grey, Homogeneous, Fibrous, Cementitious, Bulk Material **Asbestos Types:** Chrysotile 11.0 % **Other Material:** Non-fibrous 89 %			
N017527-004A	915111283-04	*Yes*	11 % (by CVES) by Arturo A. Aldana on 11/12/15
Location: 4-AOC-27-ACM11			
Analyst Description: Tan/Grey, Homogeneous, Fibrous, Cementitious, Bulk Material **Asbestos Types:** Chrysotile 11.0 % **Other Material:** Non-fibrous 89 %			
N017527-005A	915111283-05	*Yes*	11 % (by CVES) by Arturo A. Aldana on 11/12/15
Location: 4-AOC-27-ACM12			
Analyst Description: Tan/Grey, Homogeneous, Fibrous, Cementitious, Bulk Material **Asbestos Types:** Chrysotile 11.0 % **Other Material:** Non-fibrous 89 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
N017527-006A	915111283-06	***No***	NAD (by CVES) by Arturo A. Aldana on 11/12/15
Location: 5-AOC-27-ACM13			
Analyst Description: Yellow/Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
N017527-007A	915111283-07	***No***	NAD (by CVES) by Arturo A. Aldana on 11/12/15
Location: 5-AOC-27-ACM14			
Analyst Description: Yellow/Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
N017527-008A	915111283-08	***No***	NAD (by CVES) by Arturo A. Aldana on 11/12/15
Location: 5-AOC-27-ACM15			
Analyst Description: Yellow/Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
N017527-009A	915111283-09	***Yes***	40 % (by CVES) by Arturo A. Aldana on 11/12/15
Location: 6-AOC-27-ACM16			
Analyst Description: Black/Grey/Brown, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** Chrysotile 40.0 % **Other Material:** Non-fibrous 60 %			
N017527-010A	915111283-10	***Yes***	40 % (by CVES) by Arturo A. Aldana on 11/12/15
Location: 6-AOC-27-ACM17			
Analyst Description: Black/Grey/Brown, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** Chrysotile 40.0 % **Other Material:** Non-fibrous 60 %			
N017527-011A	915111283-11	***Yes***	40 % (by CVES) by Arturo A. Aldana on 11/12/15
Location: 6-AOC-27-ACM18			
Analyst Description: Black/Grey/Brown, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** Chrysotile 40.0 % **Other Material:** Non-fibrous 60 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
N017527-012A	915111283-12	***No***	NAD (by CVES) by Arturo A. Aldana on 11/12/15
Location: 7-AOC-27-ACM19			
Analyst Description: Grey, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
N017527-013A	915111283-13	***No***	NAD (by CVES) by Arturo A. Aldana on 11/12/15
Location: 7-AOC-27-ACM20			
Analyst Description: Grey, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
N017527-014A	915111283-14	***No***	NAD (by CVES) by Arturo A. Aldana on 11/12/15
Location: 7-AOC-27-ACM21			
Analyst Description: Grey, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
N017527-015A	915111283-15	***Yes***	13 % (by CVES) by Arturo A. Aldana on 11/12/15
Location: 8-AOC-27-ACM22			
Analyst Description: Tan/Grey, Homogeneous, Fibrous, Cementitious, Bulk Material **Asbestos Types:** Chrysotile 13.0 % **Other Material:** Non-fibrous 87 %			
N017527-016A	915111283-16	***Yes***	13 % (by CVES) by Arturo A. Aldana on 11/12/15
Location: 8-AOC-27-ACM23			
Analyst Description: Tan/Grey, Homogeneous, Fibrous, Cementitious, Bulk Material **Asbestos Types:** Chrysotile 13.0 % **Other Material:** Non-fibrous 87 %			
N017527-017A	915111283-17	***Yes***	13 % (by CVES) by Arturo A. Aldana on 11/12/15
Location: 8-AOC-27-ACM24			
Analyst Description: Tan/Grey, Homogeneous, Fibrous, Cementitious, Bulk Material **Asbestos Types:** Chrysotile 13.0 % **Other Material:** Non-fibrous 87 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
N017527-018A	915111283-18	***No***	NAD (by CVES) by Arturo A. Aldana on 11/12/15
Location: 9-AOC-27-ACM25			
Analyst Description: Black/Grey, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 40 %, Non-fibrous 60 %			
N017527-019A	915111283-19	***No***	NAD (by CVES) by Arturo A. Aldana on 11/12/15
Location: 9-AOC-27-ACM26			
Analyst Description: Black/Grey, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 60 %, Non-fibrous 40 %			
N017527-020A	915111283-20	***No***	NAD (by CVES) by Arturo A. Aldana on 11/12/15
Location: 9-AOC-27-ACM27			
Analyst Description: Black/Grey, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 60 %, Non-fibrous 40 %			
N017527-021A	915111283-21	***No***	NAD (by CVES) by Arturo A. Aldana on 11/12/15
Location: 10-AOC-27-ACM28			
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 2 %, Non-fibrous 98 %			

Reporting Notes:

Analyzed By: Arturo A. Aldana _____; Date Analyzed: 11/12/2015 11/12/15

*NAD = no asbestos detected; Detection Limit <1%; Reporting Limits: CVES = 1%, 400 Pt Ct = 0.25%, 1000 Pt Ct = 0.1%; NA = not analyzed; NA/PS = not analyzed / positive stop; NVA = No Visible Asbestos; PLM (polarized light microscopy) Bulk Asbestos Analysis by EPA 600/R-93/116, including requirements for EPA 600/M4-82-020 per 40 CFR 763 (NVLAP Lab #200346-0, CA ELAP lab #2322); Note: PLM is not consistently reliable in detecting asbestos in floor coverings and similar NOB materials. TEM is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos-containing in New York State (also see EPA Advisory for floor tile, FR 59, 146, 38970, 8/1/94). NIST Accreditation requirements mandate that this report must not be reproduced except in full with the approval of the laboratory. This PLM report relates ONLY to the items tested.

Reviewed By: _____

9151112 83

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

AmeriSci Los Angeles
24416 South Main Street, Suite 308
Carson, CA 90745

TEL: (310) 834-4868
FAX: (310) 834-4772
Acct #:

Field Sampler:

06-Nov-15

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: Asb_PLM		
N017527-001A / 3-AOC-27-ACM8	Solid	11/4/2015	4OZG	1		
N017527-002A / 3-AOC-27-ACM9	Solid	11/4/2015	4OZG	1		
N017527-003A / 4-AOC-27-ACM10	Solid	11/4/2015	4OZG	1		
N017527-004A / 4-AOC-27-ACM11	Solid	11/4/2015	4OZG	1		
N017527-005A / 4-AOC-27-ACM12	Solid	11/4/2015	4OZG	1		
N017527-006A / 5-AOC-27-ACM13	Solid	11/4/2015	4OZG	1		
N017527-007A / 5-AOC-27-ACM14	Solid	11/4/2015	4OZG	1		
N017527-008A / 5-AOC-27-ACM15	Solid	11/4/2015	4OZG	1		
N017527-009A / 6-AOC-27-ACM16	Solid	11/4/2015	4OZG	1		
N017527-010A / 6-AOC-27-ACM17	Solid	11/4/2015	4OZG	1		
N017527-011A / 6-AOC-27-ACM18	Solid	11/4/2015	4OZG	1		
N017527-012A / 7-AOC-27-ACM19	Solid	11/4/2015	4OZG	1		
N017527-013A / 7-AOC-27-ACM20	Solid	11/4/2015	4OZG	1		
N017527-014A / 7-AOC-27-ACM21	Solid	11/4/2015	4OZG	1		
N017527-015A / 8-AOC-27-ACM22	Solid	11/4/2015	4OZG	1		
N017527-016A / 8-AOC-27-ACM23	Solid	11/4/2015	4OZG	1		
N017527-017A / 8-AOC-27-ACM24	Solid	11/4/2015	4OZG	1		
N017527-018A / 9-AOC-27-ACM25	Solid	11/4/2015	4OZG	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N17527A. Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Molky at (562)-219-7435. Please e-mail results to reports@assetlaboratories.com by: 5-DAY TAT.

Please analyze Asbestos PLM.

		Date/Time			Date/Time
Relinquished by:	[signature]	11/6/15 2:45p	**Received by:**	Pissawan Jones	11/6/15 14:45
Relinquished by:			**Received by:**		

9151112 83

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

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Carson, CA 90745

TEL: (310) 834-4868
FAX: (310) 834-4772
Acct #:

Field Sampler:

06-Nov-15

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				Asb_PLM		
N017527-019A / 9-AOC-27-ACM26	Solid	11/4/2015	4OZG	1		
N017527-020A / 9-AOC-27-ACM27	Solid	11/4/2015	4OZG	1		
N017527-021A / 10-AOC-27-ACM28	Solid	11/4/2015	4OZG	1		

General Comments: Please email sample receipt acknowledgement to the PM.

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Please analyze Asbestos PLM.

		Date/Time			Date/Time
Relinquished by:		11/6/15 2:45pm	**Received by:**	Pissamai Jones	11/6/15 0014.45
Relinquished by:			**Received by:**		

November 12, 2015

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-00922

Workorder No.: N017528

RE: Groundwater Partners

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on November 06, 2015 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

The attached report is the final hard copy pertaining to the subcontracted tests for the above project.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Glen Gesmundo
QA Manager

This cover letter is an integral part of this analytical report.

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

Email Results to all email addresses

Page 1 of 1

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.3072691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F: 562.219.7436
www.assetlaboratories.com

Client: CH2M Hill
Address: 2525 Airpark Drive
Address: Redding CA 96001
Phone: (530) 229-3303 Fax:
Submitted By: David Gengenbacher
Title: Senior Project Manager
Signature: [signature] Date: 11-6-15
I hereby authorize ASSET Labs to perform the tests indicated below:
Project Name:
Project Number:

Report to:
Company: mike.cavaliere@CH2M.com
Email: Shawn.Duffy@CH2M.com
Address: dgengenbacher@terracon.com
eli@groundwaterpartners.com
Phone: Fax:
Sampled By: David Gengenbacher
I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.
Signature: Date

Bill to:
Address:
Email to: PO#
Phone: Fax:

EDD Requirement	
Excel EDD	☐
Geotracker	☐
Labspec	☐
Others	☐
Specify:	
Global ID:	

QA/QC	
RTNE	☐
RWQCB	☐
CalTrans	☐
Level III	☐
LEVEL IV	☐
Regulatory	☐
Specify State:	

Sampe Receipt Condition	Y	N
1. Chilled	☐	☐
2. Headspace	☐	☐
3. Container Intact	☐	☐
4. Seal Present	☐	☐
5. IR number		
6. Method of Cooling		
Sample Temp:		

Matrix: Ground ☐ Sediment ☐ Potable ☐ Soil ☐ NPDES ☐ Other Solid ☐ Surface ☐

Analyses Requested

Courier:
Tracking No.

Item No.	Laboratory Work Order No.	Sample ID/Location	Date	Time	Water	Solid	Others	Turn Around Time	No. of container	Container Type	PRESERVATION	Remarks
1			11-4-15	10:30 - 4:00pm								
2		See Attached COC - Asbestos Bulk PLM 600 Analysis										
3												
4												
5												
6												
7												
8												
9												
10		Call David Gengenbacher										
11		w/ questions: 562-235-6654										
12												

Relinquished by (Signature and Printed Name)	Date / Time	Received by (Signature and Printed Name)	Date / Time
[signature] David Gengenbacher	11-6-15 9:25am	[signature] Murphy A.	11-6-15 10:40 AM

Turn Around Time (TAT)
☐ A < 24 Hrs or Same Day TAT
☐ B = Next Workday
☐ C = 2 Workdays
☐ D = 3 Workdays
☐ E = Routine 5-7 Workdays
TAT Starts at 8 AM the following day if samples received after 3:00 PM.

Special Instruction:

Terms
1. All samples will be disposed in 45 days upon receipt and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs = 200% Next Day = 100% 2 Workdays = 50% 3 Workdays = 35% 4 Workdays = 20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. ASSET Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 Days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:			
H = HCl	N = HNO_3	S = H_2SO_4	C = 4°C
Z = Zn(AC)2	O = NaOH	T = $Na_2S_2O_3$	
Others/Specify:			

Container Type:		
T = Tube	V = VOA	P = Pint
J = Jar	B = Tedlar	G = Glass
M = Metal	P = Plastic	C = Can

White = Laboratory Copy
Yellow = Customer's Copy

Terracon

ASBESTOS INSPECTION
CHAIN OF CUSTODY FORM

Laboratory Order ID:

EMSL Account #:

Sample Identification HA - BS Code - Sample #	Location of Sample Collected		HA/Materials Location(s) (please separate by ;)	HA/Material Description
10-AOC-27-ACM29	AOC-27 Site (see Sample Loc. map)	AOC-27 Site	N017528 -1	Black Hot Tar Debris
10-AOC-27-ACM30	AOC-27 Site (see Sample Loc. map)		-2	Black Hot Tar Debris
11-AOC-27-ACM31	AOC-27 Site (see Sample Loc. map)		-3	Electrical Box
11-AOC-27-ACM32	AOC-27 Site (see Sample Loc. map)		-4	Electrical Box
11-AOC-27-ACM33	AOC-27 Site (see Sample Loc. map)		-5	Electrical Box

Initial: **Date:**

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	11/6/2015	Workorder:	N017528
Rep sample Temp (Deg C):	NA	IR Gun ID:	NA
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☐ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☑ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☐	No ☐	NA ☑
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☐	No ☐	NA ☑
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments

Checklist Completed B MB

Reviewed By: gog 11/12/15

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

AmeriSci Los Angeles
24416 South Main Street, Suite 308
Carson, CA 90745

TEL: (310) 834-4868
FAX: (310) 834-4772
Acct #:

Field Sampler: David Gengenbacher

06-Nov-15

				Requested Tests		
Sample ID	**Matrix**	**Date Collected**	**Bottle Type**	**Asb_PLM**		
N017528-001A / 10-AOC-27-ACM29	Solid	11/4/2015	4OZG	1		
N017528-002A / 10-AOC-27-ACM30	Solid	11/4/2015	4OZG	1		
N017528-003A / 11-AOC-27-ACM31	Solid	11/4/2015	4OZG	1		
N017528-004A / 11-AOC-27-ACM32	Solid	11/4/2015	4OZG	1		
N017528-005A / 11-AOC-27-ACM33	Solid	11/4/2015	4OZG	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N17528A. Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Molky at (562)-219-7435. Please e-mail results to reports@assetlaboratories.com by: 5-DAY TAT.

Please analyze Asbestos PLM.

	Date/Time		Date/Time
Relinquished by:		**Received by:**	
Relinquished by:		**Received by:**	

ASSET Laboratories

WORK ORDER Summary

09-Nov-15

WorkOrder: N017528

Client ID: ARCUS02

Project: Groundwater Partners **QC Level:** Level IV **Date Received:** 11/6/2015

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N017528-001A	10-AOC-27-ACM29	11/4/2015	11/13/2015	Solid	Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017528-002A	10-AOC-27-ACM30		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017528-003A	11-AOC-27-ACM31		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017528-004A	11-AOC-27-ACM32		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017528-005A	11-AOC-27-ACM33		11/13/2015		Asb_PLM	Asbestos PLM	☐	☐	☑	SUB
N017528-006A	FOLDER		11/13/2015		Folder	Folder	☐	☐	☐	LAB

Please Reply To:

AmeriSci Los Angeles
24416 S. Main Street, Ste 308
Carson, California 90745
TEL: (310) 834-4868 • FAX: (310) 834-4772

FACSIMILE TELECOPY TRANSMISSION

To:	Ed Romualdo	**From:**	Arturo A. Aldana
	Advanced Technology Laboratories dba Asset L	**AmeriSci Job #:**	915111284
Fax #:		**Subject:**	PLM 5 day Results
		Client Project:	

Email: puri@assetlaboratories.com,reports@assetlaboratories.com,molky@assetlaboratories.com

Date: Thursday, November 12, 2015
Time: 16:34:55
Comments:

Number of Pages: 4 (including cover sheet)

AmeriSci Los Angeles
24416 S. Main Street, Ste 308
Carson, California 90745
TEL: (310) 834-4868 • FAX: (310) 834-4772

PLM Bulk Asbestos Report

Advanced Technology Laboratories dba
Attn: Ed Romualdo
3151 W Post Road

Las Vegas, NV 89118

Date Received 11/06/15
Date Examined 11/12/15

RE:

AmeriSci Job # 915111284
P.O. # N17528A
Page 1 **of** 2

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
N017528-001A	915111284-01	*No*	NAD (by CVES) by Arturo A. Aldana on 11/12/15
Location: 10-AOC-27-ACM29			
Analyst Description: Black, Heterogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 2 %, Non-fibrous 98 %			
N017528-002A	915111284-02	*No*	NAD (by CVES) by Arturo A. Aldana on 11/12/15
Location: 10-AOC-27-ACM30			
Analyst Description: Black, Heterogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 2 %, Non-fibrous 98 %			
N017528-003A	915111284-03	*Yes*	2 % (by CVES) by Arturo A. Aldana on 11/12/15
Location: 11-AOC-27-ACM31			
Analyst Description: Black/Grey, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** Chrysotile 2.0 % **Other Material:** Non-fibrous 98 %			
N017528-004A	915111284-04	*Yes*	2 % (by CVES) by Arturo A. Aldana on 11/12/15
Location: 11-AOC-27-ACM32			
Analyst Description: Black/Grey, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** Chrysotile 2.0 % **Other Material:** Non-fibrous 98 %			
N017528-005A	915111284-05	*Yes*	2 % (by CVES) by Arturo A. Aldana on 11/12/15
Location: 11-AOC-27-ACM33			
Analyst Description: Black/Grey, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** Chrysotile 2.0 % **Other Material:** Non-fibrous 98 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

Reporting Notes:

Analyzed By: Arturo A. Aldana aaldana; Date Analyzed: 11/12/2015 4/12/15

*NAD = no asbestos detected; Detection Limit <1%; Reporting Limits: CVES = 1%, 400 Pt Ct = 0.25%, 1000 Pt Ct = 0.1%; NA = not analyzed; NA/PS = not analyzed / positive stop; NVA = No Visible Asbestos; PLM (polarized light microscopy) Bulk Asbestos Analysis by EPA 600/R-93/116, including requirements for EPA 600/M4-82-020 per 40 CFR 763 (NVLAP Lab #200346-0, CA ELAP lab #2322); Note: PLM is not consistently reliable in detecting asbestos in floor coverings and similar NOB materials. TEM is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos-containing in New York State (also see EPA Advisory for floor tile, FR 59, 146, 38970, 8/1/94). NIST Accreditation requirements mandate that this report must not be reproduced except in full with the approval of the laboratory. This PLM report relates ONLY to the items tested.

Reviewed By: aaldana

9151112824

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

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Field Sampler: David Gengenbacher

06-Nov-15

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				Asb_PLM		
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N017528-002A / 10-AOC-27-ACM30	Solid	11/4/2015	4OZG	1		
N017528-003A / 11-AOC-27-ACM31	Solid	11/4/2015	4OZG	1		
N017528-004A / 11-AOC-27-ACM32	Solid	11/4/2015	4OZG	1		
N017528-005A / 11-AOC-27-ACM33	Solid	11/4/2015	4OZG	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N17528A. Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Molky at (562)-219-7435. Please e-mail results to reports@assetlaboratories.com by: 5-DAY TAT.

Please analyze Asbestos PLM.

		Date/Time			Date/Time
Relinquished by:	[signature]	11/6/15 2:45p	**Received by:**	Pissamai Jones	11/6/15 14:45
Relinquished by:			**Received by:**		

Attachment B10
Storm Drain Video Logs

Industrial Waste Line, Clean Out 1

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Industrial Waste Line from Clean Out 1.

3/21/2016 12:08:47 PM 0' -10"

View of Clean Out 1. A metal plate was removed to get access to clean out.

3/21/2016 12:09:27 PM 2' 1"

100% blocked 2.5' into the survey. End of survey.

Industrial Waste Line, Clean Out 2

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Industrial Waste Line from Clean Out 2.

3/21/2016 12:11:30 PM 0' -2"

View of Clean Out 2.

3/21/2016 12:12:08 PM 2' 4"

Start of video.

3/21/2016 12:18:27 PM 9' 9"

Liquid and debris present in the line.

3/21/2016 12:21:35 PM 31' 7"

Free of debris.

3/21/2016 12:21:55 PM 32' 9"

"T" fitting ahead where CO 2 line discharges into main line.

3/21/2016 12:22:05 PM 33' 3"

Main line "T". Main line is red clay pipe. The main line runs "north and south" along the west side of the generator and machine shop building.

3/21/2016 12:23:26 PM 36' 6"

Sludge and debris present.

3/21/2016 12:26:33 PM 48' 7"

Sludge and debris present.

3/21/2016 12:27:08 PM 58' 1"

Stagnant water, but little debris.

3/21/2016 12:27:50 PM 69' 3"

Sludge and debris present.

3/21/2016 12:28:38 PM 74' 5"

Stagnant water.

3/21/2016 12:29:06 PM 80' 1"

Stagnant water.

3/21/2016 12:31:23 PM 87' 0"

Stagnant water.

3/21/2016 12:32:17 PM 97' 9"

Stagnant water.

3/21/2016 12:32:47 PM 100' 10"

Sludge and debris present.

3/21/2016 12:33:44 PM 107' 9"

3/21/2016 12:35:43 PM 116' 1"

Sludge and debris present.

3/21/2016 12:38:36 PM 120' 6"

Sludge and debris present.

3/21/2016 12:39:29 PM

127' 9"

Sludge and debris present.

3/21/2016 12:41:07 PM

130' 0"

Sludge and debris present.

3/21/2016 1:24:20 PM

159' 9"

Cooling Tower Waste Water Cleanout 3

PG&E Topock Compressor Station
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Video survey of the North Cooling Tower Waste Water Cleanout 3.

3/19/2016 2:43:01 PM -4' -11"

3/19/2016 2:43:43 PM -4' -11"

Cleanout 3: 6"gray PVC pipe.

3/19/2016 2:49:53 PM 12' 6"

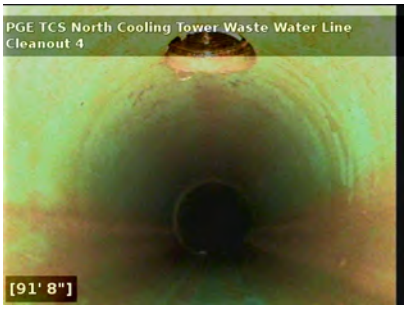
6"Blue PVC pipe

3/19/2016 2:51:57 PM 54' 1"

Location of junction, see pipe on left. Pipe on left is from Floor Drain 39, which is the south floor drain in the north cooling tower.

3/19/2016 2:54:12 PM 91' 1"

A "T" at the top of the pipe. We did not find any access at the surface at this location.



3/19/2016 2:56:28 PM 91' 9"

Same as above, closer view.

3/19/2016 3:10:32 PM 113' 9"

Start of backflow.

3/19/2016 3:11:29 PM 126' 10"

Total distance of this survey was 140' but the camera is under water starting about 130'. The Cleanout 4 is at 137', where the next video starts.

Cooling Tower Waste Water Cleanout 4

PG&E Topock Compressor Station
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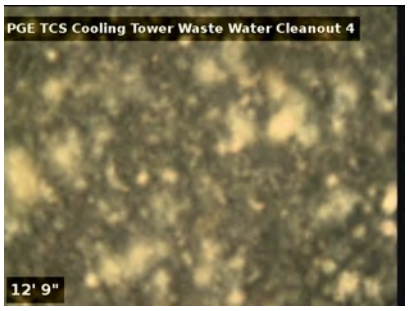
Video survey of Cleanout 4, as part of the North Cooling Tower Waste Water Line

3/19/2016 1:07:38 PM 0' 0"

Cleanout 4: 6" gray PVC pipe.



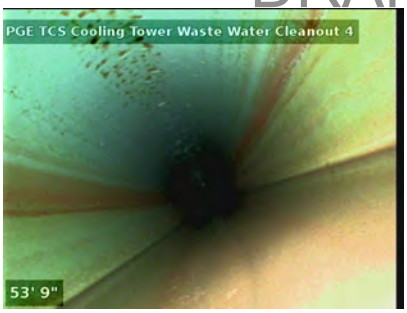
3/19/2016 1:12:24 PM 12' 10"

There was water in the line when the camera entered the line. There is backflow at this location, or the pipe is a low spot.

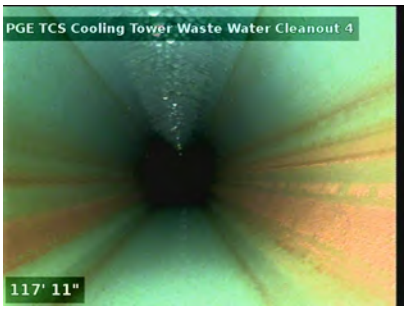
3/19/2016 1:13:20 PM 31' 5"

Liquid flows normal, no backflow.

3/19/2016 1:14:45 PM 53' 9"



Some backflow.



3/19/2016 1:16:27 PM 118' 0"

Normal flow. Pipe is clean and free of debris.

3/19/2016 1:17:04 PM 130' 7"

Normal flow. Pipe is clean and free of debris.

3/19/2016 1:18:00 PM 167' 0"

Normal flow. Pipe is clean and free of debris.

3/19/2016 1:54:12 PM 212' 3"

Normal flow. Pipe is clean and free of debris.

3/19/2016 1:59:38 PM 230' 7"

Normal flow. Pipe is clean and free of debris.

3/19/2016 2:01:32 PM 250' 0"

Normal flow. Pipe is clean and free of debris.

