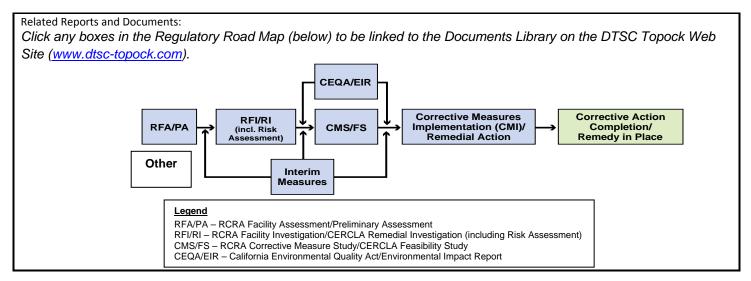
Topock Project I	Executive Abstract
Document Title: Second Quarter 2013 Interim Measures	Date of Document: 8/15/2013
Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor	Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other)
Station, Needles, California	PG&E
Submitting Agency: DTSC	
Final Document? 🛛 Yes 🗌 No	
Priority Status: HIGH MED LOW Is this time critical? Yes No	Action Required: Information Only Review & Comment
Type of Document: ☐ Draft ☐ Report ☐ Letter ☐ Memo	Return to:
Other/Explain:	By Date: Other/Explain:
What does this information pertain to? Resource Conservation and Recovery Act (RCRA) Facility	Is this a Regulatory Requirement? ☑ Yes
Assessment (RFA)/Preliminary Assessment (PA) RCRA Facility Investigation (RFI)/Remedial Investigation (RI)	☐ No If no, why is the document needed?
(including Risk Assessment) Corrective Measures Study (CMS)/Feasibility Study (FS)	in no, why is the document needed:
Corrective Measures Implementation (CMI)/Remedial Action	
California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR)	
What is the consequence of NOT doing this item? What is the	Other Justification/s:
consequence of DOING this item? Report is required to be in compliance with DTSC	Permit Other / Explain:
requirements.	
Brief Summary of attached document:	
This quarterly report documents the monitoring activities and p containment system under the IM Performance Monitoring Pro	
Water Monitoring Program for the Topock project. Hydraulic an	d chemical monitoring data were collected and used to evaluate IM
hydraulic containment system performance based on a set of st Agency, Department of Toxic Substances Control (DTSC). Key ite	······
elevations and hydraulic gradient data at compliance well pairs	that indicate the direction of groundwater flow is away from the
Colorado River and toward the pumping centers onsite, (2) hexadolered volumes from the IM extraction system, and (4) Groundwater N	avalent chromium data for monitoring wells, (3) pumping rates and donitoring Program and Surface Water Monitoring Program
activities and results.	
	M performance standard has been met for Second Quarter 2013,
Quarter 2013 was 128.1 gallons per minute. To date, the IM ext	erage pumping rate for the IM extraction system during the Second raction system has removed a total of 7,600 pounds
(3,450 kilograms) of chromium.	
Written by: PG&E	
Recommendations: This report is for information only.	
How is this information related to the Final Remedy or Regulatory Req	
This report is required by DTSC as part of the Interim Measures Perform	mance Monitoring Program.
Other requirements of this information? None.	



Version 9



Yvonne J. Meeks Manager

Environmental Remediation

Mailing Address 4325 South Higuera Street San Luis Obispo, CA 93401

Location 6588 Ontario Road San Luis Obispo, CA 93405

805.234.2257 Fax: 805.773.8281 E-Mail: <u>yjm1@pge.com</u>

August 15, 2013

Mr. Aaron Yue Project Manager California Department of Toxic Substances Control 5796 Corporate Avenue Cypress, CA 90630

Subject: Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide

Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station,

Needles, California (Document ID: PGE20130815A)

Dear Mr. Yue:

Enclosed is the Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California, for PG&E's Interim Measures (IMs) Performance Monitoring Program and the Groundwater Monitoring Program and Surface Water Monitoring Program for the Topock project. This report presents the Second Quarter (April through June 2013) performance monitoring results for the IMs hydraulic containment system and summarizes the operations and performance evaluation for the reporting period. This report also presents groundwater and surface water monitoring activities, results, and analyses related to the Groundwater and Surface Water Monitoring Programs during Second Quarter 2013.