3/19/2016 2:03:22 PM 270' 5"

Pipe 90 degree elbow to the right, west, which is the location of cleanout 5, which will start a new video from CO5

3/19/2016 2:10:47 PM 273' 1"

End of survey.

Industrial Waste Water Line Clean Out 5

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Video survey summary of Clean Out 5, which is part of the Industrial Waste Water Line that drains the two north cooling tower floor drains.

3/24/2016 8:27:36 AM 0' 9"

Start of survey: Clean Out 5.

3/24/2016 8:28:33 AM 1' 2"

View of the cleanout elbowing from vertical to horizontal, towards the west.

3/24/2016 8:28:44 AM 3' 7"

View of the "main line" before entering pipe.

3/24/2016 8:29:03 AM 4' 0"

Entering the main line: blue PVC pipe.

3/24/2016 8:30:10 AM 20' 4"

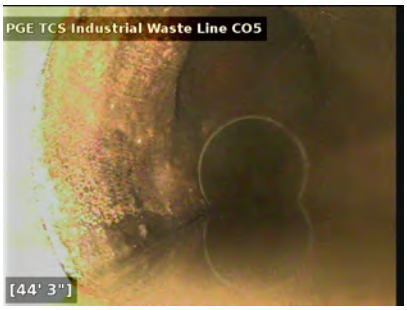
Pipe is free of debris. This location is under the paved road.

3/24/2016 8:31:27 AM 35' 0"

90 degree elbow, towards the south.

3/24/2016 8:35:02 AM 38' 5"

Pipe free of debris.



3/24/2016 8:36:26 AM 44' 4"

"T" fitting with surface access via a bolted blind flange (we could not unbolt it).

3/24/2016 8:46:56 AM 81' 4"

Pipe free of debris.

3/24/2016 8:52:17 AM 95' 7"

Some backflow.

3/24/2016 8:54:06 AM 118' 8"

Pipe free of debris.

3/24/2016 8:56:22 AM 136' 7"

Pipe free of debris.

3/24/2016 9:05:21 AM 160' 0"

Pipe full of water and debris. This is as far as we could advance the camera due to soft sediment. You can see the sediment better in the video.

3/24/2016 9:09:10 AM 141' 4"

This is where the camera came out of the debris as we pulled the camera out of the drain.

Industrial Waste Water Line Clean Out 6 and 7

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of Industrial Waste Water Line, Clean Out 6, which is part of the south cooling tower waste line.

3/24/2016 9:20:55 AM 0' -3"

Clean Out 6, located near the north floor drain of the south cooling tower.

3/24/2016 9:21:14 AM 0' -5"

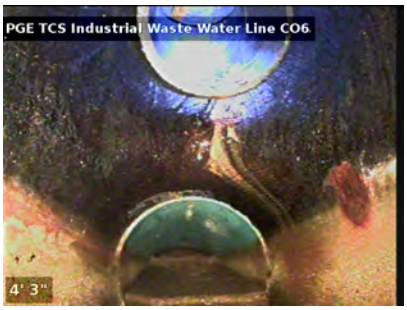
Clean Out 6.

3/24/2016 9:22:00 AM 0' 1"

Elbow from vertical to horzontal. Direction is towards the south.

3/24/2016 9:23:08 AM 1' 10"

View of camera entering the "main line".



3/24/2016 9:34:22 AM 4' 4"

View looking back towards the cleanout access and north down the "main line" . The main line is believed to be capped ~3' north of the cleanout.

3/24/2016 9:35:07 AM 4' 11"

Another view of the cleanout.

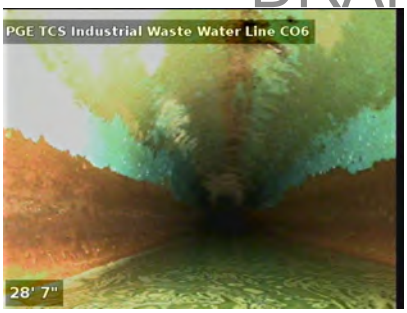
3/24/2016 9:35:45 AM 4' 11"

The view looking south just below the cleanout.

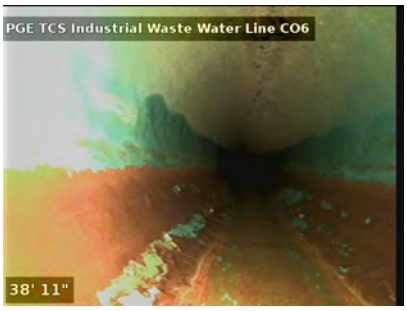
3/24/2016 9:36:14 AM 6' 6"

"T" junction where the north floor drain of the south cooling tower discharges into the main line.

3/24/2016 9:38:11 AM 28' 8"



Pipe free of debris.



3/24/2016 9:38:45 AM 38' 11"

Pipe free of debris.

3/24/2016 9:40:29 AM 58' 5"

View of cleanout 7 and the mainline capped ~3' ahead. The camera will back up to show the 4-way intersection in the next slide.

3/24/2016 9:41:28 AM 56' 5"

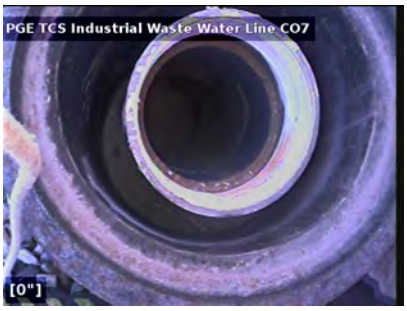
"4-way" junction. Flow from the south floor drain of the south cooling towers discharges into the main line at this location, then all flow in the "main line" flows west, to the right down towards the oil water seperator.

3/24/2016 9:41:59 AM 56' 11"

"4-way junction.

3/24/2016 9:42:14 AM 56' 7"

"4-way" junction.



3/24/2016 9:55:57 AM 0' 0"

Cleanout 7

3/24/2016 10:05:20 AM 3' 3"

View of camera entering main line.

3/24/2016 10:05:46 AM 5' 4"

"4-way" junction. Camera can make the turn to the left, to go down the hill to the oil water seperator, but as we push, the cable continues to move down the main line, which then pulls the camera back out of the downstream line.

Industrial Waste Line, Floor Drain 2

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Industrial Waste Line from Floor Drain 2.

3/21/2016 12:01:40 PM 0' 0"

View of Floor Drain 2.

3/21/2016 12:02:27 PM 1' 7"

Standing water in Floor Drain 2.

3/21/2016 12:03:07 PM 3' 2"

Floor Drain 2 blocked and too small for camera to fit through.

Industrial Waste Line, Floor Drain 4

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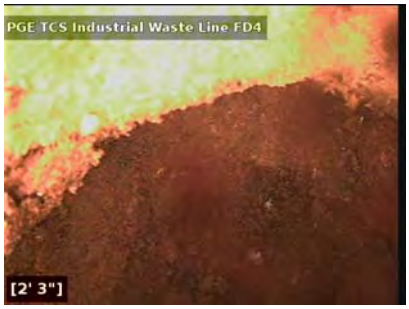
3/21/2016 3:48:48 PM -3' -4"

View of Floor Drain 4.



3/21/2016 3:51:28 PM 2' 4"

Pipe appears corroded.

3/21/2016 3:51:37 PM 2' 4"

100% blocked at 2'3". End of survey.

Industrial Waste Line, Floor Drain 5

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Industrial Waste Line from Floor Drain 5.

3/21/2016 1:42:29 PM 0' -8"

View of Floor Drain 5.

3/21/2016 1:42:52 PM 2' 3"

90 degree elbow to the west. Pipe is corroded.

3/21/2016 1:45:10 PM 11' 9"

End of survey due to the diameter of the pipe being to small to get camera through, but view shows a larger area that may be due to corrosion.

Industrial Waste Line, Floor Drain 7

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Industrial Waste Line downstream of Floor Drain 7.

3/20/2016 2:57:20 PM 0' 0"

View of Floor Drain 7.

3/20/2016 2:57:29 PM 0' 0"

Pipes that discharge into Floor Drain 7 are from (1) pipe trench sump located near west side of Visitor's Park Lot and (2) pipe from the jacket water pumps and cooling tower: these pipes are above ground until they discharge waste into Floor Drain 7.

3/20/2016 2:59:05 PM 1' 5"

Entering waste line. Water or liquid in the line.

3/20/2016 3:00:06 PM 1' 7"

Entered into the Main Line and heavy sludge present.

3/20/2016 3:00:36 PM

29' 0"

Pipe is red clay pipe, with heavy sludge. This was the end of the video due to heavy sludge.

Industrial Waste Line, Floor Drain 8

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Industrial Waste Line from Floor Drain 8

3/21/2016 10:41:36 AM 0' 2"

View of Floor Drain 8.

3/21/2016 10:42:03 AM 3' 8"

4" diameter red clay pipe free of debris and sludge.

3/21/2016 10:43:11 AM 12' 6"

Free of debris, elbow that directs flow into the main line.

3/21/2016 10:43:35 AM 14' 5"

View of the main line. Camera becomes covered in sludge once it enters the main line, therefore end of survey.

Industrial Waste Line, Floor Drain 9

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Industrial Waste Line from Floor Drain 9.

3/20/2016 3:18:47 PM 5' 10"

View of Floor Drain 9.

3/20/2016 3:20:00 PM 0' 11"

Start of video. Pipe appears to be 4" diameter red clay pipe, which is free of sludge and debris.

3/20/2016 3:20:32 PM 4' 2"

Free of sludge and debris

3/20/2016 3:21:20 PM 11' 4"

Grout intruding through red clay pipe joint

3/20/2016 3:21:50 PM 11' 10"

Elbow that directs flow towards the main line, in a north direction.

3/20/2016 3:22:45 PM 13' 11"

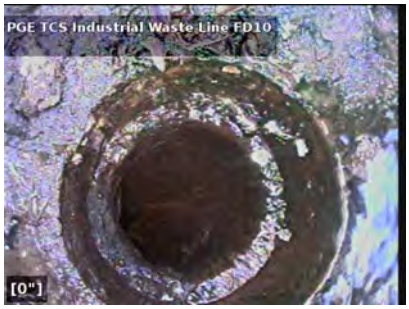
Camera entered into the main line and became covered in black sludge that resulted in the camera lense being completely covered. End of survey.

Industrial Waste Line, Floor Drain 10

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Industrial Waste Line from Floor Drain 10



3/20/2016 3:32:03 PM 0' 0"

View of Floor Drain 10.

3/20/2016 3:32:18 PM 2' 11"

4" diameter red clay pipe, free of debris and sludge.

3/20/2016 3:32:34 PM 6' 3"

Free of debris and sludge.

3/20/2016 3:32:47 PM 9' 1"

Elbow that enters the main line

3/20/2016 3:33:55 PM 12' 10"

Entering the main line.

3/20/2016 3:35:18 PM 14' 7"

Camera entered into the main line and became covered in black sludge that resulted in the camera lense being completely covered. End of survey.

Industrial Waste Line, Floor Drain 11

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Industrial Waste Line from Floor Drain 11.

3/21/2016 10:51:02 AM 4' 1"

View of Floor Drain 11.

3/21/2016 10:52:15 AM 11' 0"

Line is free of debris and sludge, except an empty water bottle was encountered at 11', so the video was stopped since we did not want to push the water bottle into the main line.

Industrial Waste Line, Floor Drain 12

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Industrial Waste Line from Floor Drain 12.

3/21/2016 10:57:46 AM 0' 0"

View of Floor Drain 12

3/21/2016 10:58:39 AM 9' 2"

Pipe is free of sludge and debris, except for a plastic bag encountered at 9'.

3/21/2016 11:00:32 AM 12' 8"

Bag was pushed to 13'. End of video survey due us not wanting to push the plastic bag into the main line.

Industrial Waste Line, Floor Drain 13

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Industrial Waste Line from Floor Drain 13.

3/21/2016 11:05:02 AM 0' 0"

View of Floor Drain 13.

3/21/2016 11:05:35 AM 6' 0"

Pipe is free of sludge and debris.

3/21/2016 11:06:12 AM 12' 8"

View of camera entering the main line. After camera entered into the main line, it became covered in black sludge that resulted in the camera lense being completely covered. End of survey.

Industrial Waste Line, Floor Drain 14

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Industrial Waste Line from Floor Drain 14.

3/21/2016 11:16:24 AM 0' 0"

View of Floor Drain 14.

3/21/2016 11:17:40 AM 6' 11"

Debris present in the line.

3/21/2016 11:18:07 AM 9' 0"

Debris and insect present in the line.

3/21/2016 11:18:28 AM 9' 10"

Line is 100% blocked at 10'. End of survey.

Industrial Waste Line, Floor Drain 15

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Industrial Waste Line from Floor Drain 15.

3/21/2016 11:22:04 AM 0' 1"

View of Floor Drain 15.

3/21/2016 11:22:44 AM 7' 9"

Pipe is free of sludge and debris.

3/21/2016 11:23:33 AM 15' 10"

Elbow that directs flow down and to the right (north) into the main line.

3/21/2016 11:24:39 AM 18' 8"

Line continues parallel with main line.

3/21/2016 11:25:22 AM 20' 5"

Line drops flow down into the main line. View of main line from above.

3/21/2016 11:25:32 AM 20' 5"

View of main line. Flow is stagnant. Pipe is red clay pipe.

3/21/2016 11:25:48 AM 20' 5"

View of main line. After camera entered into the main line, it became covered in black sludge that resulted in the camera lense being completely covered. End of survey.

Industrial Waste Line, Floor Drain 16

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Industrial Waste Line from Floor Drain 16.

3/21/2016 11:30:25 AM 6' 9"

View of Floor Drain 16. Line was blocked and the video stopped at 1'. Footage on video should be 0'0".

Industrial Waste Line, Floor Drain 17

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Industrial Waste Line from Floor Drain 17.

3/21/2016 11:33:49 AM 2' 3"

View of Floor Drain 17.

3/21/2016 11:34:49 AM 8' 0"

Some debris, but mainly free of sludge and debris.

3/21/2016 11:36:06 AM 16' 1"

Elbow that directs flow down into the main line.

3/21/2016 11:36:50 AM 19' 11"

View of main line. End of survey.

Industrial Floor Drain 38

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Industrial Waste Line from Floor Drain 38

3/21/2016 11:11:31 AM 0' 1"

View of Floor Drain 38, located inside the compressor station building.

3/21/2016 11:11:35 AM 3' 4"

Debris in background

3/21/2016 11:11:44 AM 4' 3"

Floor drain is completely plugged, unable to pass camera through debris. End of survey.

Industrial Waste Line, Floor Drain 44

PG&E Topock Compressor Station

NeedlesCA92363

3/21/2016 4:10:00 PM 0' 0"

View of Floor Drain 44. Flow from FD44 is discharged into the pipe trench sump, located on the west side of the Vistor's Parking Lot.

3/21/2016 4:10:46 PM 0' 7"

View of bottom of pipe, flow exits the "sump" at the bottom, top of the photo.

3/21/2016 4:11:04 PM 1' 6"

View of outflow, top of photo.

3/21/2016 4:11:36 PM 4' 3"

Pipe has debris inside of the pipe.

3/21/2016 4:12:29 PM 8' 4"

70% blockage from debris.

3/21/2016 4:12:59 PM 11' 1"

70% blockage from debris.

3/21/2016 4:13:32 PM 12' 8"

Transition from steel pipe to 4" gray PVC pipe.

3/21/2016 4:13:48 PM 13' 4"

Pipe is free of debris.

3/21/2016 4:14:31 PM 18' 4"

45 degree elbow towards sump.

3/21/2016 4:16:24 PM 27' 6"

90 degree elbow, into sump.

3/21/2016 4:17:39 PM 28' 11"

90 degree elbow, into sump. End of survey.

Industrial Waste Line Man Hole 1, Upstream & Downstream

PG&E Topock Compressor Station

NeedlesCA92363

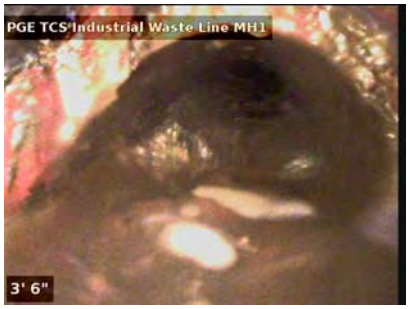
Video survey summary of Industrial Waste Line downstream and upstream of Man Hole 1. Heavy build up of sludge and debris resulted in refusal in both direction within feet.

3/20/2016 2:18:09 PM 4' 2"

View of Man Hole 1. Flow is from the right to the left. The compressor building is located to the north west of the Man Hole, the mechanic shop is located to the south east.

3/20/2016 2:20:12 PM 0' 0"

View looking downstream. Pipe is 8" red clay pipe. Liquid is stagnant in this man hole.



3/20/2016 2:21:37 PM 3' 6"

View looking downstream at the start of the video. Pipe is 90% blocked.

3/20/2016 2:22:06 PM 3' 6"

View as camera was removed from downstream pipe.

3/20/2016 2:22:41 PM 3' 7"

View looking upstream from the man hole. The length should be 0'0" for this photo.

3/20/2016 2:23:07 PM 3' 7"

View looking upstream at 1'0". Pipe is at least 90% blocked.

Industrial Waste Line Man Hole 2: Downstream & Upstream

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Industrial Waste Line downstream and upstream of Man Hole 2.

3/20/2016 9:25:56 AM 3' 0"

View of Man Hole 2: MH2

3/20/2016 9:37:38 AM 0' 0"

Start of video survey, downstream of MH2. Pipe is white 8" PVC. Sludge present at the start of the video and becomes thick or with heavy build up 5' into the video.

3/20/2016 9:46:04 AM 40' 8"

Sludge became to thick to proceed downstream. The following pictures were taken as the camera was being pulled out of the line.

3/20/2016 9:52:33 AM 31' 9"

Heavy sludge build up and back flow. Appears to be red clay pipe.

3/20/2016 9:54:20 AM 12' 5"

Heavy sludge build up

3/20/2016 9:54:50 AM 5' 11"

Beginning of heavy sludge from MH2 downstream

3/20/2016 10:09:34 AM 0' 0"

The start of the next video survey from inside MH2, but advancing the camera upstream from the man hole. The pipe started as white PVC, 8" diameter, but then transitioned to red clay pipe within a few feet of the man hole.

3/20/2016 10:17:06 AM 5' 1"

Transition to red clay pipe. Some sludge present

3/20/2016 10:18:14 AM 21' 0"

Debris and sludge in the pipe

3/20/2016 10:18:41 AM 26' 3"

Sludge becomes heavier

3/20/2016 10:19:51 AM 35' 10"

Camera pushing through heavy sludge. Some oil/sludge on the screen distorts the image.

3/20/2016 10:20:02 AM 36' 1"

Heavy sludge. Oil on the camera lense.

3/20/2016 10:20:50 AM 40' 1"

Industrial Waste Line Man Hole 3: Downstream

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Industrial Waste Line downstream from Man Hole 3 to the "grit tank".

3/20/2016 8:27:21 AM 0' 0"

View of inside the Man Hole 3: MH3.

3/20/2016 8:29:03 AM 8' 8"

Waste line is 8" diameter green PVC, in good condition with little to no build up.

3/20/2016 8:30:06 AM 26' 8"

Bell type joint

3/20/2016 8:30:48 AM 34' 3"

PVC/steel elbow

3/20/2016 8:36:27 AM 119' 0"

PVC/steel elbow

3/20/2016 8:37:11 AM 123' 0"

PVC/steel elbow, down and 90 degrees to the right, west, towards the grit tank.

3/20/2016 8:37:37 AM 125' 0"

Black steel pipe

3/20/2016 8:38:25 AM 132' 11"

Subtle downward elbow, black steel pipe

3/20/2016 8:39:05 AM 137' 7"

Subtle downward elbow, black steel pipe

3/20/2016 8:41:15 AM 157' 4"

Some back flow prior to the 90 degree elbow into the grit tank

3/20/2016 8:42:02 AM 160' 9"

Fittings/joints prior to elbow. Fittings are a valve visible above the grit tank

3/20/2016 8:48:59 AM 164' 6"

90 degree elbow down to the grit tank

3/20/2016 8:54:48 AM 164' 6"

90 degree elbow down to the grit tank

Industrial Waste Line Man Hole 3: Upstream

PG&E Topock Compressor Station

NeedlesCA92363

3/20/2016 11:55:55 AM 0' 0"

Start of survey from Man Hole 3, going upstream towards Man Hole 2. Photo is taken from inside the man hole trench.

3/20/2016 11:56:48 AM 8' 8"

Blue PVC pipe, free of sludge, and transitions to red clay pipe at ~10'.

3/20/2016 11:57:03 AM 9' 3"

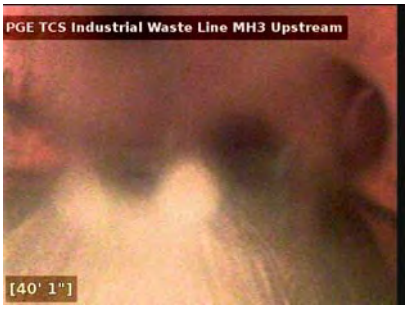
Red clay pipe, free of sludge.

3/20/2016 11:57:44 AM 17' 5"

Red clay pipe, free of sludge.

3/20/2016 11:58:18 AM 20' 2"

Red clay pipe, free of sludge.



3/20/2016 12:01:11 PM 40' 1"

One the right side of the photo, you can see an outlet. This outlet is from the main waste line that flows north along the west side of the compressor building. There was not a man hole at this junction. There is some oil on the camera lense.

3/20/2016 12:08:46 PM 46' 2"

Increasing sludge.

3/20/2016 12:09:45 PM 50' 10"

Heavy sludge.

3/20/2016 12:10:32 PM 54' 4"

Sludge has filled roughly half of the pipe.

3/20/2016 12:11:18 PM

56' 4"

End of video due to heavy sludge.

Catch Basin 25

PG&E Topock Compressor Station
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Video survey summary of Catch Basin 25

3/16/2016 2:41:24 PM -1' -10"

Catch Basin 25

3/16/2016 2:44:09 PM 1' 5"

4" gray PVC pipe, outfalls into a box or catch basin at 2.5'.

3/16/2016 2:48:29 PM 3' 1"

Inside the catch basin. No obvious discharge point.

3/16/2016 2:50:16 PM 3' 0"

PG&E Topock Compressor Station

Catch Basin 27 and 26

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of Catch Basin 27 and 26.

3/16/2016 1:14:40 PM 1' 4"

Catch Basin 27.

3/16/2016 1:15:06 PM 2' 0"

8" white PVC pipe.

3/16/2016 1:17:53 PM 0' 0"

PVC pipe, free of debris

3/16/2016 1:33:17 PM 15' 9"

View of Catch Basin 26

3/16/2016 1:33:36 PM 18' 3"

Catch Basin 26

3/16/2016 1:35:02 PM 24' 8"

6" red clay pipe

3/16/2016 1:36:14 PM 35' 11"

Blockage at 36'

Catch Basin 28

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of Catch Basin 28.

3/16/2016 12:44:34 PM 0' 10"

Location of Catch Basin 28.

3/16/2016 12:47:14 PM 17' 7"

8" white PVC pipe.

3/16/2016 12:48:24 PM 28' 3"

Sand in bottom of pipe.

3/16/2016 1:01:22 PM 66' 10"

View of outfall from CB28 pipe into CB30.

3/16/2016 1:05:17 PM 2' 9"

Catch Basin 28

Catch Basin 30

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of Catch Basin 30.

Normal

3/16/2016 3:10:06 PM -2' -10"

Catch Basin 30. The pipe on the left (white PVC) discharges into the catch basin from Catch Basin 28. Flow exits the catch basin through the pipe on the right of the catch basin.

3/16/2016 3:10:47 PM -2' -5"

Discharge line of CB30. 8" red clay pipe.

3/16/2016 3:11:11 PM 0' 0"

Start of survey

3/16/2016 3:11:44 PM 0' 4"

Discharge from Catch Basin 31.

3/16/2016 3:12:14 PM 0' 4"

Close up view of 4" PVC line from CB31.

3/16/2016 3:13:06 PM 3' 6"

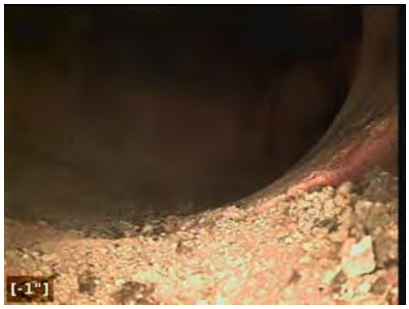
Blockage at 5'

Storm Drain Line 11, Catch Basin 30 and Downstream

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Storm Drain Line 11 from CB-30. The survey starts at CB-30 and goes downstream, to the west towards CB-25. A mesh box or cover was used where CB-25 water discharges into the mainline.



2/4/2017 2:01:47 PM 0' -1"

Start of survey from Catch Basin 30. Pipe is 8" diameter red clay pipe. Pipe is facing north from the CB-30, but makes an immediate right turn, towards the west as seen in this photo.

2/4/2017 2:02:35 PM 0' -1"

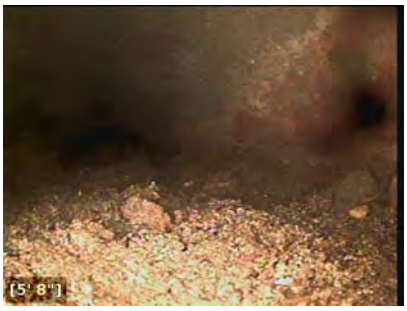
Start of survey from CB-30, but looking up. A right turn towards the west can be seen in the background. A white 3-inch diameter white PVC can be seen in the upper righht corner of the picture - this is CB-31's discharge point into SDL-11.

2/4/2017 2:02:45 PM 0' -1"

Start of the survey, another look but zoomed out.

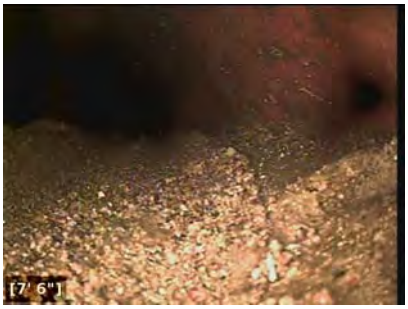
2/4/2017 2:01:39 PM 0' 2"

Camera traveling through the sharp right, westward turn towards CB-25.



2/4/2017 2:00:50 PM 5' 9"

Debris in the bottom of the pipe.



2/4/2017 2:00:29 PM 7' 6"

Debris in the bottom of the pipe.

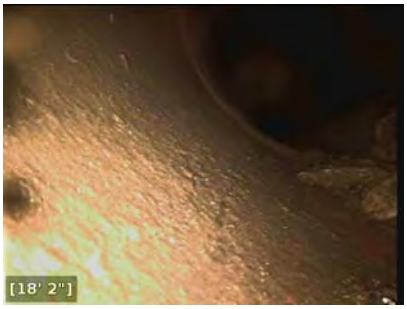
2/4/2017 2:00:05 PM 12' 7"

Less debris, but some at the bottom of the pipe.

2/4/2017 1:59:45 PM 16' 2"

Pipe fairly open.

2/4/2017 1:59:32 PM 18' 2"



Pipe free of debris.

2/4/2017 1:58:21 PM 22' 3"

CB-25 entry box, looking up.

2/4/2017 1:58:46 PM 22' 3"

CB-25 entry box, looking down. Pipe appears to angle downward beyond this point.

2/4/2017 1:52:49 PM 23' 10"

CB-25 entry box, looking up.

2/5/2017 10:21:54 AM 24' 8"

Metal mesh where CB-25 water would enter the SDL-11 mainline. This photo is looking upward and to the left.

2/5/2017 10:22:42 AM 24' 8"

CB-25 water entry, looking downward and to the left.

2/5/2017 10:23:03 AM 24' 8"

Flow testing CB-25. Water was added to CB-25, and cascaded at this location as shown in the this photo.

2/5/2017 10:23:20 AM 24' 8"

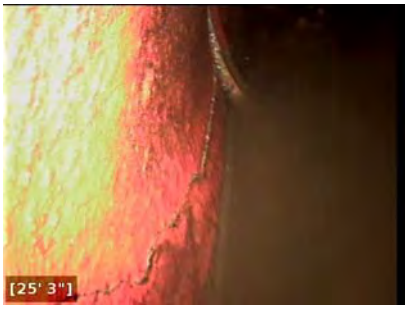
CB-25 flow testing.

2/5/2017 10:23:29 AM 24' 8"

CB-25 flow testing.

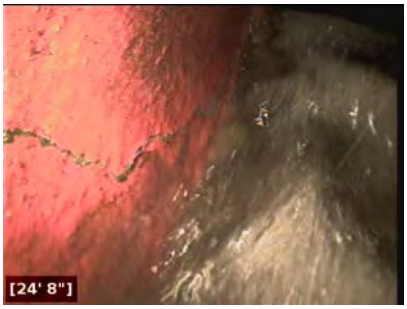
2/5/2017 10:23:57 AM 25' 8"

Advanced the camera past the CB-25 entry point. The pipe seems to drop, then go horizontal. Standing water in the pipe below the CB-25 entry point.



2/5/2017 10:24:28 AM 25' 0"

Standing water below the CB-25 entry point. Small crack on left side of pipe. This is the end of the survey. Could not advance the camera beyond this point due to wire friction in the pipe - cannot see any obstructions that would restrict the camera's advancment.



2/5/2017 10:25:55 AM 24' 8"

Flow testing of CB-25 in an attempt to advance the camera beyond this point. End of survey

Catch Basin 31

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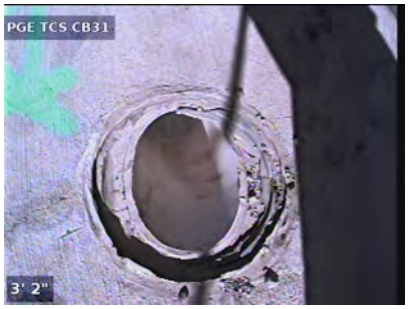
Video survey summary of Catch Basin 31.



3/16/2016 3:29:16 PM 3' 3"

Catch Basin 31. Located 20' south of CB30.

3/16/2016 3:29:58 PM 2' 0"

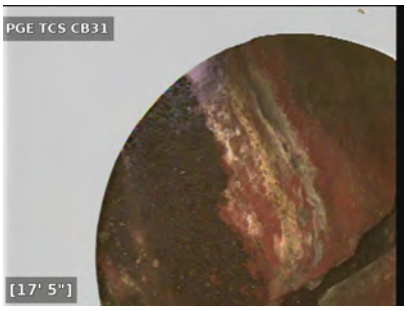
4" white PVC pipe. Elbow to more horizontal flow.

3/16/2016 3:30:49 PM 14' 4"

Free of debris

3/16/2016 3:31:03 PM 16' 2"

Downward elbow



3/16/2016 3:31:23 PM 17' 5"

Discharge point into line that drains CB30.

Industrial Waste Line Man Hole 1, Upstream (12/2016)

PG&E Topock Compressor Station

NeedlesCA92363

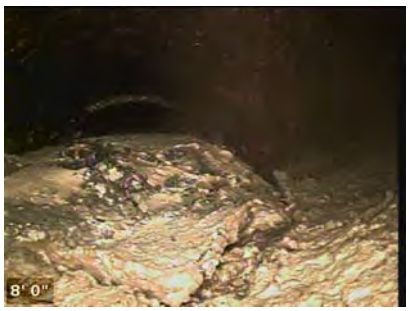
Video survey summary of Industrial Waste Line upstream of Man Hole 1. An early video was attemped (3/20/16) but was unable to advance the camera beyond the debris and water that was in the line. During this survey, the line was dry and were able to advance the camera upstream.

12/19/2016 10:22:05 AM 4' 4"

Pipe is an 8" diameter red clay pipe. Pipe has debris in the pipe roughly 50%.

12/19/2016 10:22:21 AM 4' 4"

Debris in the pipe.



12/19/2016 10:25:24 AM 8' 0"

Unknown obstruction.

12/19/2016 10:28:45 AM 8' 9"

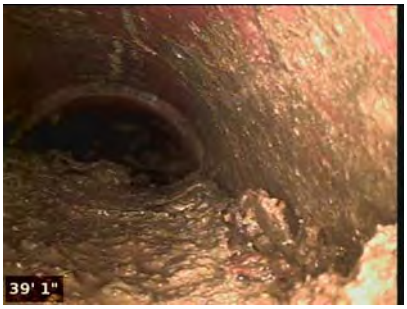
Debris in pipe.

12/19/2016 10:48:14 AM 41' 2"

Obstruction. Location of this obstruction appears to correlate with the approximate location where the FD-4, FD-5, and FD-6 lateral would meet the mainline.

12/19/2016 10:49:26 AM 41' 2"

Water was added at FD-4, FD-5, and FD-6 to understand the location of the lateral T. It was observed that water seemed to appear, and possibly from above this location. So it was believed that this location is close to where the FD-5 lateral meets the mainline. This is the end of the survey; however, there were additional photos taken as the camera was removed from the pipe. See below.



12/19/2016 10:56:10 AM 39' 2"

Photos as the camera was removed from the pipe.

12/19/2016 10:57:57 AM 35' 11"

Debris in the pipe.

12/19/2016 11:02:58 AM 27' 2"

Debris in the pipe.

12/19/2016 11:04:35 AM 23' 2"

Debris in the pipe.

12/19/2016 11:08:18 AM 12' 3"

Debris in the pipe.

Storm Drain Line 2

PG&E Topock Compressor Station
NeedlesCA92363

Summary of the Storm Drain Line 2 video survey. Storm Drain Line 2 is located in the southeast area of the Topock Compressor Station near the "Tech's Office". Run off flow is derived from Trench 1.

3/15/2016 4:40:19 PM 0' -12"

Photo of Trench 1. The small hole at the bottom of the trench, between the pipes is the storm drain line. Flow is from within the trench, down the storm drain hole then to the east, or left in the photo.

3/15/2016 4:40:45 PM 0' -10"

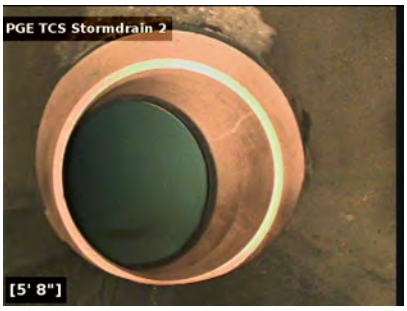
Start of survey at Trench 1. Pipe is 6" cast iron steel pipe, which quickly "90's" to the east, or right in the photo.

3/15/2016 4:43:00 PM 3' 5"

Transition from iron pipe to PVC pipe.

3/15/2016 4:43:21 PM 4' 9"

Transition from black PVC to blue PVC.

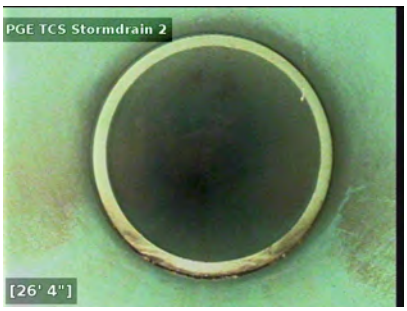


3/15/2016 4:43:53 PM 5' 9"

Storm line fitting "45's" to the north.

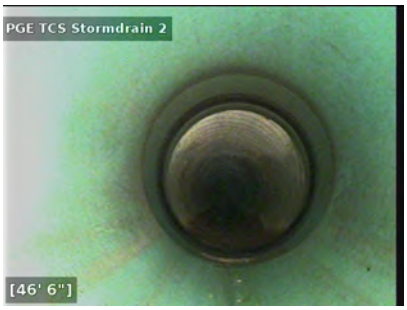
3/15/2016 4:44:30 PM 10' 7"

Blue PVC pipe.



3/15/2016 4:45:38 PM 26' 5"

Typical PVC joint.



3/15/2016 4:47:25 PM 46' 6"

Transition from blue PVC to corrugated steel pipe.

3/15/2016 4:48:04 PM 47' 7"

Transition from blue PVC to corrugated steel pipe.

3/15/2016 4:48:55 PM 53' 0"

Corrugated steel pipe. Bottom of pipe rusty, but no obvious holes in pipe.

3/15/2016 4:49:50 PM 56' 11"

Transition from horizontal pipe to downward pipe, down the side of the station hill.

3/15/2016 4:50:31 PM 58' 1"

Downward transition.

3/15/2016 4:52:04 PM 75' 11"

Corrugated steel pipe

3/15/2016 4:53:13 PM 90' 0"

Coroded steel pipe with possible holes on the right side of photo.

3/15/2016 4:54:16 PM 100' 0"

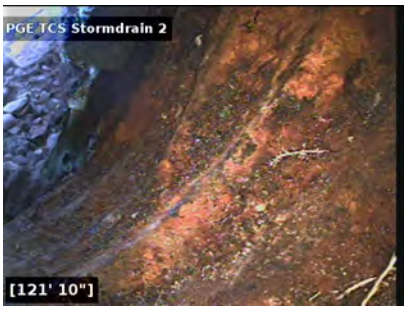
Coroded steel pipe with possible holes at the bottom of the pipe.

3/15/2016 4:55:39 PM 114' 11"

Near the end of the video survey.

3/15/2016 4:56:09 PM 119' 4"

A "45" junction near the outfall.



3/15/2016 4:57:05 PM 121' 11"

Total length of video survey was 122'.

Storm Drain Line 3, Catch Basins 1, 2, 3, and 5

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Video survey summary of Storm Drain Line 3 from Catch Basin 1, 2, 3 and 5. All surveys are in the "downstream" direction.

3/15/2016 10:12:30 AM 0' -1"

Catch Basin 1

3/15/2016 10:13:09 AM 0' -2"

Start of survey: 5" red clay pipe.

3/15/2016 10:13:42 AM 0' 0"

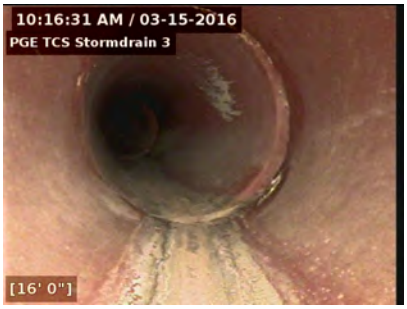
Pipe free of debris.

3/15/2016 10:14:39 AM 7' 11"

Small debris for very short distance.

3/15/2016 10:15:36 AM 12' 10"

Elbow joint to the left, slight offset.



3/15/2016 10:16:32 AM 16' 1"

Elbow joint to the left.

3/15/2016 10:17:11 AM 18' 8"

"Y" joint 1' ahead.

3/15/2016 10:18:09 AM 19' 9"

View of the "main line" where CB1 flows into Storm Drain Line 3.

3/15/2016 10:18:26 AM 20' 4"

PG&E Topock Compressor Station

3/15/2016 10:43:35 AM -3' -5"

Catch Basin 3, pipe on left is outfall from CB4. Flow discharges the catch basin through the pipe in the lower right corner of photo.

3/15/2016 10:44:21 AM -3' -5"

Catch Basin 3, pipe on left is outfall from CB4. Flow discharges the catch basin through the pipe in the lower right corner of photo.

3/15/2016 10:44:43 AM 0' 0"

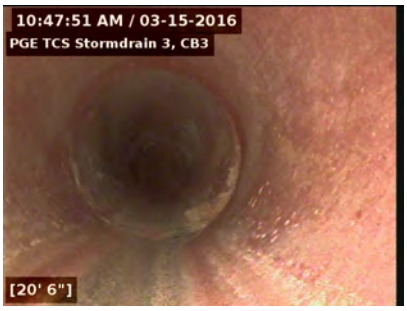
Red clay 8" pipe between CB3 and CB2.

3/15/2016 10:45:36 AM 1' 8"

View as camera is about to enter CB2. The pipe on the other side is the discharge pipe for CB2. The next slide is a photo taken just as the camera entered the discharge pipe of CB2.

3/15/2016 10:46:39 AM 4' 11"

Red clay pipe free of debris. Start from CB2.



3/15/2016 10:47:51 AM 20' 7"

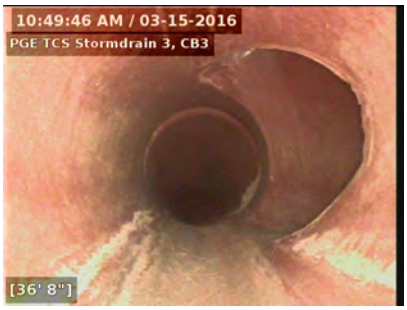
Red clay pipe free of debris.

3/15/2016 10:48:20 AM 23' 1"

Red clay pipe free of debris.

3/15/2016 10:49:19 AM 35' 10"

The "Y" fitting in the background. Flow that would discharge into the pipe from the right is from CB1.



3/15/2016 10:49:47 AM 36' 9"

"Y" joint as described above.

3/15/2016 10:52:27 AM 76' 4"

Red clay pipe free of debris and start of downward slope.

3/15/2016 10:52:53 AM 83' 4"

Red clay pipe free of debris. Pipe is sloping downward.

3/15/2016 10:53:42 AM 88' 5"

Broken red clay pipe inside of red clay pipe.

3/15/2016 10:54:39 AM 90' 9"

Broken red clay pipe inside of red clay pipe.

3/15/2016 10:55:31 AM 94' 2"

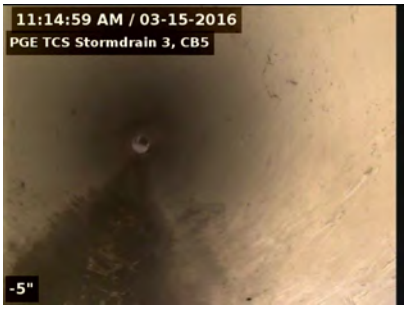
Nearly to outfall.

3/15/2016 10:56:12 AM 94' 10"

Storm Drain 3 outfall.

3/15/2016 11:14:15 AM 0' 4"

Catch Basin 5, start of survey. CB5 once upon a time discharged to CB2, but was cut and a segment removed in a utility trench to make way for another utility that needed to be run through the trench.



3/15/2016 11:15:00 AM 0' -5"

6" white PVC pipe free of debris.

3/15/2016 11:15:06 AM 0' -5"

Free of debris

3/15/2016 11:16:50 AM 7' 9"

Utility trench ahead

3/15/2016 11:17:21 AM 9' 7"

View of cut storm drain line, utility trench (with competing utility running left to right. ~3") and what

would have been the continuation of the storm drain line on the other side of the trench, as you can see in the photo.

3/15/2016 11:20:30 AM 9' 11"

This is Jamie moving the camera across the trench.

3/15/2016 11:20:49 AM 14' 6"

About to be inserted into the storm drain to continue video.

3/15/2016 11:24:57 AM 60' 8"

Moving on.

3/15/2016 11:26:52 AM 62' 7"

The outfall of this line is into CB2.

Storm Drain Line 3, Catch Basin 4 Downstream, Catch Basin 3 Upstream

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of Storm Drain Line 3 from Catch Basion 4.

3/15/2016 3:32:02 PM 1' 1"

Start of survey from Catch Basin 4, downstream.

3/15/2016 3:33:12 PM 0' 0"

4" diameter red clay pipe

3/15/2016 3:33:57 PM 5' 8"

Pipe is coated with scale but free of debris.

3/15/2016 3:34:30 PM 9' 10"

Pipe is free of debris.

3/15/2016 3:35:00 PM 14' 1"

Some silt in bottom of pipe.

3/15/2016 3:35:32 PM 19' 4"

Silt in bottom of pipe. Survey stopped at blockage ~5' ahead. Camera removed from Catch Basin 4 and moved to Catch Basin 3 and ran upstream to the blockage and photographed on the way out, starting at the next slide.

3/15/2016 3:46:48 PM 31' 9"

Survey is from CB3 upstream to the blockage at 32'.

3/15/2016 3:47:35 PM 30' 11"

Blockage

3/15/2016 3:48:51 PM 28' 8"

Photo coming out of pipe.

3/15/2016 3:49:07 PM 27' 4"

Transition from 4" red clay pipe to white PVC pipe.

3/15/2016 3:49:34 PM 26' 1"

Clean white PVC pipe.

3/15/2016 3:50:16 PM 17' 8"

Transition from PVC to red clay pipe.

3/15/2016 3:51:10 PM 14' 0"

Red clay pipe, free of debris.

3/15/2016 3:52:53 PM -3' -6"

Catch Basion 3, looking at the outfall from the line that runs from CB4 to CB3.

Storm Drain Line 3, Catch Basin 6 Downstream

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Storm Drain Line 3 from Catch Basin 6, downstream. Line runs from CB-6 due south towards the SDL 3 mainline.

12/4/2016 1:30:17 PM -1' -2"

Catch Basin 6

12/4/2016 1:30:54 PM 0' 7"

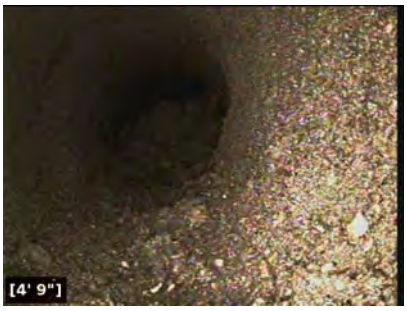
Pipe was cleared/cleaned of debris

12/4/2016 1:31:24 PM 2' 2"

Pipe was cleared/cleaned of debris. Note, this is the location where a valve was located in a valve box. Valve is open during the video.

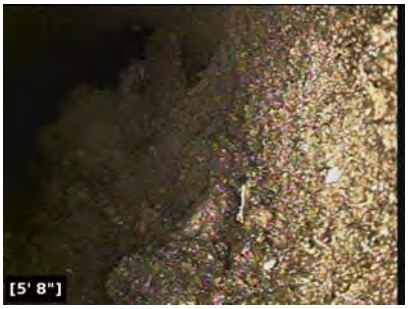
12/4/2016 1:32:01 PM 3' 7"

Debris in bottom of pipe.



12/4/2016 1:32:17 PM 4' 9"

Debris in bottom of pipe.



12/4/2016 1:32:39 PM 5' 9"

Debris in bottom of pipe.

12/4/2016 1:52:01 PM 6' 9"

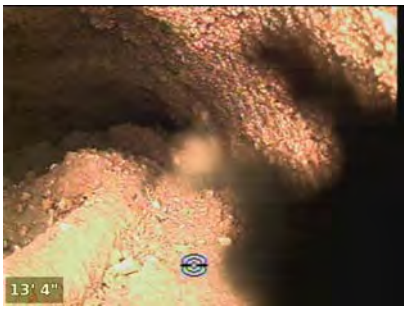
Pipe free of debris. Pipe is red clay 8" diameter, in good condition.

12/4/2016 1:54:19 PM 9' 10"

Obstruction at 10'.

12/4/2016 1:58:03 PM 13' 5"

Obstruction caused by debris.



12/4/2016 1:58:17 PM 13' 5"

Sand and gravel obstruction.

12/4/2016 1:59:15 PM 14' 10"

Camera moving over and through the obstruction.

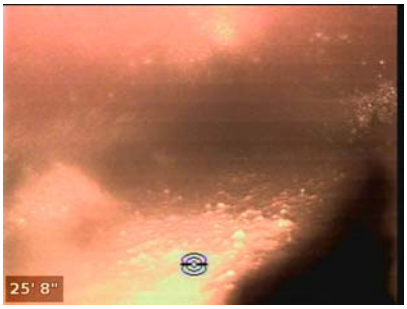
12/4/2016 2:00:18 PM 15' 9"

Some debris in bottom of pipe.

12/4/2016 2:07:14 PM 16' 2"

Some debris in bottom of pipe.

12/4/2016 2:30:31 PM 25' 9"



End of survey. Pipe becomes filled with more debris that camera cannot pass.

Storm Drain 4, Catch Basin 32

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Storm Drain Line 4 from the outfall. The survey starts by going upstream from the outfall and reaches it's catch basin (CB 32).

3/24/2016 10:47:33 AM 8' 4"

Storm Drain 4 outfall

3/24/2016 10:48:06 AM 6' 0"

4" diameter gray PVC pipe

3/24/2016 10:48:41 AM 11' 11"

Camera is entering into the catch basin.

3/24/2016 10:49:29 AM 13' 4"

Catch Basin 32. This catch basin is located outside of the visitor's parking lot fence, within, or between the oleander bushs.

The catch basin was completely covered with debris at the time of the video.

Storm Drain Line 4b

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of the Storm Drain Line 4b, located northeast of the Compressor Station Visitor Parking Lot. Video is from the outfall upward as there was not a catch basin found associated with the storm drain.

3/22/2016 4:40:14 PM 0' 0"

Start of survey at the 5" diameter PVC outfall. Survey is "upstream".

3/22/2016 4:43:21 PM 28' 10"

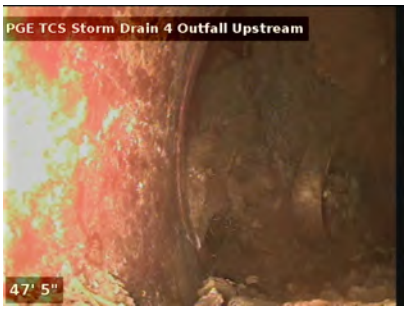
Pipe free of debris.

3/22/2016 4:44:35 PM 39' 0"

Bend to more horizontal pipe.

3/22/2016 4:45:28 PM 46' 0"

Gravel and debris.



3/22/2016 4:46:19 PM 47' 5"

Storm drain line blocked.

3/22/2016 4:46:32 PM 47' 5"

Gravel debris

3/22/2016 4:48:22 PM 47' 7"

Debris

3/22/2016 4:48:50 PM 47' 7"

Blockage visible in the background. End of survey.

Storm Drain Line 5, Catch Basin 7

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of Storm Drain Line 5.

3/6/2016 11:33:58 AM 3' 3"

Catch Basion 7, start of survey.

3/6/2016 11:34:53 AM 4' 4"

Corrugated steel in good condition.

3/6/2016 11:37:58 AM 22' 9"

Free of debris and corrosion.

3/6/2016 11:38:29 AM 25' 11"

Slight gap at 26' as seen by the daylight. Outfall in background of photo.

3/6/2016 11:39:45 AM 33' 8"

Outfall.

3/6/2016 11:40:11 AM 34' 5"

View of road coming up to the TCS.

Storm Drain Line 6, Catch Basin 8

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of Storm Drain Line 6. The photos may seem out of order as there were several attempts to make a left or right turn at the "T".

3/6/2016 9:57:51 AM 36' 10"

This is a photo of a "T" at 37' from Catch Basin 8. There are phtos from 0' to 37' later in this report. The stringy material is palm tree roots, which there are 3 trees located near this location.

3/6/2016 10:15:24 AM 0' 3"

We were unable to video from the "T" to the outfall, so we ran the camera upstream from the current outfall, which is inside the TCS fence line.

3/6/2016 10:19:42 AM 14' 3"

Location of "T", looking at it from the outfall pipe. The first picture in this report was taken by the camera facing the left side of this photo from the pipe on the right.

3/6/2016 10:26:38 AM 15' 5"

View of "T" looking upstream. Flow is coming from pipe on the right side of the photo, where we had added water to CB8. The camera was unable to proceed upstream to the left.

3/6/2016 10:34:46 AM 0' 9"

The length is incorrect on the this and the next 2 photos. The length should be 16', looking upstream from the "Y".

3/6/2016 10:38:50 AM 0' 10"

Looking upstream from the "Y".

3/6/2016 10:39:29 AM 0' 11"

Looking upstream from the "Y".

3/6/2016 11:09:14 AM 0' 11"

Photo of Catch Basin 8. The next set of photos are from CB8.

3/6/2016 11:11:23 AM 5' 7"

Steel corrugated pipe.

3/6/2016 11:17:25 AM 0' 6"

Corrosion on the bottom of the steel corrugated pipe.

3/6/2016 11:18:24 AM 11' 5"

Pipe corrosion free.

3/6/2016 11:19:29 AM 22' 9"

Pipe corrosion free.

3/6/2016 11:21:08 AM 33' 8"

Photo of the "T" after we had flushed more water through the line.

3/6/2016 11:21:16 AM 33' 7"

Photo of the "T" after we had flushed more water through the line.

3/6/2016 11:22:03 AM 34' 5"

Photo of the "T" after we had flushed more water through the line.

Storm Drain Line 7

PG&E Topock Compressor Statoin
Needles CA 92363

Sunday, February 21, 2016

Summary of the video Survey of storm drain line 7, that is located on the northwest side of the Topock Compressor Station manager's parking carport, east of the refueling area. The storm drain line 7 is primarly burried for all of it's length.

2/20/2016 2:12:02 PM 1' 1"

Start of survey at Catch Basin 9. Pipe is 4" diameter gray PVC from 0' to 1.5'. At 1.5', pipe transitions from PVC to corroded corrugated steel, then transitions back to PVC at 2.5' as shown in the next slide.

2/20/2016 2:12:43 PM 2' 0"

Transition from corroded corrugated steel pipe to PVC pipe. Bottom portion of corrugated steel appears to completely corroded.

2/20/2016 2:14:23 PM 9' 6"

Catch Basin 10 Top portion of PVC pipe is cut open to allow water to flow from Cacth Basin 10 into Storm Drain Line 7. Debris is from material that collected within Catch Basin 10. PVC pipe is clean and free of debris starting at 10'.

2/20/2016 2:15:26 PM 15' 1"

Transiton from horizontal flow to curved elbow as pipe/flow is conveyed down slope.

2/20/2016 2:16:37 PM 17' 1"

Short transition from PVC pipe to other (?) then back to PVC pipe. Debris appears to be entering the transition piece of pipe from the top portion of the pipe.

2/20/2016 2:21:50 PM 76' 11"

Typical PVC joint. PVC pipe is clean and in good condition.

2/20/2016 2:23:57 PM 105' 9"

Total length of video survey was 107'.

Old Storm Drain Line 8

PG&E Topock Compressor Station

NeedlesCA92363

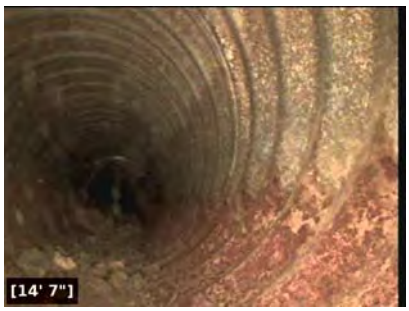
Video survey summary of Storm Drain Line 8 (old), which is located adjacent and to the south of the active Storm Drain Line 8. The outfalls of the two lines are locacted next to each other near the bottom of the wash in AOC 11. The video was conducted from the outfall upstream, uphill.

2/15/2017 2:21:47 PM 9' 6"

Out fall of the "old" Storm Drain Line 8, which is located due south of the active Storm Drain Line 8's outfall.

2/15/2017 2:22:17 PM 0' 0"

Start of video looking upstream from the outfall.



2/15/2017 2:23:28 PM 14' 8"

Gravel at the bottom of the pipe.

2/15/2017 2:23:49 PM 17' 2"

Pipe is rusted with holes in the top of the pipe.

2/15/2017 2:24:46 PM 23' 9"

End of the survey due to the gravel inside of the pipe.

Storm Drain Line 8

PG&E Topock Compressor Statoin
Needles CA 92363

Sunday, February 21, 2016

Video Survey of storm drain line 8, located on the northeast side of the Topock Compressor Station Compressor Building.

2/20/2016 10:44:26 AM 0' 0"

Catch Basin 11: 8" Diameter red clay pipe. Pipe was flushed with high pressure water after trial video. Storm drain line backflows for the first 8', as seen by the stagnent water.

2/20/2016 10:46:48 AM 7' 4"

Transition from red clay pipe to other pipe (PVC? concrete?). Pipe appears deformed on the left side of photo. Debris collect between this point and the catch basin, which was flushed out after the trial video and this video.

2/20/2016 10:47:40 AM 7' 4"

Same picture as above, but zoomed out.

2/20/2016 10:48:38 AM 9' 1"

Cracks present in top of pipe.

2/20/2016 10:49:26 AM 12' 8"

Small cracks or scale in bottom of pipe.

2/20/2016 10:53:00 AM 29' 0"

Small cracks or scale in bottom of pipe.

2/20/2016 10:55:19 AM 38' 9"

Transition back to red clay pipe and elbow to the left, north and down slope.

2/20/2016 10:56:17 AM 40' 0"

Clean red pipe, angled down slope.

2/20/2016 10:57:44 AM 51' 4"

Offset in clay pipe joints, lower pipe appears to be shifted down.

2/20/2016 10:58:22 AM 53' 9"

Transition from red clay pipe to PVC pipe, diameter unknown. Pipe appears to slope down slope and angled to the left.

2/20/2016 10:59:58 AM 58' 3"

PVC pipe joints have four set screws holding pipe together.

2/20/2016 11:02:46 AM 98' 9"

Transition from PVC pipe to corrugated steel pipe. Corrugated steel pipe is the type of pipe exposed from top of slope to outfall, so red clay pipe and PVC are likely inside of corrugated pipe, at least where corrugated pipe is exposed at ground surface.

2/20/2016 11:04:52 AM 138' 4"

2/20/2016 11:05:30 AM 139' 5"

Total length of video survey was 140'.

Storm Drain Line 9

PG&E Topock Compressor Station
Needles CA 92363

Friday, February 19, 2016

Video survey of storm drain line 9, located on the east side of the Topock Compressor Station North Cooling Tower

2/19/2016 11:11:02 AM -1' -7"

Catch Basin 13 8" Diameter PVC pipe inside of 10" diameter red clay pipe

2/19/2016 11:11:14 AM 0' 0"

PVC Pipe

2/19/2016 11:12:16 AM 23' 4"

Transistion from PVC pipe to steel corrugated pipe. Corrigated pipe corroded on bottom portion of pipe.

2/19/2016 11:12:52 AM 24' 8"

Corrugated pipe heavily corroded on bottom and top. Bottom of pipe may have holes in areas.

2/19/2016 11:13:07 AM 25' 2"

Portion of pipe that shows corrision and holes in bottom of pipe.

2/19/2016 11:13:19 AM 30' 2"

Beginning of down slope transition.

2/19/2016 11:13:30 AM 32' 9"

Downward angled elbow.

2/19/2016 11:18:50 AM 75' 2"

Offset and break in pipe. Soil sample SD-20 was collected below this break.

2/19/2016 11:19:53 AM 89' 1"

Large holes in bottom of pipe.

2/19/2016 11:20:39 AM 90' 11"

Large holes in bottom of pipe. Flow that was directed through the break at 75' completely discharged from the pipe at this point.

2/19/2016 11:22:09 AM 104' 4"

Debris in pipe. This portion of pipe does not receive flow.

2/19/2016 11:22:45 AM 212' 7"

Total length of video survey was 215'.

Storm Drain Line 10

PG&E Topock Compressor Station
NeedlesCA92363

Wednesday, March 23, 2016

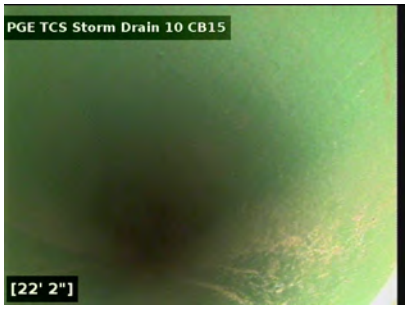
Summary of Storm Drain Line 10 video survey, located in the northwest area of the Topock Compressor Station.

3/23/2016 8:17:35 AM 0' 0"

Start of survey at Catch Basin 15. Pipe is 10" diameter green PVC.

3/23/2016 8:19:52 AM 21' 9"

Downward elbow.

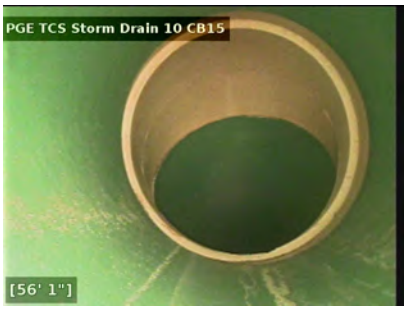


3/23/2016 8:20:49 AM 22' 2"

Pipe is clean and free of debris.

3/23/2016 8:23:30 AM 37' 10"

Typical PVC joint.



3/23/2016 8:25:51 AM 56' 2"

Downward elbow.

3/23/2016 8:28:02 AM 65' 8"

Plant material noted at pipe joint. Pipe did not show any sign of being broken or cracked at this location.

3/23/2016 8:28:19 AM 65' 8"

Pipe joint.

3/23/2016 8:29:54 AM 84' 5"

Pipe joint.

3/23/2016 8:31:53 AM 105' 0"

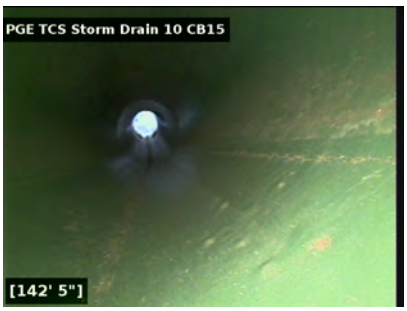
Pipe joint.

3/23/2016 8:32:13 AM 105' 7"

Pipe joint.

3/23/2016 8:33:47 AM 126' 6"

Pipe joint.



3/23/2016 8:34:50 AM 142' 6"

Outfall in the distance, 12' ahead.

3/23/2016 8:35:39 AM 154' 5"

Outfall free of debris.

3/23/2016 8:36:08 AM 155' 11"

Total length of video survey: 156'.

Storm Drain 11, Catch Basin 17 Upstream and Downstream

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of Storm Drain Line 11 from Catch Basin 17. The survey starts by going upstream from CB17 to Trench Drain 2, then goes downstream from CB17 to a "Y" that discharges into the "main line' of Storm Drain Line 11. Catch Basin 18 discharges into the "upstream" segement of pipe between TD2 and CB17; however, we were unable to remove the CB18 grate to video that section of the line, so you only see the outfall into the storm drain in the video.

3/22/2016 9:47:53 AM 0' 0"

Start of survey from CB17, upstream. The title on the video is inccorrect. This is SD11, CB17. This was correct at 11'.

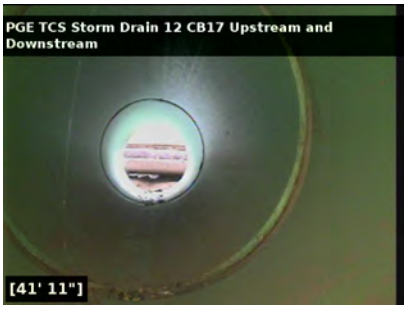
3/22/2016 9:49:16 AM 11' 1"

Pipe is free of debris.

3/22/2016 9:51:01 AM 15' 1"

Outfall from CB18. Pipe appears to be 3" diameter white PVC.

3/22/2016 9:53:04 AM 42' 0"



Trench Drain 2 ~4' ahead.

3/22/2016 9:53:36 AM 46' 3"

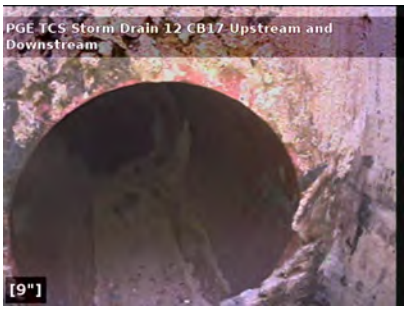
View of Trench Drain 2 cover.

3/22/2016 9:54:05 AM 46' 2"

Trench Drain 2

3/22/2016 9:56:10 AM 0' 9"

Catch Basin 17. Pipe in lower right corner is the upstream pipe, pipe in upper left corner is downstream pipe



3/22/2016 9:56:36 AM 0' 9"

Start of downstream survey. Pipe is 10" diameter red clay pipe.

3/22/2016 9:57:34 AM 5' 1"

Clay pipe with grout intruding into pipe.

3/22/2016 10:00:42 AM 11' 4"

Clay pipe with grout intruding into pipe.

3/22/2016 10:01:13 AM 14' 1"

Location where CB17 line discharges into the "main line" of Storm Drain 11, as a "Y".

3/22/2016 10:04:19 AM 16' 3"

Main line of Storm Drain 11.

3/22/2016 10:05:48 AM 23' 0"

Pipe in good condition.

3/22/2016 10:07:11 AM 39' 10"

Pipe in good condition.

3/22/2016 10:08:08 AM 48' 5"

Pipe in good condition.

3/22/2016 10:08:29 AM 51' 6"

Transition from red clay pipe to white PVC pipe at 52' The PVC pipe is offset from the clay pipe and is shifted down.

3/22/2016 10:10:58 AM 70' 1"

Left turn elbow.

3/22/2016 10:12:32 AM 85' 10"

PVC joint. The camera could not make it past 92' from what appeared to be PVC joint. 92' is the end of the video; however, another survey was conducted from the outfall upward, toward this location. There was roughly 40' of pipe bewtween this location and the location where we could not advance the cameran any further on the outfall upstream survey.

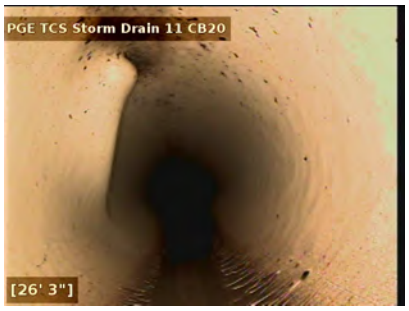
Storm Drain Line 11, Catch Basin 20

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of Storm Drain 11, from Catch Basin 20. Catch Basin 20 is located west of the south cooling tower.

3/22/2016 12:15:36 PM 0' 0"

Start of survey from Catch Basin 20. Pipe is 8" diameter white PVC pipe.



3/22/2016 12:17:06 PM 26' 3"

Defect or dent in pipe on left side of photo. Pipe is not broken however.

3/22/2016 12:18:27 PM 47' 6"

Transition from PVC pipe to red clay pipe, then back to PVC pipe. The junction is a "Y" where flow from Catch Basin flows into the storm drain that collects water from Catch Basin 21 and 22, which is Storm Drain Line 11.

3/22/2016 12:22:26 PM 52' 4"

Rock and gravel blockage.

3/22/2016 12:36:32 PM 52' 5"

Rock and gravel blockage.

Storm Drain Line 11, Catch Basins 21 and 22

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of Storm Drain Line 11 from Catch Basin 21, downstream to the "main line" then upstream to Catch Basin 22. We did not have access to Catch Basin 22 due to a metal grate cemented below grade.

3/16/2016 4:21:42 PM -4' -2"

Catch Basin 21.

3/16/2016 4:22:00 PM -2' -8"

8" white PVC pipe inside of 10" red clay pipe.

3/16/2016 4:23:00 PM 6' 7"

White PVC pipe.

3/16/2016 4:23:27 PM 11' 5"

White PVC pipe that transitions to gray PVC pipe.

3/16/2016 4:24:06 PM 15' 1"

90 degree elbow to the left, south.

3/16/2016 4:26:29 PM 17' 7"

"T" fitting of the "main line" of Storm Drain Line 11. The camera will make a left turn here and proceed to Catch Basin 22. We were unable to get the camera to make a right turn at this junction.

3/16/2016 4:30:46 PM 36' 1"

Traveling upstream in Storm Drain Line 11 towards CB22. white PVC pipe.

3/16/2016 4:31:17 PM 36' 9"

White PVC pipe transitions to 8" red clay pipe.

3/16/2016 4:32:28 PM 46' 0"

Debris in pipe

3/16/2016 5:08:35 PM 58' 7"

Camera inside of Catch Basin 22.

3/16/2016 5:08:53 PM 54' 5"

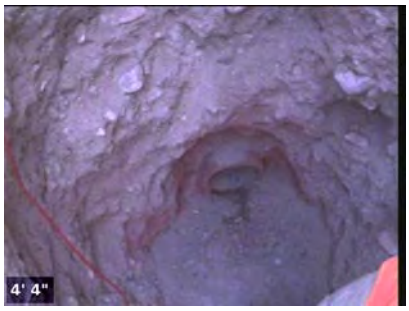
Debris inside pipe downstream of Catch Basin 22.

Storm Drain Line 11, Catch Basin 22 Upstream

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Storm Drain Line 11 from Catch Basin 22 upstream. The actual starting point is east of CB-22, where a section of pipe was cut and removed.

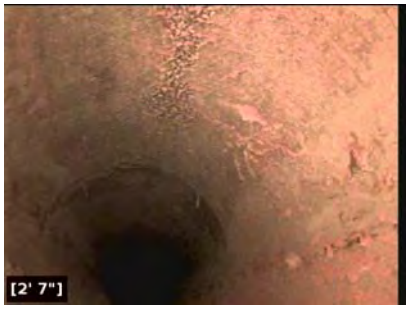


7/19/2017 6:02:13 AM 4' 4"

Excavation where SDL 11 was cut and removed in order to gain access for video survey and to clean the pipe and remove the clogged pipe.

7/19/2017 6:02:29 AM 4' 7"

Another picture of the excavation, facing west. Catch Basin 22 is located directly below the white PG&E traffic A-frame sign. An 8-foot section of pipe was cut and removed in order to remove the clog from the pipe. All distances in this video summary are distances east of CB-22 minus 10 feet.



7/19/2017 6:03:07 AM 2' 7"

This section of pipe was cleaned and cleared of debris during this effort of work.

7/19/2017 6:03:44 AM 2' 7"

Pipe is 8" diameter red clay pipe.

7/19/2017 6:04:14 AM 7' 10"

Debris in pipe.

7/19/2017 6:04:42 AM 13' 1"

Debris in pipe. An 8-inch diameter "T" fitting, with a line on the right side of the frame. This line would be oriented torwards the south, towards the A Cooling Tower.

7/19/2017 6:05:08 AM 17' 10"

Pipe becomes more full of debris.

7/19/2017 6:05:43 AM 24' 5"

End of surve due to debris in the bottom of pipe.

7/19/2017 6:14:31 AM 11' 9"

Another image of the "T" fitting that is oriented to the south.

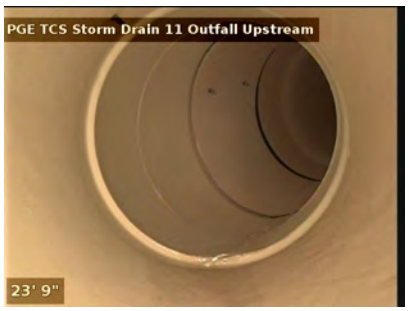
Storm Drain Line 11, Upstream from Outfall

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of Storm Drain Line 11 from the outfall, upstream. The outfall is located in Bat Cave Wash near the bottom of the PG&E lower yard dirt access road to the wash.

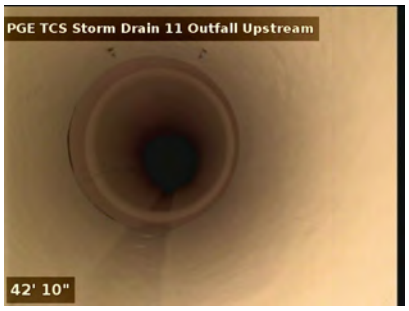
3/22/2016 11:54:45 AM 0' -1"

Start of survey at the Storm Drain Line 11 outfall. The pipe is 10" diameter white PVC.



3/22/2016 11:55:48 AM 23' 9"

Right turn, low angle elbow.



3/22/2016 11:56:54 AM 42' 11"

Pipe joint.

3/22/2016 11:59:09 AM 65' 8"

Left turn low angle elbow and pipe transition from downslope to more horizontal.

3/22/2016 12:01:26 PM 66' 8"

End of survey.

Storm Drain Line 11, SD-40 Excavation Downstream to CB-19

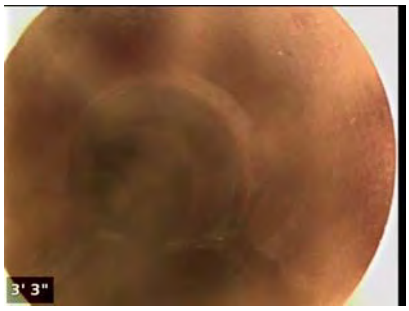
PG&E Topock Compressor Station

NeedlesCA92363

Summary of the video survey of Storm Drain Line 11, from the SD-40 excavation to CB-19. This section of SDL 11 goes from the upper portion of the station to the lower yard, so much of the video is conducted where the pipe is at a steep angle down the slope. CB-19 was not accessible due to the replacement of the gas scrubbers with a new oil filter system.

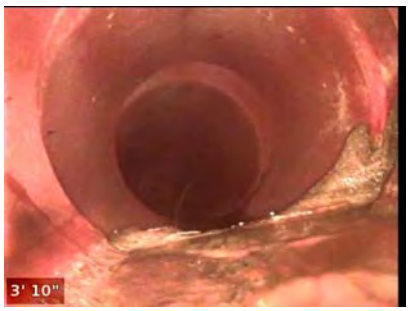
12/13/2016 3:22:08 PM ---

Start of video survey is from the SD-40 excavation, which starts in an 8" PVC pipe that transitions to 8" red clay pipe within a couple feet. The last picture in this survey shows the SD-40 excavation where this video was conducted.



12/13/2016 3:22:52 PM 1' 1"

Transition from white PVC pipe to red clay pipe.

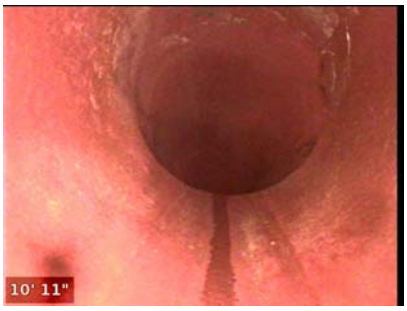


12/13/2016 3:22:58 PM 3' 5"

Start of downhill transition, from horizontal to downward slope.

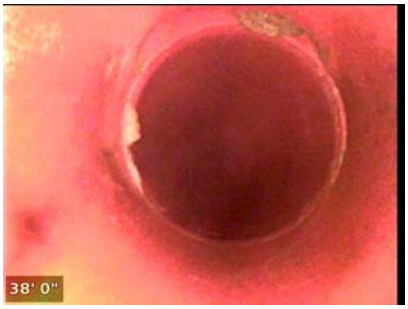
12/13/2016 3:23:08 PM 5' 0"

The second transition downhill.



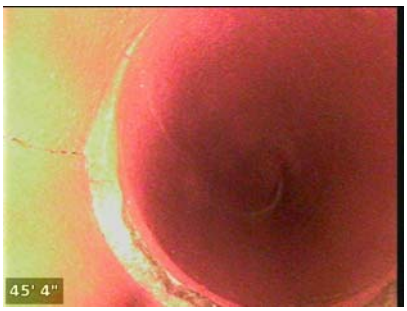
12/13/2016 3:23:13 PM 8' 8"

The third transition downhill.



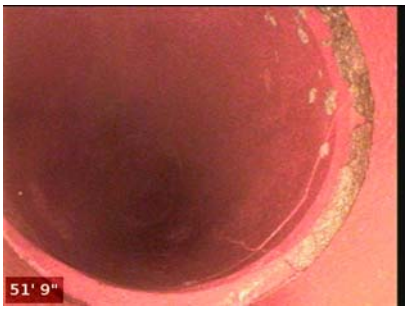
12/13/2016 3:24:01 PM 36' 9"

Downward sloping pipe.



12/13/2016 3:25:19 PM 45' 4"

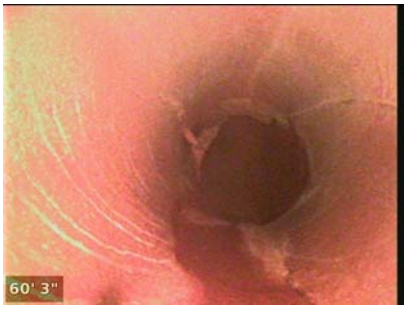
Small cracks on the left side of the pipe.



12/13/2016 3:25:55 PM 51' 9"

Small cracks on the bottom of the pipe.

12/13/2016 3:26:40 PM 60' 3"



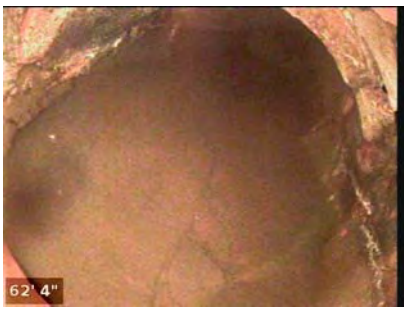
Camera approaches the bottom of the slope, more small cracks.

12/13/2016 3:26:57 PM 61' 3"

Several cracks at the transitions from downward sloping to horizontal.

12/13/2016 3:28:00 PM 62' 0"

Transitions from downward to horizontal.



12/13/2016 3:28:26 PM 62' 4"

Transitions from downward to horizontal. Several cracks.

12/13/2016 3:29:18 PM 63' 1"

Horizontal pipe thats now in the lower yard, headed towards CB-19.

12/13/2016 3:47:30 PM 65' 5"

Standing water and some debris.

12/13/2016 3:48:47 PM

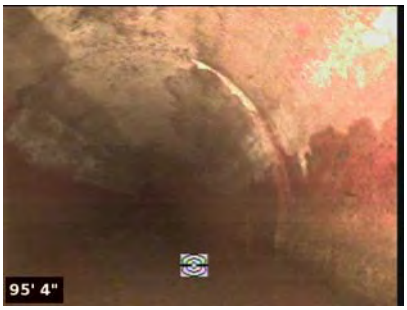
78' 10"

Debris and standing water.

12/13/2016 3:49:32 PM

85' 2"

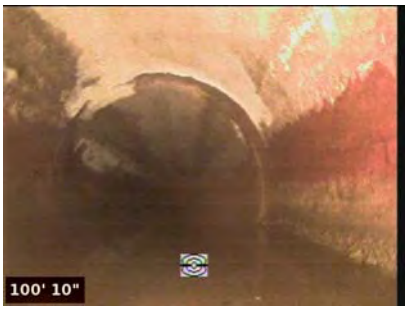
Pipe has less debris than previous photos.



12/13/2016 4:02:59 PM

95' 4"

Pipe free of debris, but standing water.



12/13/2016 4:03:26 PM

100' 10"

Standing water.

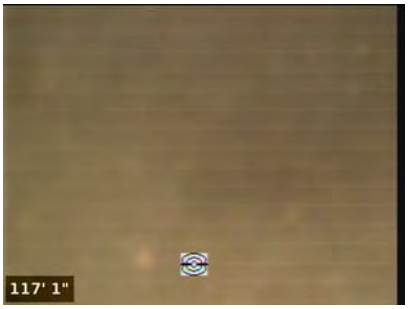
12/13/2016 4:03:58 PM

108' 9"

Standing water.

12/13/2016 4:04:28 PM 114' 5"

Camera is under water.



12/13/2016 4:05:04 PM 117' 2"

Camera remains under water.

12/13/2016 4:08:26 PM 119' 6"

Camera not under water, but some standing water.

12/13/2016 4:09:21 PM 120' 3"

Catch Basin 19 (CB-19) seen in the background.

12/13/2016 4:09:46 PM 120' 5"

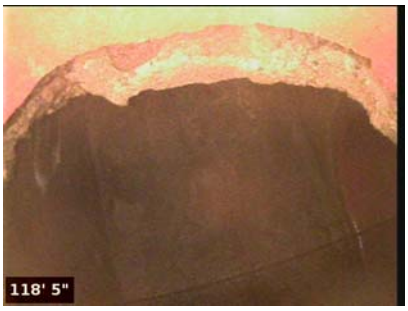
The southwest corner of CB-19.

12/13/2016 4:11:47 PM 120' 11"

Clear image of CB-19.

12/13/2016 4:12:18 PM 121' 1"

Another shot of CB-19.



12/13/2016 4:13:07 PM 118' 6"

A picture as the camera was being pulled out of CB-19. The discharge pipe can be seen on the background, right side of the picture.

12/13/2016 4:22:38 PM 0' 0"

The SD-40 excavation, where a section of the white PVC pipe was removed to complete a repair, unclog the pipe and gain access to video the storm drain lines upstream and downstream. This photo was taken facing west.

Storm Drain Line 11, SD-40 Excavation Upstream To CB-22

PG&E Topock Compressor Station

NeedlesCA92363

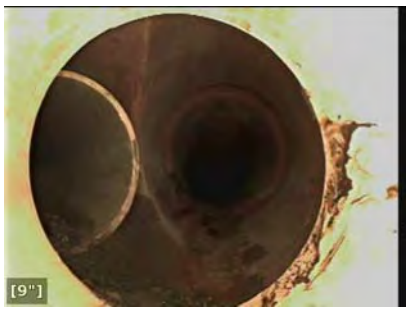
Video survey summary of Storm Drain Line 11 from the SD-40 excavation upstream to CB-22. This summary includes to video surveys, one from 0' to 25', and the second from 30' to CB-22.

12/14/2016 2:51:36 PM 2' 1"

SD-40 excavation starting point, facing east towards CB-22. Pipe is 8" diameter white PVC. Photo shows a large "Y" fitting where the CB-20 line and the SDL-11 mainline meet. The "Y" fittings are red clay pipe encased in cement/concrete.

12/14/2016 2:51:49 PM 2' 7"

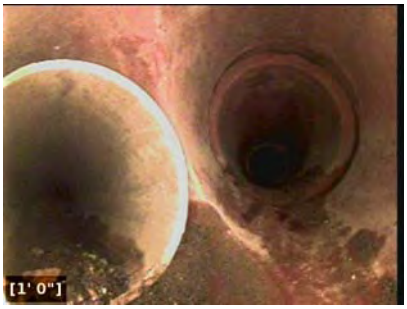
Start of survey.



12/14/2016 2:52:17 PM 0' 9"

Inside the "Y" fitting. Pipe on the left is from the CB-20 line.

12/14/2016 2:52:45 PM 1' 0"



"Y" fitting

12/14/2016 2:53:20 PM 2' 4"

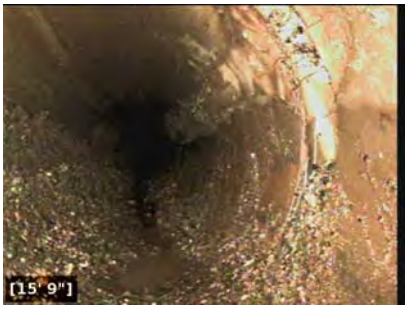
Camera continues to the right (from picture taken at 1'0" above), towards the CB-22.

12/14/2016 2:54:10 PM 5' 5"

Transition from red clay pipe to gray PVC.

12/14/2016 2:54:38 PM 8' 6"

Gray PVC pipe.



12/14/2016 2:55:32 PM 15' 10"

Sand and gravel debris.

12/14/2016 2:57:03 PM 23' 10"

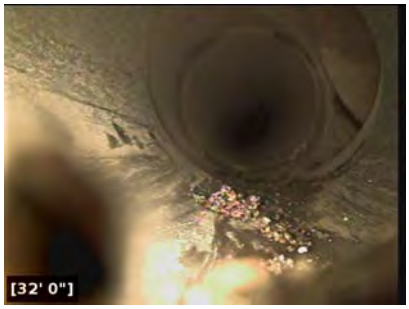
Sand and gravel debris.

12/14/2016 2:57:59 PM 24' 7"

Blockage at 25'. End of the first video. The video was completed by making several attempts, followed by additional pipe cleaning after blockage or camera advances. The following photos are from a seperate video, completed after clearing the blockage.

12/14/2016 3:53:34 PM 17' 3"

The following photos are from a second video survey. The camera travels from this point (17'3") to CB-22, then back out to SD-40 excavation starting point. Pipe is gray pvc, and now less debris and sand.



12/14/2016 4:03:41 PM 32' 1"

White PVC "T" fitting in the background. The "T" on the right is connected to the line that was once connected to TD-3.

12/14/2016 4:05:02 PM 35' 2"

Transition through the TD-3 "T" fitting. White PVC transitions back to gray PVC. Then, on the left side of the picture, is the "T" fitting for the line from CB-21. There are additional pictures below. See 33'7".

12/14/2016 4:05:23 PM 39' 4"

Transition from gray PVC to red clay pipe.

12/14/2016 4:05:52 PM 45' 8"

Transition from red clay pipe to white PVC pipe. Next picture is the CB-22, but additional pictures between 45' and CB-22 follow.

12/14/2016 4:07:44 PM 74' 11"

CB-22 looking up, towards the sky.

12/14/2016 4:07:58 PM 72' 8"

Inside CB-22. This is the end of the survey for length.

12/14/2016 4:08:13 PM 70' 5"

Camera then retreats back towards SD-40 excavation, so photos are in reverse direction. This photo shows CB-22 in the background.

12/14/2016 4:09:39 PM 71' 10"

CB-22 in the background.

12/14/2016 4:09:54 PM 69' 11"

CB-22 in the far background.

12/14/2016 4:10:57 PM 68' 10"

CB-22 in the far background. Debris in the pipe. Pipe is red clay, 8" diameter.

12/14/2016 4:12:42 PM 62' 11"

Some debris in pipe.

12/14/2016 4:13:09 PM 60' 0"

Less debris.

12/14/2016 4:15:14 PM 55' 0"

Free of debris.

12/14/2016 4:16:16 PM 51' 1"

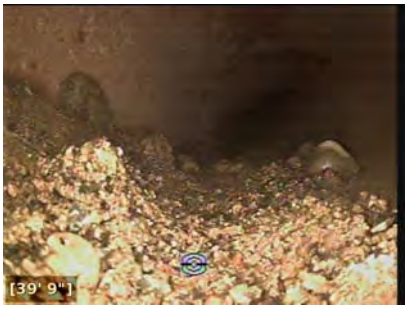
Free of debris.

12/14/2016 4:16:49 PM 49' 3"

Transitioned from red clay pipe to white PVC (at around 50').

12/14/2016 4:19:18 PM 45' 8"

Transition back to red clay pipe (there is a similar photo above when the camera was moving towards CB-22).



12/14/2016 4:20:56 PM 39' 9"

Debris Red clay pipe.

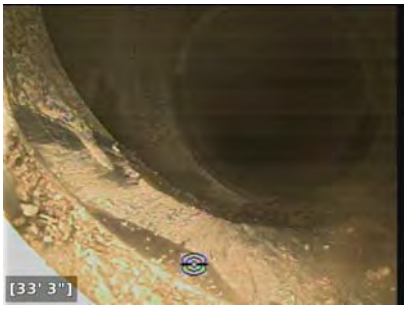
12/14/2016 4:21:38 PM 38' 3"

Transition from red clay pipe to gray PVC.

12/14/2016 4:22:11 PM 33' 7"

"T" fitting for the CB-21 line, on the left side.

12/14/2016 4:24:13 PM 33' 4"



"T" fitting for the CB-21 line, on the left side.

12/14/2016 4:24:42 PM 31' 9"

TD-3 "T" fitting on the right side of the picture.

12/14/2016 4:25:05 PM 31' 9"

TD-3 "T" fitting on the right side of the picture.

12/14/2016 4:29:32 PM 26' 10"

Some debris

12/14/2016 4:30:09 PM 24' 7"

Debris where camera had blockage on earlier video surveys.

12/14/2016 4:30:55 PM 18' 11"

Gray PVC pipe.

12/14/2016 4:31:26 PM 14' 11"

Gray PVC pipe.

12/14/2016 4:33:56 PM 0' -5"

End of video survey.

Storm Drain Line 11, Trench Drain 3

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Storm Drain Line 11 between Trench Drain 3 and the SDL 11 mainline. The line between TD-3 and SDL 11 was accessed by cutting the pipe 17 feet south of the SDL 11 mainline, then conducting a video survey from that point south (towards TD-3), and north (towards the "T" fitting with the SDL 11 mainline.

7/17/2017 10:47:23 AM 0' -3"

A 1 foot section of pipe was cut and removed in order to gain access for video survey. This cut was made roughly 17 feet south of the "T" fitting where the TD-3 line meets the SDL 11 mainline, or 168 feet north of TD-3. This is also the location of soil samples SD-43. The total length from TD-3 to the SDL 11 mainline ("T" - fitting) is 185 feet.

7/17/2017 10:48:57 AM 3' 6"

Video camera is facing north, towards the SDL-11 mainline. The distance from TD-3 is 171.5 feet. Pipe is red clay pipe, 8" diameter, dry, clear and free of debris.

7/17/2017 10:49:08 AM 3' 6"

The distance from TD-3 is 171.5 feet.

7/17/2017 10:49:41 AM 9' 11"

Dry sand and gravel in the bottom of the pipe. The distance from TD-3 is 178 feet.

7/17/2017 10:50:11 AM 15' 0"

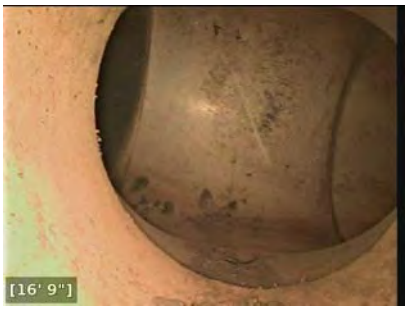
Dry gravel in the bottom of the pipe. Transition from red clay pipe to white PVC pipe (as seen in the foreground). The distance from TD-3 is 183 feet.

7/17/2017 10:50:26 AM 15' 11"

Dry gravel in the bottom of the pipe. Transition from red clay pipe to white PVC pipe/"T" fitting (as seen in the foreground). The distance from TD-3 is 183 feet.

7/17/2017 10:51:00 AM 16' 1"

PVC "T" fitting, and the SDL 11 mainline in the foreground, which flows from east to west or from right to left.



7/17/2017 10:51:10 AM 16' 9"

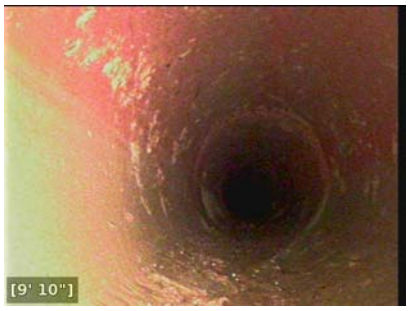
PVC "T" fitting, and the SDL 11 mainline in the foreground, which flows from east to west or from right to left. The distance from TD-3 is 185 feet. End of video survey towards the north direction

7/17/2017 10:31:21 AM 0' -2"

A 1 foot section of pipe was cut and removed in order to gain access for video survey. This cut was made roughly 17 feet south of the "T" fitting where the TD-3 line meets the SDL 11 mainline, or 168 feet north of TD-3. The total length from TD-3 to the SDL 11 mainline ("T" - fitting) is 185 feet.

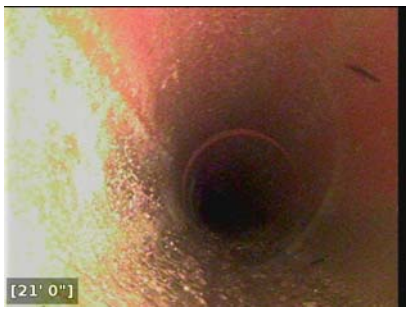
7/17/2017 10:31:38 AM 0' 7"

Video camera is facing south, towards TD-3. The distance from TD-3 is 167.5 feet. Pipe is red clay pipe, 8" diameter, dry, clear and free of debris.



7/17/2017 10:32:16 AM 9' 11"

Video camera continous traveling south towards TD-3. The distance from TD-3 is 158 feet.



7/17/2017 10:33:21 AM 21' 1"

Distance from TD-3 is 147 feet.

7/17/2017 10:33:39 AM 22' 10"

Pipe is clear and free of debris.

7/17/2017 10:34:50 AM 28' 10"

Distance from TD-3 is 139 feet.

7/17/2017 10:35:27 AM 34' 2"

Distance from TD-3 is 134 feet.

7/17/2017 10:36:04 AM 40' 7"

Grout that intruded through the joint during pipe installation. Distance from TD-3 is 127 feet.

7/17/2017 10:37:02 AM 44' 5"

Distance from TD-3 is 123.5 feet.

7/17/2017 10:38:19 AM 54' 0"

Distance from TD-3 is 114 feet.

7/17/2017 10:39:42 AM 58' 7"

Grout intrusion during pipe installation, which acted like a sediment dam and collected sediment upstream of the grout.

Distance from TD-3 is 109.3 feet.

7/17/2017 10:55:51 AM 60' 6"

Distance from TD-3 is 107.5 feet.

7/17/2017 10:56:34 AM 70' 6"

Distance from TD-3 is 97.5 feet.

7/17/2017 10:57:05 AM 74' 6"

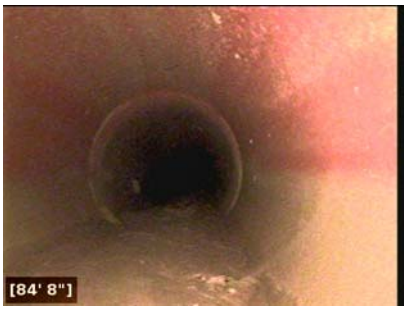
Distance from TD-3 is 93.5 feet.

7/17/2017 10:58:23 AM 80' 3"

Sand and gravel starting to accumulate in bottom of pipe (dry). Distance from TD-3 is 88 feet.

7/17/2017 10:59:36 AM 84' 8"

Distance from TD-3 is 83.4 feet.



7/17/2017 11:02:01 AM 84' 9"

Distance from TD-3 is 83 feet.

7/17/2017 11:02:41 AM 92' 6"

Distance from TD-3 is 75.5 feet. End of video. Could not advance camera due to slight uphill slope and friction between camera line and pipe. Pipe appears in good condition and free of debris.

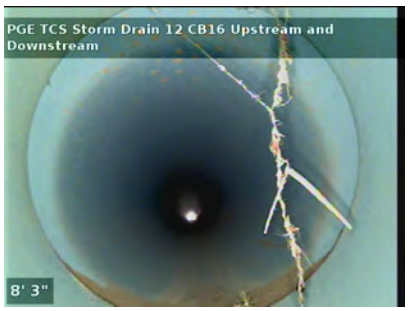
Storm Drain 12, Catch Basin 16 Upstream and Downstream

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of Storm Drain Line 12 from Catch Basin 16. The survey starts by going upstream from CB16 to Trench Drain 4, then goes downstream from CB16 to the outfall.

3/22/2016 11:25:07 AM 0' 9"

Start of survey from Catch Basin 16 through the upstream pipe. The upstream pipe is the pipe shown in the top of the photo, which is 10" blue PVC pipe.



3/22/2016 11:30:58 AM 8' 4"

Pipe is free of debris

3/22/2016 11:31:52 AM 28' 3"

View of Trench Drain 4.

3/22/2016 11:32:05 AM 29' 0"

Trench Drain 4

3/22/2016 11:33:32 AM 4' 6"

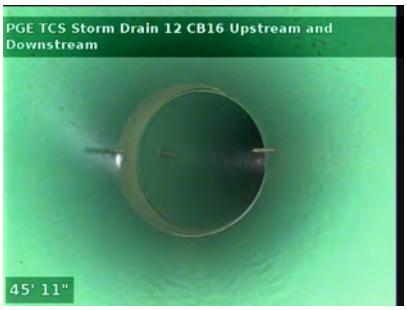
Start of downstream survey from Catch Basin 16. The pipe is 10" blue PVC pipe.

3/22/2016 11:35:27 AM 16' 2"

Free of debris, but not cob webs.

3/22/2016 11:36:07 AM 29' 3"

Downward joint.



3/22/2016 11:37:02 AM 45' 11"

Right turn elbow

3/22/2016 11:37:58 AM 66' 8"

1.5' from the outfall.

3/22/2016 11:38:18 AM 68' 1"

View of outfall.

Storm Drain Line 13a

PG&E Topock Compressor Station
Needles CA 92363

Sunday, February 21, 2016

Summary of the video survey of storm drain line 13a located west of the Topock Compressor Staton Hazardous Waste Building. Storm drains 13a and 13b had their catch basins abandoned but the storm drain pipe still exist, so the survey is from the outfall uphill towards the Station. Two video surveys were completed on storm drain line 13a: one with centralizers and one withour. The survey without centralizers reached a total length of 118', and this summary shows the photos of the centralized camera, which reaches a length of 104'. The centralized camera does not pentrate as far as the uncentralized camera because the centralizers push dry sand and gravel which creates a sand dam it could not pass. The pipe appears to full of sand at 118' and was likely cut and backfilled without the pipe being capped prior to backfill.

2/21/2016 12:12:29 PM -1' -1"

Outfall of storm drain: 6" diameter corrugated steel pipe.

2/21/2016 12:12:50 PM -1' -1"

5.5" diameter gray PVC pipe within the corrugated steel pipe. Lenth on this slide should read 0' 0". Gray PVC pipe is in good condition.

2/21/2016 12:15:11 PM 37' 10"

Transition to more horizontal and a left (north) bend. Transition is a long sweeping elbow.

2/21/2016 12:21:05 PM 103' 11"

End of the survey was 104' for centralized camera. A seconde survey was completed with an uncentralized camera, which reached a length of 118', where the pipe was full of sand and gravel.

Storm Drain Line 13b

PG&E Topock Compressor Station
Needles CA 92363

Sunday, February 21, 2016

Summary of the video survey of storm drain line 13 b located west of the Topock Compressor Staton Hazardous Waste Building. Storm drains 13a and 13b had their catch basins abandoned but the storm drain pipe still exist, so the survey is from the outfall uphill towards the Station. Storm drain line does have an intermediate catch basin, 23, and the video survey includes the camera traveling through the catch basin.

2/21/2016 11:31:07 AM 0' 0"

Outfall of storm drain: 8" diameter corrugated steel pipe.

2/21/2016 11:35:33 AM 41' 8"

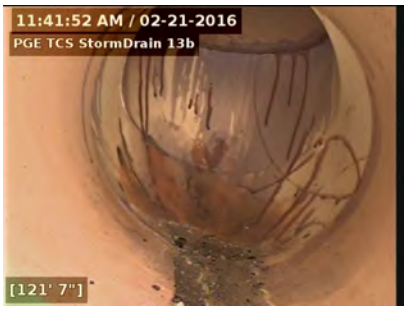
Transiton from angled pipe to horizontal pipe.

2/21/2016 11:36:17 AM 43' 4"

Mild corroded pipe. Daylight is from Catch Basin 23, see next photo.

2/21/2016 11:36:47 AM 46' 4"

Catch Basin 23. Flow was from 8" diameter PVC pipe to 8" diameter corrugated pipe. PVC pipe is in good condition.



2/21/2016 11:41:53 AM 121' 7"

End of the survey was 125'. An elbow was encountered at 122.5' that appeared to either "45" or "90" upward. Our camera could not make the bend even after a second attempt with all centralizers removed from the camera. The pipe may be capped at 125' where our camera would not pass or advance.

Storm Drain Line 14

PG&E Topock Compressor Staton
Needles CA 92363

Sunday, February 21, 2016

Summary of the video survey of storm drain line 14 located in the southwest area of the Topock Compressor Station, south of the harzardous storage area.

2/21/2016 1:34:08 PM 1' 3"

Start of survey, which is a ditch not a catch basin. Pipe is 11" diameter corrugated steel pipe.

2/21/2016 1:36:29 PM 19' 0"

Corroded corrugated metal pipe with debris in bottom portion of pipe.

2/21/2016 1:37:18 PM 21' 1"

Transition from horizontal pipe to downsloping pipe.

2/21/2016 1:38:57 PM 31' 10"

Another transition to a steeper downward pipe. Little to no corrosion exists where pipe is more vertical.

2/21/2016 1:39:33 PM 33' 11"

Downward transition.

2/21/2016 1:41:24 PM 56' 6"

Near the outfall.

2/21/2016 1:42:07 PM 58' 10"

Total length of video survey was 59'.

Catch Basin 25

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of Catch Basin 25

3/16/2016 2:41:24 PM -1' -10"

Catch Basin 25

3/16/2016 2:44:09 PM 1' 5"

4" gray PVC pipe, outfalls into a box or catch basin at 2.5'.

3/16/2016 2:48:29 PM 3' 1"

Inside the catch basin. No obvious discharge point.

3/16/2016 2:50:16 PM 3' 0"

PG&E Topock Compressor Station

Catch Basin 27 and 26

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of Catch Basin 27 and 26.

3/16/2016 1:14:40 PM 1' 4"

Catch Basin 27.

3/16/2016 1:15:06 PM 2' 0"

8" white PVC pipe.

3/16/2016 1:17:53 PM 0' 0"

PVC pipe, free of debris

3/16/2016 1:33:17 PM 15' 9"

View of Catch Basin 26

3/16/2016 1:33:36 PM 18' 3"

Catch Basin 26

3/16/2016 1:35:02 PM 24' 8"

6" red clay pipe

3/16/2016 1:36:14 PM 35' 11"

Blockage at 36'

Catch Basin 28

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of Catch Basin 28.

3/16/2016 12:44:34 PM 0' 10"

Location of Catch Basin 28.

3/16/2016 12:47:14 PM 17' 7"

8" white PVC pipe.

3/16/2016 12:48:24 PM 28' 3"

Sand in bottom of pipe.

3/16/2016 1:01:22 PM 66' 10"

View of outfall from CB28 pipe into CB30.

3/16/2016 1:05:17 PM 2' 9"

Catch Basin 28

Catch Basin 30

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Video survey summary of Catch Basin 30.

Normal

3/16/2016 3:10:06 PM -2' -10"

Catch Basin 30. The pipe on the left (white PVC) discharges into the catch basin from Catch Basin 28. Flow exits the catch basin through the pipe on the right of the catch basin.

3/16/2016 3:10:47 PM -2' -5"

Discharge line of CB30. 8" red clay pipe.

3/16/2016 3:11:11 PM 0' 0"

Start of survey

3/16/2016 3:11:44 PM 0' 4"

Discharge from Catch Basin 31.

3/16/2016 3:12:14 PM 0' 4"

Close up view of 4" PVC line from CB31.

3/16/2016 3:13:06 PM 3' 6"

Blockage at 5'

Storm Drain Line 11, Catch Basin 30 and Downstream

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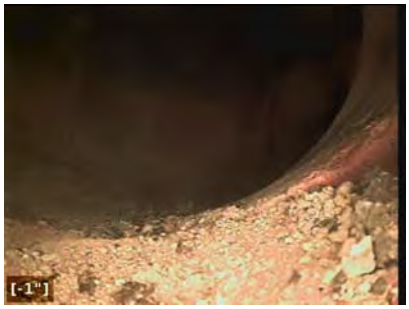
Video survey summary of Storm Drain Line 11 from CB-30. The survey starts at CB-30 and goes downstream, to the west towards CB-25. A mesh box or cover was used where CB-25 water discharges into the mainline.



2/4/2017 2:01:47 PM 0' -1"

Start of survey from Catch Basin 30. Pipe is 8" diameter red clay pipe. Pipe is facing north from the CB-30, but makes an immediate right turn, towards the west as seen in this photo.

2/4/2017 2:02:35 PM 0' -1"

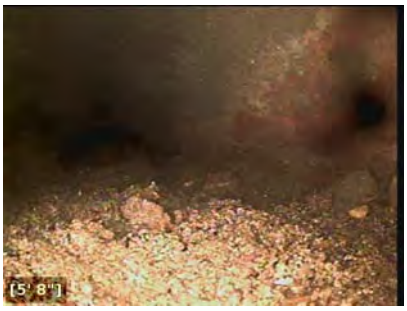
Start of survey from CB-30, but looking up. A right turn towards the west can be seen in the background. A white 3-inch diameter white PVC can be seen in the upper righht corner of the picture - this is CB-31's discharge point into SDL-11.

2/4/2017 2:02:45 PM 0' -1"

Start of the survey, another look but zoomed out.

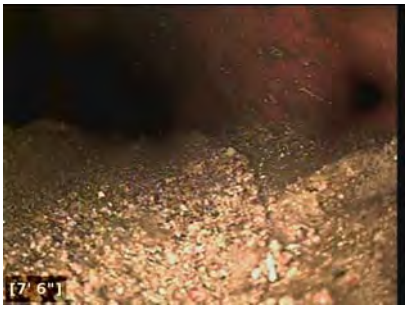
2/4/2017 2:01:39 PM 0' 2"

Camera traveling through the sharp right, westward turn towards CB-25.



2/4/2017 2:00:50 PM 5' 9"

Debris in the bottom of the pipe.



2/4/2017 2:00:29 PM 7' 6"

Debris in the bottom of the pipe.

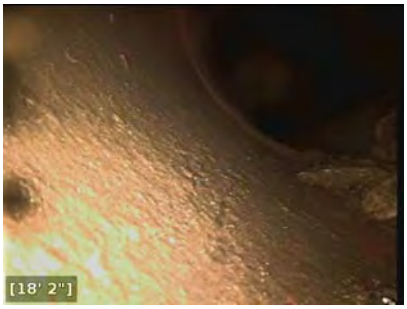
2/4/2017 2:00:05 PM 12' 7"

Less debris, but some at the bottom of the pipe.

2/4/2017 1:59:45 PM 16' 2"

Pipe fairly open.

2/4/2017 1:59:32 PM 18' 2"



Pipe free of debris.

2/4/2017 1:58:21 PM 22' 3"

CB-25 entry box, looking up.

2/4/2017 1:58:46 PM 22' 3"

CB-25 entry box, looking down. Pipe appears to angle downward beyond this point.

2/4/2017 1:52:49 PM 23' 10"

CB-25 entry box, looking up.

2/5/2017 10:21:54 AM 24' 8"

Metal mesh where CB-25 water would enter the SDL-11 mainline. This photo is looking upward and to the left.

2/5/2017 10:22:42 AM 24' 8"

CB-25 water entry, looking downward and to the left.

2/5/2017 10:23:03 AM 24' 8"

Flow testing CB-25. Water was added to CB-25, and cascaded at this location as shown in the this photo.

2/5/2017 10:23:20 AM 24' 8"

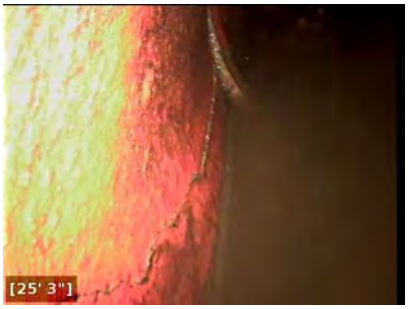
CB-25 flow testing.

2/5/2017 10:23:29 AM 24' 8"

CB-25 flow testing.

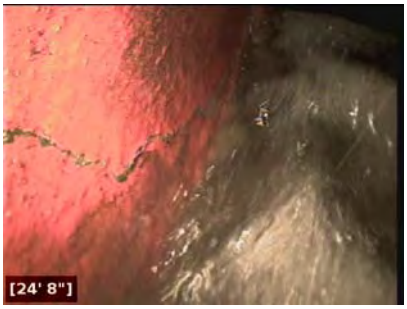
2/5/2017 10:23:57 AM 25' 8"

Advanced the camera past the CB-25 entry point. The pipe seems to drop, then go horizontal. Standing water in the pipe below the CB-25 entry point.



2/5/2017 10:24:28 AM 25' 0"

Standing water below the CB-25 entry point. Small crack on left side of pipe. This is the end of the survey. Could not advance the camera beyond this point due to wire friction in the pipe - cannot see any obstructions that would restrict the camera's advancment.



2/5/2017 10:25:55 AM 24' 8"

Flow testing of CB-25 in an attempt to advance the camera beyond this point. End of survey

Catch Basin 31

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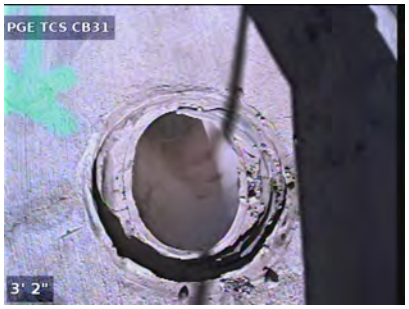
Video survey summary of Catch Basin 31.



3/16/2016 3:29:16 PM 3' 3"

Catch Basin 31. Located 20' south of CB30.

3/16/2016 3:29:58 PM 2' 0"

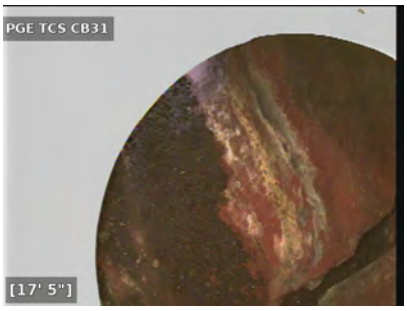
4" white PVC pipe. Elbow to more horizontal flow.

3/16/2016 3:30:49 PM 14' 4"

Free of debris

3/16/2016 3:31:03 PM 16' 2"

Downward elbow



3/16/2016 3:31:23 PM 17' 5"

Discharge point into line that drains CB30.

Industrial Waste Line Man Hole 1, Upstream (12/2016)

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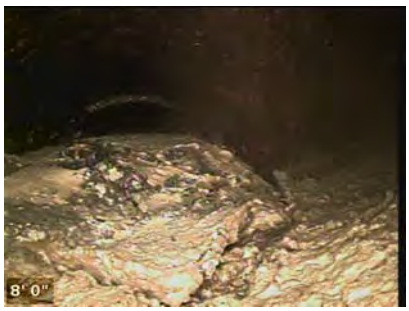
Video survey summary of Industrial Waste Line upstream of Man Hole 1. An early video was attemped (3/20/16) but was unable to advance the camera beyond the debris and water that was in the line. During this survey, the line was dry and were able to advance the camera upstream.

12/19/2016 10:22:05 AM 4' 4"

Pipe is an 8" diameter red clay pipe. Pipe has debris in the pipe roughly 50%.

12/19/2016 10:22:21 AM 4' 4"

Debris in the pipe.



12/19/2016 10:25:24 AM 8' 0"

Unknown obstruction.

12/19/2016 10:28:45 AM 8' 9"

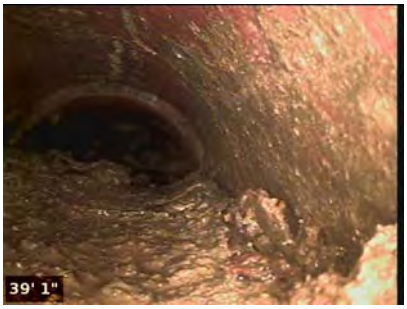
Debris in pipe.

12/19/2016 10:48:14 AM 41' 2"

Obstruction. Location of this obstruction appears to correlate with the approximate location where the FD-4, FD-5, and FD-6 lateral would meet the mainline.

12/19/2016 10:49:26 AM 41' 2"

Water was added at FD-4, FD-5, and FD-6 to understand the location of the lateral T. It was observed that water seemed to appear, and possibly from above this location. So it was believed that this location is close to where the FD-5 lateral meets the mainline. This is the end of the survey; however, there were additional photos taken as the camera was removed from the pipe. See below.



12/19/2016 10:56:10 AM 39' 2"

Photos as the camera was removed from the pipe.

12/19/2016 10:57:57 AM 35' 11"

Debris in the pipe.

12/19/2016 11:02:58 AM 27' 2"

Debris in the pipe.

12/19/2016 11:04:35 AM 23' 2"

Debris in the pipe.

12/19/2016 11:08:18 AM 12' 3"

Debris in the pipe.

Storm Drain Line 2

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Summary of the Storm Drain Line 2 video survey. Storm Drain Line 2 is located in the southeast area of the Topock Compressor Station near the "Tech's Office". Run off flow is derived from Trench 1.

3/15/2016 4:40:19 PM 0' -12"

Photo of Trench 1. The small hole at the bottom of the trench, between the pipes is the storm drain line. Flow is from within the trench, down the storm drain hole then to the east, or left in the photo.

3/15/2016 4:40:45 PM 0' -10"

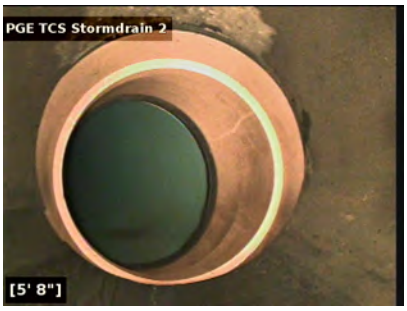
Start of survey at Trench 1. Pipe is 6" cast iron steel pipe, which quickly "90's" to the east, or right in the photo.

3/15/2016 4:43:00 PM 3' 5"

Transition from iron pipe to PVC pipe.

3/15/2016 4:43:21 PM 4' 9"

Transition from black PVC to blue PVC.

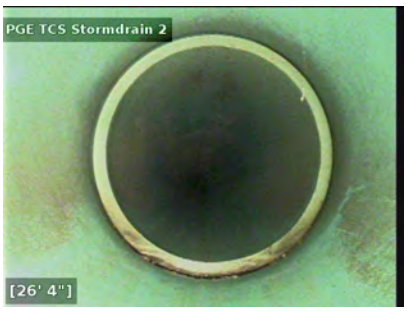


3/15/2016 4:43:53 PM 5' 9"

Storm line fitting "45's" to the north.

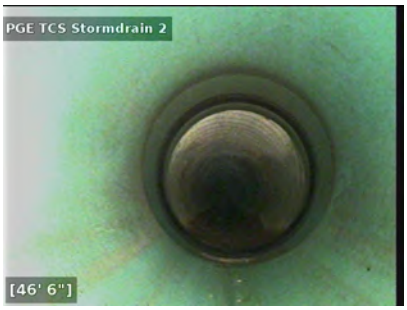
3/15/2016 4:44:30 PM 10' 7"

Blue PVC pipe.



3/15/2016 4:45:38 PM 26' 5"

Typical PVC joint.



3/15/2016 4:47:25 PM 46' 6"

Transition from blue PVC to corrugated steel pipe.

3/15/2016 4:48:04 PM 47' 7"

Transition from blue PVC to corrugated steel pipe.

3/15/2016 4:48:55 PM 53' 0"

Corrugated steel pipe. Bottom of pipe rusty, but no obvious holes in pipe.

3/15/2016 4:49:50 PM 56' 11"

Transition from horizontal pipe to downward pipe, down the side of the station hill.

3/15/2016 4:50:31 PM 58' 1"

Downward transition.

3/15/2016 4:52:04 PM 75' 11"

Corrugated steel pipe

3/15/2016 4:53:13 PM 90' 0"

Coroded steel pipe with possible holes on the right side of photo.

3/15/2016 4:54:16 PM 100' 0"

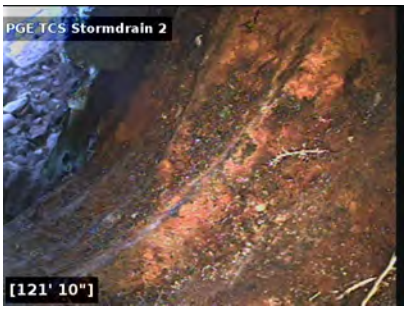
Coroded steel pipe with possible holes at the bottom of the pipe.

3/15/2016 4:55:39 PM 114' 11"

Near the end of the video survey.

3/15/2016 4:56:09 PM 119' 4"

A "45" junction near the outfall.



3/15/2016 4:57:05 PM 121' 11"

Total length of video survey was 122'.

Storm Drain Line 3, Catch Basins 1, 2, 3, and 5

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Video survey summary of Storm Drain Line 3 from Catch Basin 1, 2, 3 and 5. All surveys are in the "downstream" direction.

3/15/2016 10:12:30 AM 0' -1"

Catch Basin 1

3/15/2016 10:13:09 AM 0' -2"

Start of survey: 5" red clay pipe.

3/15/2016 10:13:42 AM 0' 0"

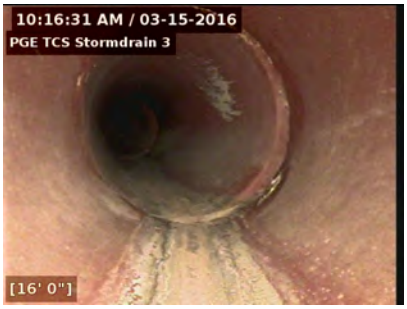
Pipe free of debris.

3/15/2016 10:14:39 AM 7' 11"

Small debris for very short distance.

3/15/2016 10:15:36 AM 12' 10"

Elbow joint to the left, slight offset.



3/15/2016 10:16:32 AM 16' 1"

Elbow joint to the left.

3/15/2016 10:17:11 AM 18' 8"

"Y" joint 1' ahead.

3/15/2016 10:18:09 AM 19' 9"

View of the "main line" where CB1 flows into Storm Drain Line 3.

3/15/2016 10:18:26 AM 20' 4"

PG&E Topock Compressor Station

3/15/2016 10:43:35 AM -3' -5"

Catch Basin 3, pipe on left is outfall from CB4. Flow discharges the catch basin through the pipe in the lower right corner of photo.

3/15/2016 10:44:21 AM -3' -5"

Catch Basin 3, pipe on left is outfall from CB4. Flow discharges the catch basin through the pipe in the lower right corner of photo.

3/15/2016 10:44:43 AM 0' 0"

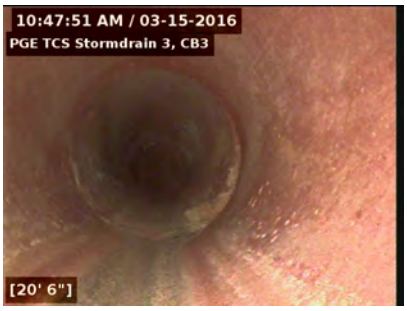
Red clay 8" pipe between CB3 and CB2.

3/15/2016 10:45:36 AM 1' 8"

View as camera is about to enter CB2. The pipe on the other side is the discharge pipe for CB2. The next slide is a photo taken just as the camera entered the discharge pipe of CB2.

3/15/2016 10:46:39 AM 4' 11"

Red clay pipe free of debris. Start from CB2.



3/15/2016 10:47:51 AM 20' 7"

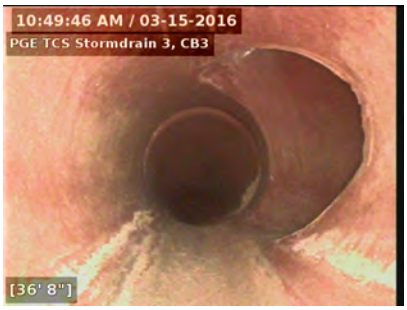
Red clay pipe free of debris.

3/15/2016 10:48:20 AM 23' 1"

Red clay pipe free of debris.

3/15/2016 10:49:19 AM 35' 10"

The "Y" fitting in the background. Flow that would discharge into the pipe from the right is from CB1.



3/15/2016 10:49:47 AM 36' 9"

"Y" joint as described above.

3/15/2016 10:52:27 AM 76' 4"

Red clay pipe free of debris and start of downward slope.

3/15/2016 10:52:53 AM 83' 4"

Red clay pipe free of debris. Pipe is sloping downward.

3/15/2016 10:53:42 AM 88' 5"

Broken red clay pipe inside of red clay pipe.

3/15/2016 10:54:39 AM 90' 9"

Broken red clay pipe inside of red clay pipe.

3/15/2016 10:55:31 AM 94' 2"

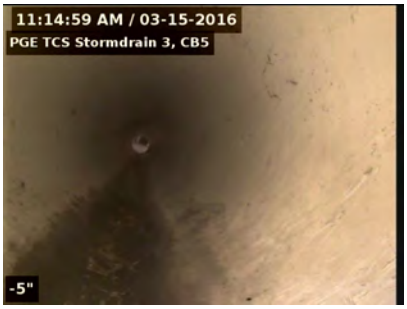
Nearly to outfall.

3/15/2016 10:56:12 AM 94' 10"

Storm Drain 3 outfall.

3/15/2016 11:14:15 AM 0' 4"

Catch Basin 5, start of survey. CB5 once upon a time discharged to CB2, but was cut and a segment removed in a utility trench to make way for another utility that needed to be run through the trench.



3/15/2016 11:15:00 AM 0' -5"

6" white PVC pipe free of debris.

3/15/2016 11:15:06 AM 0' -5"

Free of debris

3/15/2016 11:16:50 AM 7' 9"

Utility trench ahead

3/15/2016 11:17:21 AM 9' 7"

View of cut storm drain line, utility trench (with competing utility running left to right. ~3") and what

would have been the continuation of the storm drain line on the other side of the trench, as you can see in the photo.

3/15/2016 11:20:30 AM 9' 11"

This is Jamie moving the camera across the trench.

3/15/2016 11:20:49 AM 14' 6"

About to be inserted into the storm drain to continue video.

3/15/2016 11:24:57 AM 60' 8"

Moving on.

3/15/2016 11:26:52 AM 62' 7"

The outfall of this line is into CB2.

Storm Drain Line 3, Catch Basin 4 Downstream, Catch Basin 3 Upstream

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Video survey summary of Storm Drain Line 3 from Catch Basion 4.

3/15/2016 3:32:02 PM 1' 1"

Start of survey from Catch Basin 4, downstream.

3/15/2016 3:33:12 PM 0' 0"

4" diameter red clay pipe

3/15/2016 3:33:57 PM 5' 8"

Pipe is coated with scale but free of debris.

3/15/2016 3:34:30 PM 9' 10"

Pipe is free of debris.

3/15/2016 3:35:00 PM 14' 1"

Some silt in bottom of pipe.

3/15/2016 3:35:32 PM 19' 4"

Silt in bottom of pipe. Survey stopped at blockage ~5' ahead. Camera removed from Catch Basin 4 and moved to Catch Basin 3 and ran upstream to the blockage and photographed on the way out, starting at the next slide.

3/15/2016 3:46:48 PM 31' 9"

Survey is from CB3 upstream to the blockage at 32'.

3/15/2016 3:47:35 PM 30' 11"

Blockage

3/15/2016 3:48:51 PM 28' 8"

Photo coming out of pipe.

3/15/2016 3:49:07 PM 27' 4"

Transition from 4" red clay pipe to white PVC pipe.

3/15/2016 3:49:34 PM 26' 1"

Clean white PVC pipe.

3/15/2016 3:50:16 PM 17' 8"

Transition from PVC to red clay pipe.

3/15/2016 3:51:10 PM 14' 0"

Red clay pipe, free of debris.

3/15/2016 3:52:53 PM -3' -6"

Catch Basion 3, looking at the outfall from the line that runs from CB4 to CB3.

Storm Drain Line 3, Catch Basin 6 Downstream

PG&E Topock Compressor Station

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Video survey summary of Storm Drain Line 3 from Catch Basin 6, downstream. Line runs from CB-6 due south towards the SDL 3 mainline.

12/4/2016 1:30:17 PM -1' -2"

Catch Basin 6

12/4/2016 1:30:54 PM 0' 7"

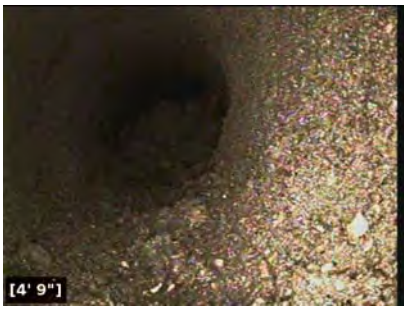
Pipe was cleared/cleaned of debris

12/4/2016 1:31:24 PM 2' 2"

Pipe was cleared/cleaned of debris. Note, this is the location where a valve was located in a valve box. Valve is open during the video.

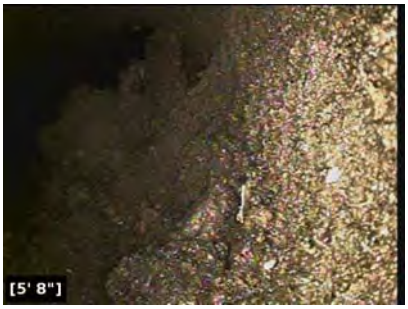
12/4/2016 1:32:01 PM 3' 7"

Debris in bottom of pipe.



12/4/2016 1:32:17 PM 4' 9"

Debris in bottom of pipe.



12/4/2016 1:32:39 PM 5' 9"

Debris in bottom of pipe.

12/4/2016 1:52:01 PM 6' 9"

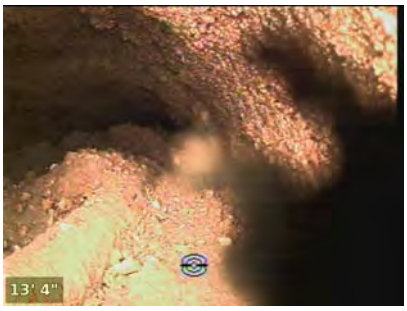
Pipe free of debris. Pipe is red clay 8" diameter, in good condition.

12/4/2016 1:54:19 PM 9' 10"

Obstruction at 10'.

12/4/2016 1:58:03 PM 13' 5"

Obstruction caused by debris.



12/4/2016 1:58:17 PM 13' 5"

Sand and gravel obstruction.

12/4/2016 1:59:15 PM 14' 10"

Camera moving over and through the obstruction.

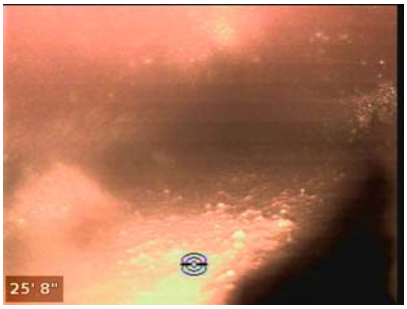
12/4/2016 2:00:18 PM 15' 9"

Some debris in bottom of pipe.

12/4/2016 2:07:14 PM 16' 2"

Some debris in bottom of pipe.

12/4/2016 2:30:31 PM 25' 9"



End of survey. Pipe becomes filled with more debris that camera cannot pass.

Storm Drain 4, Catch Basin 32

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Storm Drain Line 4 from the outfall. The survey starts by going upstream from the outfall and reaches it's catch basin (CB 32).

3/24/2016 10:47:33 AM 8' 4"

Storm Drain 4 outfall

3/24/2016 10:48:06 AM 6' 0"

4" diameter gray PVC pipe

3/24/2016 10:48:41 AM 11' 11"

Camera is entering into the catch basin.

3/24/2016 10:49:29 AM 13' 4"

Catch Basin 32. This catch basin is located outside of the visitor's parking lot fence, within, or between the oleander bushs.

The catch basin was completely covered with debris at the time of the video.

Storm Drain Line 4b

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of the Storm Drain Line 4b, located northeast of the Compressor Station Visitor Parking Lot. Video is from the outfall upward as there was not a catch basin found associated with the storm drain.

3/22/2016 4:40:14 PM 0' 0"

Start of survey at the 5" diameter PVC outfall. Survey is "upstream".

3/22/2016 4:43:21 PM 28' 10"

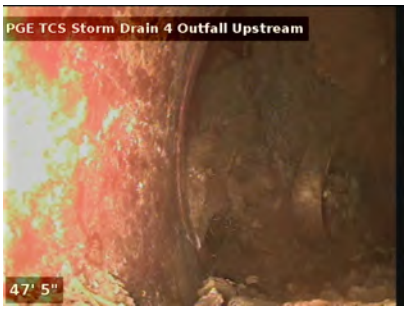
Pipe free of debris.

3/22/2016 4:44:35 PM 39' 0"

Bend to more horizontal pipe.

3/22/2016 4:45:28 PM 46' 0"

Gravel and debris.



3/22/2016 4:46:19 PM 47' 5"

Storm drain line blocked.

3/22/2016 4:46:32 PM 47' 5"

Gravel debris

3/22/2016 4:48:22 PM 47' 7"

Debris

3/22/2016 4:48:50 PM 47' 7"

Blockage visible in the background. End of survey.

Storm Drain Line 5, Catch Basin 7

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of Storm Drain Line 5.

3/6/2016 11:33:58 AM 3' 3"

Catch Basion 7, start of survey.

3/6/2016 11:34:53 AM 4' 4"

Corrugated steel in good condition.

3/6/2016 11:37:58 AM 22' 9"

Free of debris and corrosion.

3/6/2016 11:38:29 AM 25' 11"

Slight gap at 26' as seen by the daylight. Outfall in background of photo.

3/6/2016 11:39:45 AM 33' 8"

Outfall.

3/6/2016 11:40:11 AM 34' 5"

View of road coming up to the TCS.

Storm Drain Line 6, Catch Basin 8

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of Storm Drain Line 6. The photos may seem out of order as there were several attempts to make a left or right turn at the "T".

3/6/2016 9:57:51 AM 36' 10"

This is a photo of a "T" at 37' from Catch Basin 8. There are phtos from 0' to 37' later in this report. The stringy material is palm tree roots, which there are 3 trees located near this location.

3/6/2016 10:15:24 AM 0' 3"

We were unable to video from the "T" to the outfall, so we ran the camera upstream from the current outfall, which is inside the TCS fence line.

3/6/2016 10:19:42 AM 14' 3"

Location of "T", looking at it from the outfall pipe. The first picture in this report was taken by the camera facing the left side of this photo from the pipe on the right.

3/6/2016 10:26:38 AM 15' 5"

View of "T" looking upstream. Flow is coming from pipe on the right side of the photo, where we had added water to CB8. The camera was unable to proceed upstream to the left.

3/6/2016 10:34:46 AM 0' 9"

The length is incorrect on the this and the next 2 photos. The length should be 16', looking upstream from the "Y".

3/6/2016 10:38:50 AM 0' 10"

Looking upstream from the "Y".

3/6/2016 10:39:29 AM 0' 11"

Looking upstream from the "Y".

3/6/2016 11:09:14 AM 0' 11"

Photo of Catch Basin 8. The next set of photos are from CB8.

3/6/2016 11:11:23 AM 5' 7"

Steel corrugated pipe.

3/6/2016 11:17:25 AM 0' 6"

Corrosion on the bottom of the steel corrugated pipe.

3/6/2016 11:18:24 AM 11' 5"

Pipe corrosion free.

3/6/2016 11:19:29 AM 22' 9"

Pipe corrosion free.

3/6/2016 11:21:08 AM 33' 8"

Photo of the "T" after we had flushed more water through the line.

3/6/2016 11:21:16 AM 33' 7"

Photo of the "T" after we had flushed more water through the line.

3/6/2016 11:22:03 AM 34' 5"

Photo of the "T" after we had flushed more water through the line.

Storm Drain Line 7

PG&E Topock Compressor Statoin
Needles CA 92363

Sunday, February 21, 2016

Summary of the video Survey of storm drain line 7, that is located on the northwest side of the Topock Compressor Station manager's parking carport, east of the refueling area. The storm drain line 7 is primarly burried for all of it's length.

2/20/2016 2:12:02 PM 1' 1"

Start of survey at Catch Basin 9. Pipe is 4" diameter gray PVC from 0' to 1.5'. At 1.5', pipe transitions from PVC to corroded corrugated steel, then transitions back to PVC at 2.5' as shown in the next slide.

2/20/2016 2:12:43 PM 2' 0"

Transition from corroded corrugated steel pipe to PVC pipe. Bottom portion of corrugated steel appears to completely corroded.

2/20/2016 2:14:23 PM 9' 6"

Catch Basin 10 Top portion of PVC pipe is cut open to allow water to flow from Cacth Basin 10 into Storm Drain Line 7. Debris is from material that collected within Catch Basin 10. PVC pipe is clean and free of debris starting at 10'.

2/20/2016 2:15:26 PM 15' 1"

Transiton from horizontal flow to curved elbow as pipe/flow is conveyed down slope.

2/20/2016 2:16:37 PM 17' 1"

Short transition from PVC pipe to other (?) then back to PVC pipe. Debris appears to be entering the transition piece of pipe from the top portion of the pipe.

2/20/2016 2:21:50 PM 76' 11"

Typical PVC joint. PVC pipe is clean and in good condition.

2/20/2016 2:23:57 PM 105' 9"

Total length of video survey was 107'.

Old Storm Drain Line 8

PG&E Topock Compressor Station

NeedlesCA92363

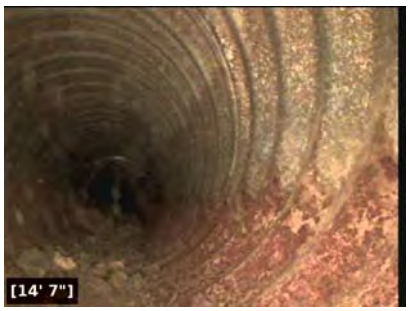
Video survey summary of Storm Drain Line 8 (old), which is located adjacent and to the south of the active Storm Drain Line 8. The outfalls of the two lines are locacted next to each other near the bottom of the wash in AOC 11. The video was conducted from the outfall upstream, uphill.

2/15/2017 2:21:47 PM 9' 6"

Out fall of the "old" Storm Drain Line 8, which is located due south of the active Storm Drain Line 8's outfall.

2/15/2017 2:22:17 PM 0' 0"

Start of video looking upstream from the outfall.



2/15/2017 2:23:28 PM 14' 8"

Gravel at the bottom of the pipe.

2/15/2017 2:23:49 PM 17' 2"

Pipe is rusted with holes in the top of the pipe.

2/15/2017 2:24:46 PM 23' 9"

End of the survey due to the gravel inside of the pipe.

Storm Drain Line 8

PG&E Topock Compressor Statoin
Needles CA 92363

Sunday, February 21, 2016

Video Survey of storm drain line 8, located on the northeast side of the Topock Compressor Station Compressor Building.

2/20/2016 10:44:26 AM 0' 0"

Catch Basin 11: 8" Diameter red clay pipe. Pipe was flushed with high pressure water after trial video. Storm drain line backflows for the first 8', as seen by the stagnent water.

2/20/2016 10:46:48 AM 7' 4"

Transition from red clay pipe to other pipe (PVC? concrete?). Pipe appears deformed on the left side of photo. Debris collect between this point and the catch basin, which was flushed out after the trial video and this video.

2/20/2016 10:47:40 AM 7' 4"

Same picture as above, but zoomed out.

2/20/2016 10:48:38 AM 9' 1"

Cracks present in top of pipe.

2/20/2016 10:49:26 AM 12' 8"

Small cracks or scale in bottom of pipe.

2/20/2016 10:53:00 AM 29' 0"

Small cracks or scale in bottom of pipe.

2/20/2016 10:55:19 AM 38' 9"

Transition back to red clay pipe and elbow to the left, north and down slope.

2/20/2016 10:56:17 AM 40' 0"

Clean red pipe, angled down slope.

2/20/2016 10:57:44 AM 51' 4"

Offset in clay pipe joints, lower pipe appears to be shifted down.

2/20/2016 10:58:22 AM 53' 9"

Transition from red clay pipe to PVC pipe, diameter unknown. Pipe appears to slope down slope and angled to the left.

2/20/2016 10:59:58 AM 58' 3"

PVC pipe joints have four set screws holding pipe together.

2/20/2016 11:02:46 AM 98' 9"

Transition from PVC pipe to corrugated steel pipe. Corrugated steel pipe is the type of pipe exposed from top of slope to outfall, so red clay pipe and PVC are likely inside of corrugated pipe, at least where corrugated pipe is exposed at ground surface.

2/20/2016 11:04:52 AM 138' 4"

2/20/2016 11:05:30 AM 139' 5"

Total length of video survey was 140'.

Storm Drain Line 9

PG&E Topock Compressor Station
Needles CA 92363

Friday, February 19, 2016

Video survey of storm drain line 9, located on the east side of the Topock Compressor Station North Cooling Tower

2/19/2016 11:11:02 AM -1' -7"

Catch Basin 13 8" Diameter PVC pipe inside of 10" diameter red clay pipe

2/19/2016 11:11:14 AM 0' 0"

PVC Pipe

2/19/2016 11:12:16 AM 23' 4"

Transistion from PVC pipe to steel corrugated pipe. Corrigated pipe corroded on bottom portion of pipe.

2/19/2016 11:12:52 AM 24' 8"

Corrugated pipe heavily corroded on bottom and top. Bottom of pipe may have holes in areas.

2/19/2016 11:13:07 AM 25' 2"

Portion of pipe that shows corrision and holes in bottom of pipe.

2/19/2016 11:13:19 AM 30' 2"

Beginning of down slope transition.

2/19/2016 11:13:30 AM 32' 9"

Downward angled elbow.

2/19/2016 11:18:50 AM 75' 2"

Offset and break in pipe. Soil sample SD-20 was collected below this break.

2/19/2016 11:19:53 AM 89' 1"

Large holes in bottom of pipe.

2/19/2016 11:20:39 AM 90' 11"

Large holes in bottom of pipe. Flow that was directed through the break at 75' completely discharged from the pipe at this point.

2/19/2016 11:22:09 AM 104' 4"

Debris in pipe. This portion of pipe does not receive flow.

2/19/2016 11:22:45 AM 212' 7"

Total length of video survey was 215'.

Storm Drain Line 10

PG&E Topock Compressor Station
NeedlesCA92363

Wednesday, March 23, 2016

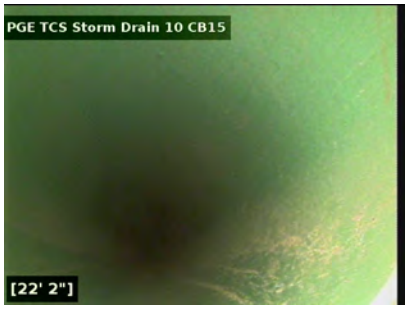
Summary of Storm Drain Line 10 video survey, located in the northwest area of the Topock Compressor Station.

3/23/2016 8:17:35 AM 0' 0"

Start of survey at Catch Basin 15. Pipe is 10" diameter green PVC.

3/23/2016 8:19:52 AM 21' 9"

Downward elbow.

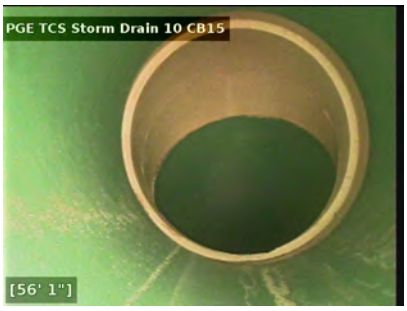


3/23/2016 8:20:49 AM 22' 2"

Pipe is clean and free of debris.

3/23/2016 8:23:30 AM 37' 10"

Typical PVC joint.



3/23/2016 8:25:51 AM 56' 2"

Downward elbow.

3/23/2016 8:28:02 AM 65' 8"

Plant material noted at pipe joint. Pipe did not show any sign of being broken or cracked at this location.

3/23/2016 8:28:19 AM 65' 8"

Pipe joint.

3/23/2016 8:29:54 AM 84' 5"

Pipe joint.

3/23/2016 8:31:53 AM 105' 0"

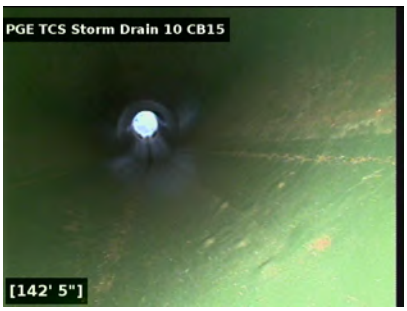
Pipe joint.

3/23/2016 8:32:13 AM 105' 7"

Pipe joint.

3/23/2016 8:33:47 AM 126' 6"

Pipe joint.



3/23/2016 8:34:50 AM 142' 6"

Outfall in the distance, 12' ahead.

3/23/2016 8:35:39 AM 154' 5"

Outfall free of debris.

3/23/2016 8:36:08 AM 155' 11"

Total length of video survey: 156'.

Storm Drain 11, Catch Basin 17 Upstream and Downstream

PG&E Topock Compressor Station
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Video survey summary of Storm Drain Line 11 from Catch Basin 17. The survey starts by going upstream from CB17 to Trench Drain 2, then goes downstream from CB17 to a "Y" that discharges into the "main line' of Storm Drain Line 11. Catch Basin 18 discharges into the "upstream" segement of pipe between TD2 and CB17; however, we were unable to remove the CB18 grate to video that section of the line, so you only see the outfall into the storm drain in the video.

3/22/2016 9:47:53 AM 0' 0"

Start of survey from CB17, upstream. The title on the video is inccorrect. This is SD11, CB17. This was correct at 11'.

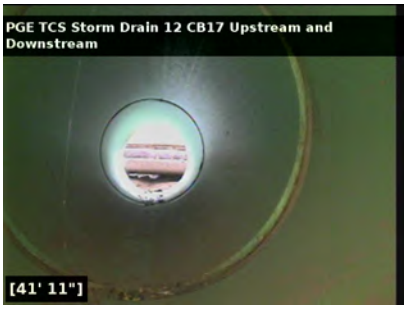
3/22/2016 9:49:16 AM 11' 1"

Pipe is free of debris.

3/22/2016 9:51:01 AM 15' 1"

Outfall from CB18. Pipe appears to be 3" diameter white PVC.

3/22/2016 9:53:04 AM 42' 0"



Trench Drain 2 ~4' ahead.

3/22/2016 9:53:36 AM 46' 3"

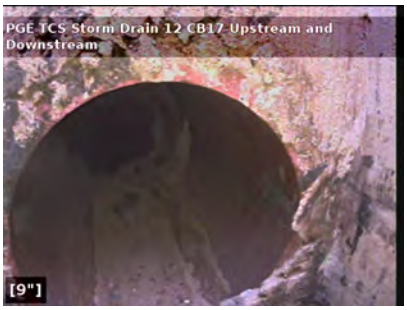
View of Trench Drain 2 cover.

3/22/2016 9:54:05 AM 46' 2"

Trench Drain 2

3/22/2016 9:56:10 AM 0' 9"

Catch Basin 17. Pipe in lower right corner is the upstream pipe, pipe in upper left corner is downstream pipe



3/22/2016 9:56:36 AM 0' 9"

Start of downstream survey. Pipe is 10" diameter red clay pipe.

3/22/2016 9:57:34 AM 5' 1"

Clay pipe with grout intruding into pipe.

3/22/2016 10:00:42 AM 11' 4"

Clay pipe with grout intruding into pipe.

3/22/2016 10:01:13 AM 14' 1"

Location where CB17 line discharges into the "main line" of Storm Drain 11, as a "Y".

3/22/2016 10:04:19 AM 16' 3"

Main line of Storm Drain 11.

3/22/2016 10:05:48 AM 23' 0"

Pipe in good condition.

3/22/2016 10:07:11 AM 39' 10"

Pipe in good condition.

3/22/2016 10:08:08 AM 48' 5"

Pipe in good condition.

3/22/2016 10:08:29 AM 51' 6"

Transition from red clay pipe to white PVC pipe at 52' The PVC pipe is offset from the clay pipe and is shifted down.

3/22/2016 10:10:58 AM 70' 1"

Left turn elbow.

3/22/2016 10:12:32 AM 85' 10"

PVC joint. The camera could not make it past 92' from what appeared to be PVC joint. 92' is the end of the video; however, another survey was conducted from the outfall upward, toward this location. There was roughly 40' of pipe bewtween this location and the location where we could not advance the cameran any further on the outfall upstream survey.

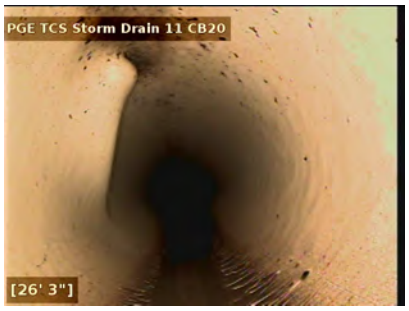
Storm Drain Line 11, Catch Basin 20

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of Storm Drain 11, from Catch Basin 20. Catch Basin 20 is located west of the south cooling tower.

3/22/2016 12:15:36 PM 0' 0"

Start of survey from Catch Basin 20. Pipe is 8" diameter white PVC pipe.



3/22/2016 12:17:06 PM 26' 3"

Defect or dent in pipe on left side of photo. Pipe is not broken however.

3/22/2016 12:18:27 PM 47' 6"

Transition from PVC pipe to red clay pipe, then back to PVC pipe. The junction is a "Y" where flow from Catch Basin flows into the storm drain that collects water from Catch Basin 21 and 22, which is Storm Drain Line 11.

3/22/2016 12:22:26 PM 52' 4"

Rock and gravel blockage.

3/22/2016 12:36:32 PM 52' 5"

Rock and gravel blockage.

Storm Drain Line 11, Catch Basins 21 and 22

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of Storm Drain Line 11 from Catch Basin 21, downstream to the "main line" then upstream to Catch Basin 22. We did not have access to Catch Basin 22 due to a metal grate cemented below grade.

3/16/2016 4:21:42 PM -4' -2"

Catch Basin 21.

3/16/2016 4:22:00 PM -2' -8"

8" white PVC pipe inside of 10" red clay pipe.

3/16/2016 4:23:00 PM 6' 7"

White PVC pipe.

3/16/2016 4:23:27 PM 11' 5"

White PVC pipe that transitions to gray PVC pipe.

3/16/2016 4:24:06 PM 15' 1"

90 degree elbow to the left, south.

3/16/2016 4:26:29 PM 17' 7"

"T" fitting of the "main line" of Storm Drain Line 11. The camera will make a left turn here and proceed to Catch Basin 22. We were unable to get the camera to make a right turn at this junction.

3/16/2016 4:30:46 PM 36' 1"

Traveling upstream in Storm Drain Line 11 towards CB22. white PVC pipe.

3/16/2016 4:31:17 PM 36' 9"

White PVC pipe transitions to 8" red clay pipe.

3/16/2016 4:32:28 PM 46' 0"

Debris in pipe

3/16/2016 5:08:35 PM 58' 7"

Camera inside of Catch Basin 22.

3/16/2016 5:08:53 PM 54' 5"

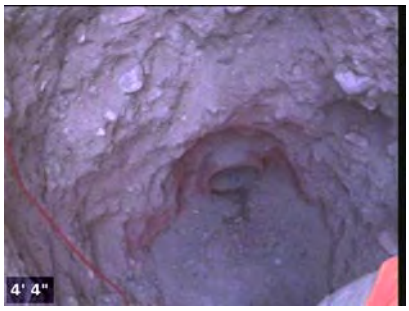
Debris inside pipe downstream of Catch Basin 22.

Storm Drain Line 11, Catch Basin 22 Upstream

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Storm Drain Line 11 from Catch Basin 22 upstream. The actual starting point is east of CB-22, where a section of pipe was cut and removed.

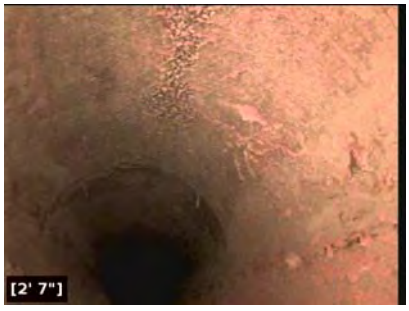


7/19/2017 6:02:13 AM 4' 4"

Excavation where SDL 11 was cut and removed in order to gain access for video survey and to clean the pipe and remove the clogged pipe.

7/19/2017 6:02:29 AM 4' 7"

Another picture of the excavation, facing west. Catch Basin 22 is located directly below the white PG&E traffic A-frame sign. An 8-foot section of pipe was cut and removed in order to remove the clog from the pipe. All distances in this video summary are distances east of CB-22 minus 10 feet.



7/19/2017 6:03:07 AM 2' 7"

This section of pipe was cleaned and cleared of debris during this effort of work.

7/19/2017 6:03:44 AM 2' 7"

Pipe is 8" diameter red clay pipe.

7/19/2017 6:04:14 AM 7' 10"

Debris in pipe.

7/19/2017 6:04:42 AM 13' 1"

Debris in pipe. An 8-inch diameter "T" fitting, with a line on the right side of the frame. This line would be oriented torwards the south, towards the A Cooling Tower.

7/19/2017 6:05:08 AM 17' 10"

Pipe becomes more full of debris.

7/19/2017 6:05:43 AM 24' 5"

End of surve due to debris in the bottom of pipe.

7/19/2017 6:14:31 AM 11' 9"

Another image of the "T" fitting that is oriented to the south.

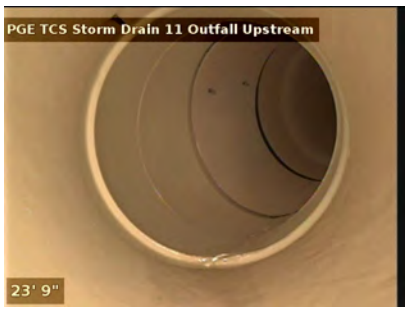
Storm Drain Line 11, Upstream from Outfall

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of Storm Drain Line 11 from the outfall, upstream. The outfall is located in Bat Cave Wash near the bottom of the PG&E lower yard dirt access road to the wash.

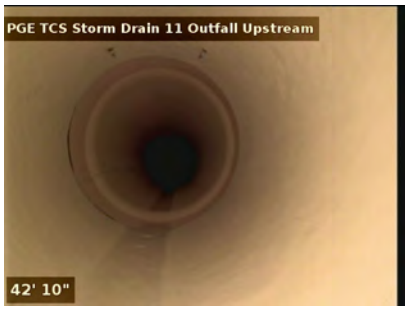
3/22/2016 11:54:45 AM 0' -1"

Start of survey at the Storm Drain Line 11 outfall. The pipe is 10" diameter white PVC.



3/22/2016 11:55:48 AM 23' 9"

Right turn, low angle elbow.



3/22/2016 11:56:54 AM 42' 11"

Pipe joint.

3/22/2016 11:59:09 AM 65' 8"

Left turn low angle elbow and pipe transition from downslope to more horizontal.

3/22/2016 12:01:26 PM 66' 8"

End of survey.

Storm Drain Line 11, SD-40 Excavation Downstream to CB-19

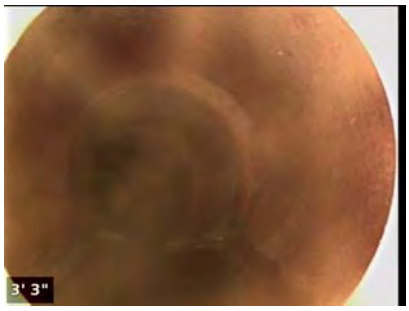
PG&E Topock Compressor Station

NeedlesCA92363

Summary of the video survey of Storm Drain Line 11, from the SD-40 excavation to CB-19. This section of SDL 11 goes from the upper portion of the station to the lower yard, so much of the video is conducted where the pipe is at a steep angle down the slope. CB-19 was not accessible due to the replacement of the gas scrubbers with a new oil filter system.

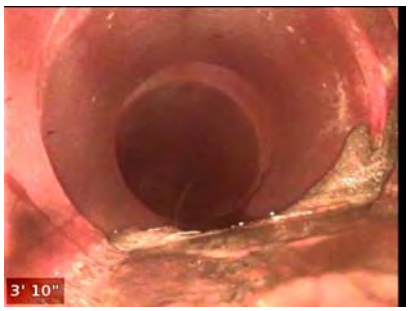
12/13/2016 3:22:08 PM ---

Start of video survey is from the SD-40 excavation, which starts in an 8" PVC pipe that transitions to 8" red clay pipe within a couple feet. The last picture in this survey shows the SD-40 excavation where this video was conducted.



12/13/2016 3:22:52 PM 1' 1"

Transition from white PVC pipe to red clay pipe.

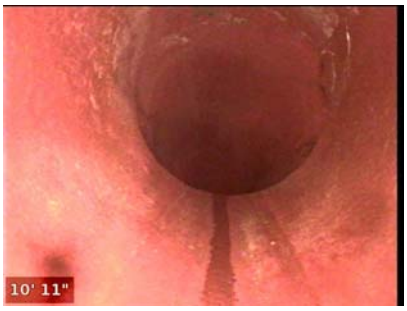


12/13/2016 3:22:58 PM 3' 5"

Start of downhill transition, from horizontal to downward slope.

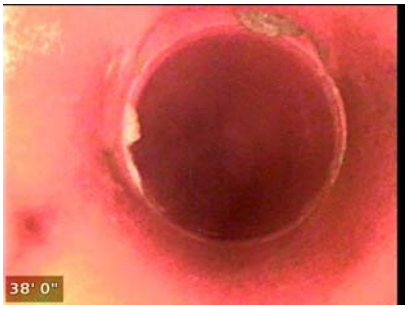
12/13/2016 3:23:08 PM 5' 0"

The second transition downhill.



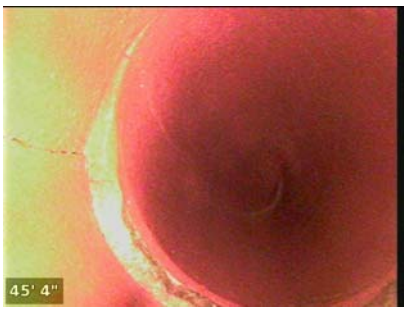
12/13/2016 3:23:13 PM 8' 8"

The third transition downhill.



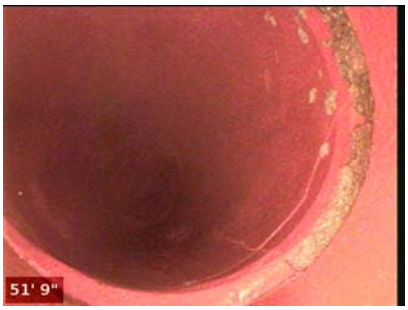
12/13/2016 3:24:01 PM 36' 9"

Downward sloping pipe.



12/13/2016 3:25:19 PM 45' 4"

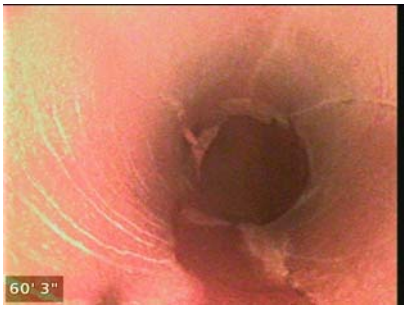
Small cracks on the left side of the pipe.



12/13/2016 3:25:55 PM 51' 9"

Small cracks on the bottom of the pipe.

12/13/2016 3:26:40 PM 60' 3"



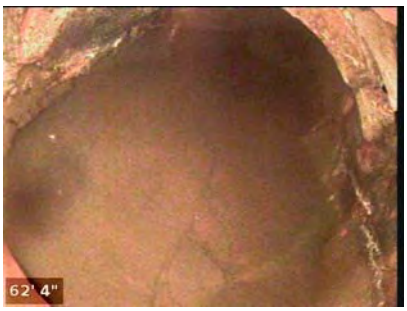
Camera approaches the bottom of the slope, more small cracks.

12/13/2016 3:26:57 PM 61' 3"

Several cracks at the transitions from downward sloping to horizontal.

12/13/2016 3:28:00 PM 62' 0"

Transitions from downward to horizontal.



12/13/2016 3:28:26 PM 62' 4"

Transitions from downward to horizontal. Several cracks.

12/13/2016 3:29:18 PM 63' 1"

Horizontal pipe thats now in the lower yard, headed towards CB-19.

12/13/2016 3:47:30 PM 65' 5"

Standing water and some debris.

12/13/2016 3:48:47 PM

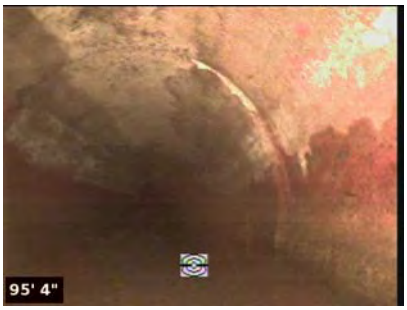
78' 10"

Debris and standing water.

12/13/2016 3:49:32 PM

85' 2"

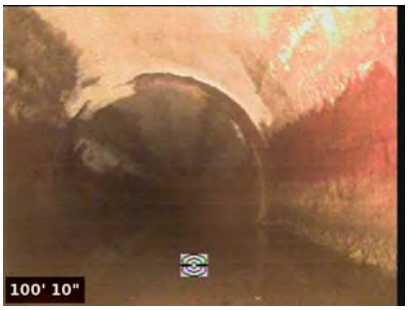
Pipe has less debris than previous photos.



12/13/2016 4:02:59 PM

95' 4"

Pipe free of debris, but standing water.



12/13/2016 4:03:26 PM

100' 10"

Standing water.

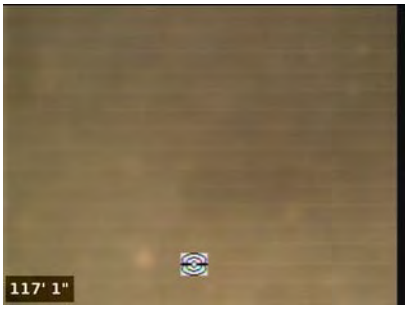
12/13/2016 4:03:58 PM

108' 9"

Standing water.

12/13/2016 4:04:28 PM 114' 5"

Camera is under water.



12/13/2016 4:05:04 PM 117' 2"

Camera remains under water.

12/13/2016 4:08:26 PM 119' 6"

Camera not under water, but some standing water.

12/13/2016 4:09:21 PM 120' 3"

Catch Basin 19 (CB-19) seen in the background.

12/13/2016 4:09:46 PM 120' 5"

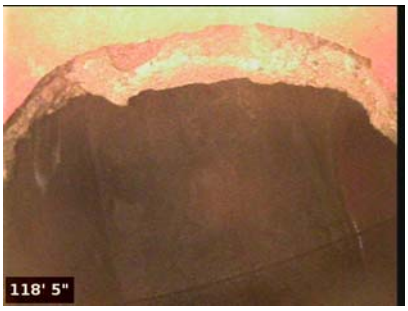
The southwest corner of CB-19.

12/13/2016 4:11:47 PM 120' 11"

Clear image of CB-19.

12/13/2016 4:12:18 PM 121' 1"

Another shot of CB-19.



12/13/2016 4:13:07 PM 118' 6"

A picture as the camera was being pulled out of CB-19. The discharge pipe can be seen on the background, right side of the picture.

12/13/2016 4:22:38 PM 0' 0"

The SD-40 excavation, where a section of the white PVC pipe was removed to complete a repair, unclog the pipe and gain access to video the storm drain lines upstream and downstream. This photo was taken facing west.

Storm Drain Line 11, SD-40 Excavation Upstream To CB-22

PG&E Topock Compressor Station

NeedlesCA92363

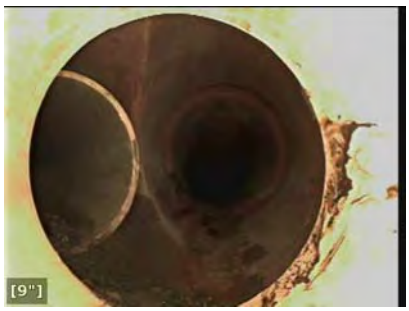
Video survey summary of Storm Drain Line 11 from the SD-40 excavation upstream to CB-22. This summary includes to video surveys, one from 0' to 25', and the second from 30' to CB-22.

12/14/2016 2:51:36 PM 2' 1"

SD-40 excavation starting point, facing east towards CB-22. Pipe is 8" diameter white PVC. Photo shows a large "Y" fitting where the CB-20 line and the SDL-11 mainline meet. The "Y" fittings are red clay pipe encased in cement/concrete.

12/14/2016 2:51:49 PM 2' 7"

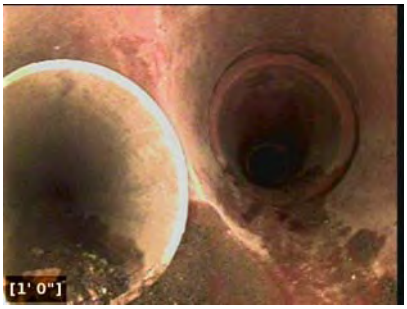
Start of survey.



12/14/2016 2:52:17 PM 0' 9"

Inside the "Y" fitting. Pipe on the left is from the CB-20 line.

12/14/2016 2:52:45 PM 1' 0"



"Y" fitting

12/14/2016 2:53:20 PM 2' 4"

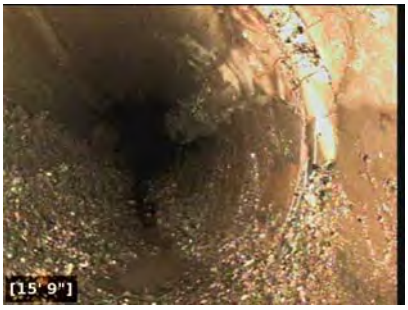
Camera continues to the right (from picture taken at 1'0" above), towards the CB-22.

12/14/2016 2:54:10 PM 5' 5"

Transition from red clay pipe to gray PVC.

12/14/2016 2:54:38 PM 8' 6"

Gray PVC pipe.



12/14/2016 2:55:32 PM 15' 10"

Sand and gravel debris.

12/14/2016 2:57:03 PM 23' 10"

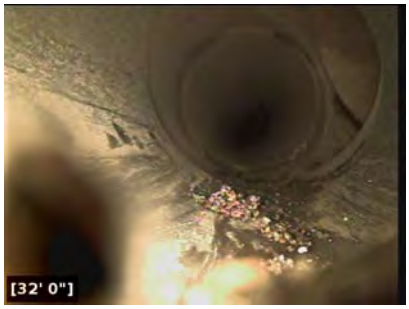
Sand and gravel debris.

12/14/2016 2:57:59 PM 24' 7"

Blockage at 25'. End of the first video. The video was completed by making several attempts, followed by additional pipe cleaning after blockage or camera advances. The following photos are from a seperate video, completed after clearing the blockage.

12/14/2016 3:53:34 PM 17' 3"

The following photos are from a second video survey. The camera travels from this point (17'3") to CB-22, then back out to SD-40 excavation starting point. Pipe is gray pvc, and now less debris and sand.



12/14/2016 4:03:41 PM 32' 1"

White PVC "T" fitting in the background. The "T" on the right is connected to the line that was once connected to TD-3.

12/14/2016 4:05:02 PM 35' 2"

Transition through the TD-3 "T" fitting. White PVC transitions back to gray PVC. Then, on the left side of the picture, is the "T" fitting for the line from CB-21. There are additional pictures below. See 33'7".

12/14/2016 4:05:23 PM 39' 4"

Transition from gray PVC to red clay pipe.

12/14/2016 4:05:52 PM 45' 8"

Transition from red clay pipe to white PVC pipe. Next picture is the CB-22, but additional pictures between 45' and CB-22 follow.

12/14/2016 4:07:44 PM 74' 11"

CB-22 looking up, towards the sky.

12/14/2016 4:07:58 PM 72' 8"

Inside CB-22. This is the end of the survey for length.

12/14/2016 4:08:13 PM 70' 5"

Camera then retreats back towards SD-40 excavation, so photos are in reverse direction. This photo shows CB-22 in the background.

12/14/2016 4:09:39 PM 71' 10"

CB-22 in the background.

12/14/2016 4:09:54 PM 69' 11"

CB-22 in the far background.

12/14/2016 4:10:57 PM 68' 10"

CB-22 in the far background. Debris in the pipe. Pipe is red clay, 8" diameter.

12/14/2016 4:12:42 PM 62' 11"

Some debris in pipe.

12/14/2016 4:13:09 PM 60' 0"

Less debris.

12/14/2016 4:15:14 PM 55' 0"

Free of debris.

12/14/2016 4:16:16 PM 51' 1"

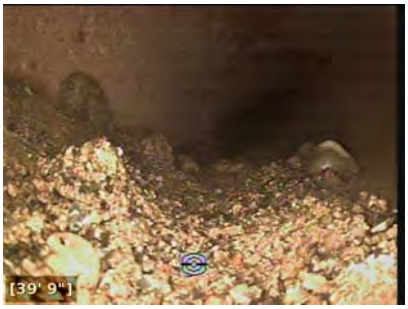
Free of debris.

12/14/2016 4:16:49 PM 49' 3"

Transitioned from red clay pipe to white PVC (at around 50').

12/14/2016 4:19:18 PM 45' 8"

Transition back to red clay pipe (there is a similar photo above when the camera was moving towards CB-22).



12/14/2016 4:20:56 PM 39' 9"

Debris Red clay pipe.

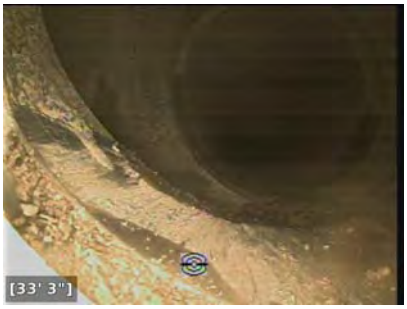
12/14/2016 4:21:38 PM 38' 3"

Transition from red clay pipe to gray PVC.

12/14/2016 4:22:11 PM 33' 7"

"T" fitting for the CB-21 line, on the left side.

12/14/2016 4:24:13 PM 33' 4"



"T" fitting for the CB-21 line, on the left side.

12/14/2016 4:24:42 PM 31' 9"

TD-3 "T" fitting on the right side of the picture.

12/14/2016 4:25:05 PM 31' 9"

TD-3 "T" fitting on the right side of the picture.

12/14/2016 4:29:32 PM 26' 10"

Some debris

12/14/2016 4:30:09 PM 24' 7"

Debris where camera had blockage on earlier video surveys.

12/14/2016 4:30:55 PM 18' 11"

Gray PVC pipe.

12/14/2016 4:31:26 PM 14' 11"

Gray PVC pipe.

12/14/2016 4:33:56 PM 0' -5"

End of video survey.

Storm Drain Line 11, Trench Drain 3

PG&E Topock Compressor Station

NeedlesCA92363

Video survey summary of Storm Drain Line 11 between Trench Drain 3 and the SDL 11 mainline. The line between TD-3 and SDL 11 was accessed by cutting the pipe 17 feet south of the SDL 11 mainline, then conducting a video survey from that point south (towards TD-3), and north (towards the "T" fitting with the SDL 11 mainline.

7/17/2017 10:47:23 AM 0' -3"

A 1 foot section of pipe was cut and removed in order to gain access for video survey. This cut was made roughly 17 feet south of the "T" fitting where the TD-3 line meets the SDL 11 mainline, or 168 feet north of TD-3. This is also the location of soil samples SD-43. The total length from TD-3 to the SDL 11 mainline ("T" - fitting) is 185 feet.

7/17/2017 10:48:57 AM 3' 6"

Video camera is facing north, towards the SDL-11 mainline. The distance from TD-3 is 171.5 feet. Pipe is red clay pipe, 8" diameter, dry, clear and free of debris.

7/17/2017 10:49:08 AM 3' 6"

The distance from TD-3 is 171.5 feet.

7/17/2017 10:49:41 AM 9' 11"

Dry sand and gravel in the bottom of the pipe. The distance from TD-3 is 178 feet.

7/17/2017 10:50:11 AM 15' 0"

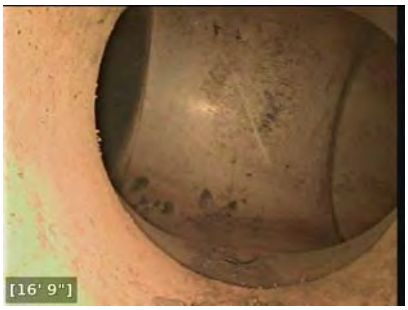
Dry gravel in the bottom of the pipe. Transition from red clay pipe to white PVC pipe (as seen in the foreground). The distance from TD-3 is 183 feet.

7/17/2017 10:50:26 AM 15' 11"

Dry gravel in the bottom of the pipe. Transition from red clay pipe to white PVC pipe/"T" fitting (as seen in the foreground). The distance from TD-3 is 183 feet.

7/17/2017 10:51:00 AM 16' 1"

PVC "T" fitting, and the SDL 11 mainline in the foreground, which flows from east to west or from right to left.



7/17/2017 10:51:10 AM 16' 9"

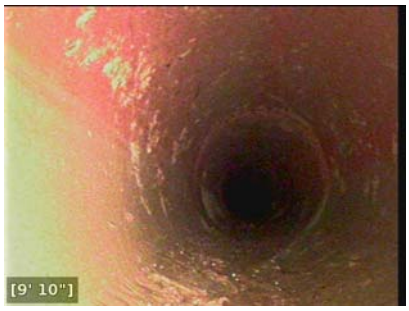
PVC "T" fitting, and the SDL 11 mainline in the foreground, which flows from east to west or from right to left. The distance from TD-3 is 185 feet. End of video survey towards the north direction

7/17/2017 10:31:21 AM 0' -2"

A 1 foot section of pipe was cut and removed in order to gain access for video survey. This cut was made roughly 17 feet south of the "T" fitting where the TD-3 line meets the SDL 11 mainline, or 168 feet north of TD-3. The total length from TD-3 to the SDL 11 mainline ("T" - fitting) is 185 feet.

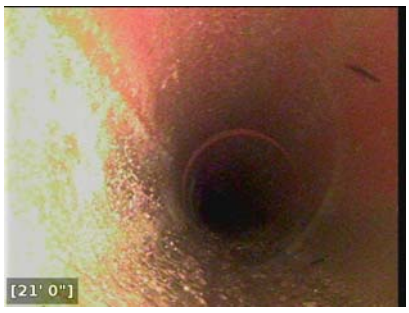
7/17/2017 10:31:38 AM 0' 7"

Video camera is facing south, towards TD-3. The distance from TD-3 is 167.5 feet. Pipe is red clay pipe, 8" diameter, dry, clear and free of debris.



7/17/2017 10:32:16 AM 9' 11"

Video camera continous traveling south towards TD-3. The distance from TD-3 is 158 feet.



7/17/2017 10:33:21 AM 21' 1"

Distance from TD-3 is 147 feet.

7/17/2017 10:33:39 AM 22' 10"

Pipe is clear and free of debris.

7/17/2017 10:34:50 AM 28' 10"

Distance from TD-3 is 139 feet.

7/17/2017 10:35:27 AM 34' 2"

Distance from TD-3 is 134 feet.

7/17/2017 10:36:04 AM 40' 7"

Grout that intruded through the joint during pipe installation. Distance from TD-3 is 127 feet.

7/17/2017 10:37:02 AM 44' 5"

Distance from TD-3 is 123.5 feet.

7/17/2017 10:38:19 AM 54' 0"

Distance from TD-3 is 114 feet.

7/17/2017 10:39:42 AM 58' 7"

Grout intrusion during pipe installation, which acted like a sediment dam and collected sediment upstream of the grout.

Distance from TD-3 is 109.3 feet.

7/17/2017 10:55:51 AM 60' 6"

Distance from TD-3 is 107.5 feet.

7/17/2017 10:56:34 AM 70' 6"

Distance from TD-3 is 97.5 feet.

7/17/2017 10:57:05 AM 74' 6"

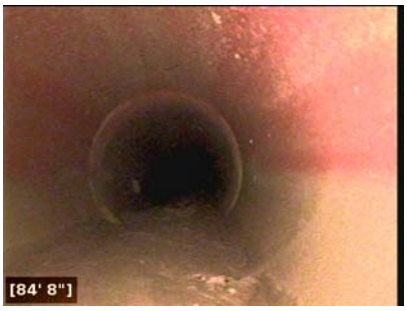
Distance from TD-3 is 93.5 feet.

7/17/2017 10:58:23 AM 80' 3"

Sand and gravel starting to accumulate in bottom of pipe (dry). Distance from TD-3 is 88 feet.

7/17/2017 10:59:36 AM 84' 8"

Distance from TD-3 is 83.4 feet.



7/17/2017 11:02:01 AM 84' 9"

Distance from TD-3 is 83 feet.

7/17/2017 11:02:41 AM 92' 6"

Distance from TD-3 is 75.5 feet. End of video. Could not advance camera due to slight uphill slope and friction between camera line and pipe. Pipe appears in good condition and free of debris.

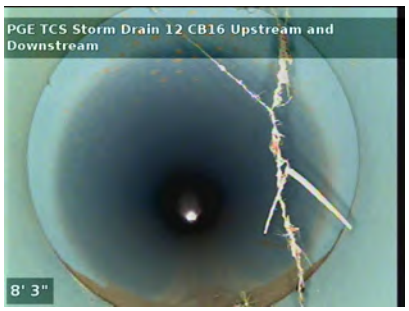
Storm Drain 12, Catch Basin 16 Upstream and Downstream

PG&E Topock Compressor Station
NeedlesCA92363

Video survey summary of Storm Drain Line 12 from Catch Basin 16. The survey starts by going upstream from CB16 to Trench Drain 4, then goes downstream from CB16 to the outfall.

3/22/2016 11:25:07 AM 0' 9"

Start of survey from Catch Basin 16 through the upstream pipe. The upstream pipe is the pipe shown in the top of the photo, which is 10" blue PVC pipe.



3/22/2016 11:30:58 AM 8' 4"

Pipe is free of debris

3/22/2016 11:31:52 AM 28' 3"

View of Trench Drain 4.

3/22/2016 11:32:05 AM 29' 0"

Trench Drain 4

3/22/2016 11:33:32 AM 4' 6"

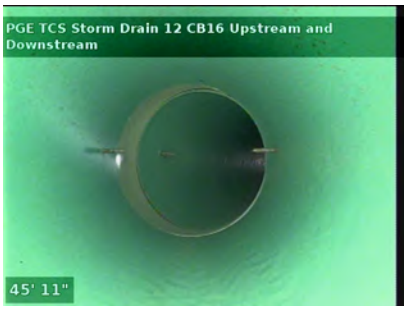
Start of downstream survey from Catch Basin 16. The pipe is 10" blue PVC pipe.

3/22/2016 11:35:27 AM 16' 2"

Free of debris, but not cob webs.

3/22/2016 11:36:07 AM 29' 3"

Downward joint.



3/22/2016 11:37:02 AM 45' 11"

Right turn elbow

3/22/2016 11:37:58 AM 66' 8"

1.5' from the outfall.

3/22/2016 11:38:18 AM 68' 1"

View of outfall.

Storm Drain Line 13a

PG&E Topock Compressor Station
Needles CA 92363

Sunday, February 21, 2016

Summary of the video survey of storm drain line 13a located west of the Topock Compressor Staton Hazardous Waste Building. Storm drains 13a and 13b had their catch basins abandoned but the storm drain pipe still exist, so the survey is from the outfall uphill towards the Station. Two video surveys were completed on storm drain line 13a: one with centralizers and one withour. The survey without centralizers reached a total length of 118', and this summary shows the photos of the centralized camera, which reaches a length of 104'. The centralized camera does not pentrate as far as the uncentralized camera because the centralizers push dry sand and gravel which creates a sand dam it could not pass. The pipe appears to full of sand at 118' and was likely cut and backfilled without the pipe being capped prior to backfill.

2/21/2016 12:12:29 PM -1' -1"

Outfall of storm drain: 6" diameter corrugated steel pipe.

2/21/2016 12:12:50 PM -1' -1"

5.5" diameter gray PVC pipe within the corrugated steel pipe. Lenth on this slide should read 0' 0". Gray PVC pipe is in good condition.

2/21/2016 12:15:11 PM 37' 10"

Transition to more horizontal and a left (north) bend. Transition is a long sweeping elbow.

2/21/2016 12:21:05 PM 103' 11"

End of the survey was 104' for centralized camera. A seconde survey was completed with an uncentralized camera, which reached a length of 118', where the pipe was full of sand and gravel.

Storm Drain Line 13b

PG&E Topock Compressor Station
Needles CA 92363

Sunday, February 21, 2016

Summary of the video survey of storm drain line 13 b located west of the Topock Compressor Staton Hazardous Waste Building. Storm drains 13a and 13b had their catch basins abandoned but the storm drain pipe still exist, so the survey is from the outfall uphill towards the Station. Storm drain line does have an intermediate catch basin, 23, and the video survey includes the camera traveling through the catch basin.

2/21/2016 11:31:07 AM 0' 0"

Outfall of storm drain: 8" diameter corrugated steel pipe.

2/21/2016 11:35:33 AM 41' 8"

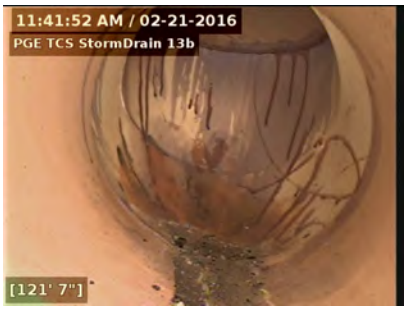
Transiton from angled pipe to horizontal pipe.

2/21/2016 11:36:17 AM 43' 4"

Mild corroded pipe. Daylight is from Catch Basin 23, see next photo.

2/21/2016 11:36:47 AM 46' 4"

Catch Basin 23. Flow was from 8" diameter PVC pipe to 8" diameter corrugated pipe. PVC pipe is in good condition.



2/21/2016 11:41:53 AM 121' 7"

End of the survey was 125'. An elbow was encountered at 122.5' that appeared to either "45" or "90" upward. Our camera could not make the bend even after a second attempt with all centralizers removed from the camera. The pipe may be capped at 125' where our camera would not pass or advance.

Storm Drain Line 14

PG&E Topock Compressor Staton
Needles CA 92363

Sunday, February 21, 2016

Summary of the video survey of storm drain line 14 located in the southwest area of the Topock Compressor Station, south of the harzardous storage area.

2/21/2016 1:34:08 PM 1' 3"

Start of survey, which is a ditch not a catch basin. Pipe is 11" diameter corrugated steel pipe.

2/21/2016 1:36:29 PM 19' 0"

Corroded corrugated metal pipe with debris in bottom portion of pipe.

2/21/2016 1:37:18 PM 21' 1"

Transition from horizontal pipe to downsloping pipe.

2/21/2016 1:38:57 PM 31' 10"

Another transition to a steeper downward pipe. Little to no corrosion exists where pipe is more vertical.

2/21/2016 1:39:33 PM 33' 11"

Downward transition.

2/21/2016 1:41:24 PM 56' 6"

Near the outfall.

2/21/2016 1:42:07 PM 58' 10"

Total length of video survey was 59'.

Attachment B11
Storm Drain Investigation Videos
(Electronic Only)

Attachment B12
ArcGIS File of All Sample Locations
(Electronic Only)