The IM quarterly performance monitoring report is submitted in conformance with the reporting requirements in the California Environmental Protection Agency, Department of Toxic Substances Control's (DTSC) IM directive, dated February 14, 2005, and updates and modifications approved by DTSC in letters or emails dated October 12, 2007, July 14, 2008, July 17, 2008, March 3, 2010, April 28, 2010, and July 23, 2010.

Please contact me at (805) 234-2257 if you have any questions on the combined monitoring report.

Sincerely,

Yvonne Meeks

Topock Project Manager

Enclosure

Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report

cc: Chris Guerre/DTSC

Karen Baker/DTSC Pam Innis/DOI

Susan Young/CA-SLC Nancy Garcia/AZ-SLD

honne Meks

Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Document ID: PGE20130815A

California Environmental Protection Agency
Department of Toxic Substances Control

Pacific Gas and Electric Company

August 15, 2013



155 Grand Avenue Suite 800 Oakland, CA 94612

Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Prepared for

California Environmental Protection Agency,
Department of Toxic Substances Control

On behalf of Pacific Gas and Electric Company

August 15, 2013

This report was prepared under the supervision of a California Professional Geologist.

Isaac Wood

Project Hydrogeologist, P.G., C.Hg

SESSIONAL GEOLOGIST CALIFORD ACALIFORD

Jay Piper

CH2M HILL Project Manager

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Acronyms and Abbreviations

μg/L micrograms per liter

CA MCL California maximum contaminant level

COPC chemical of potential concern

Cr(VI) hexavalent chromium

DTSC California Environmental Protection Agency, Department of Toxic Substances Control

ft/ft feet per foot

GMP Groundwater Monitoring Program

gpm gallons per minute

IM Interim Measure

IM-3 Interim Measure Number 3

IMCP Interim Measures Contingency Plan

PG&E Pacific Gas and Electric Company

PMP Performance Monitoring Program

RCRA Resource Conservation and Recovery Act

RMP Surface Water Monitoring Program

TDS total dissolved solids

USBR United States Bureau of Reclamation

USEPA United States Environmental Protection Agency

SECTION 1

Introduction

Pacific Gas and Electric Company (PG&E) is implementing Interim Measures (IMs) to address chromium concentrations in groundwater at the Topock Compressor Station near Needles, California. The Topock Compressor Station is located in eastern San Bernardino County, 15 miles southeast of the city of Needles, California, as shown on Figure 1-1. (All figures are located at the end of the report.) This report presents monitoring data from three PG&E monitoring programs:

- Site-wide Groundwater Monitoring Program (GMP)
- Site-wide Surface Water Monitoring Program (RMP)
- Interim Measure Number 3 (IM-3) Performance Monitoring Program (PMP) (data and evaluations)

This report presents the monitoring data from PG&E's GMP, RMP, and PMP collected from April 1, 2013, through June 30, 2013 (hereafter referred to as the reporting period). The data collected as part of the GMP and RMP are presented in Section 3. The data collected as part of the PMP are presented in Section 4. This combined PMP and GMP (including RMP) reporting format was approved by the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) in May 2009 (DTSC, 2009). On July 23, 2010, DTSC approved a new sampling event timing and reporting schedule for the PMP, GMP, and RMP programs (DTSC, 2010a). Table 1-1 shows the current reporting schedule.

1.1 Site-wide Groundwater and Surface Water Monitoring Program

The Topock GMP and RMP were initiated as part of a Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation and Liability Act facility investigation/remedial investigation groundwater investigation. These programs are being regulated under a Corrective Action Consent Agreement issued by the DTSC in 1996 for the Topock site (United States Environmental Protection Agency [USEPA] ID No. CAT080011729).

Groundwater monitoring data collected between July 1997 and October 2007 are presented in the *Revised Final RCRA Facility Investigation and Remedial Investigation Report, Volume 2 – Hydrogeologic Characterization and Results of Groundwater and Surface Water Investigation, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California*, dated February 11, 2009 (CH2M HILL, 2009a). Select groundwater and surface water monitoring data from November 2007 through September 2008 are presented in the *Final RCRA Facility Investigation/Remedial Investigation Report, Volume 2 Addendum—Hydrogeologic Characterization and Results of Groundwater and Surface Water Investigation, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California, dated June 29, 2009* (CH2M HILL, 2009b).

Background information (including well construction details) and descriptions of the current groundwater and surface water sampling, analyses, and monitoring programs are discussed in PG&E's Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California, dated March 15, 2013 (CH2M HILL, 2013a).

In compliance with the requirements for the GMP and RMP directive of April 2005 (DTSC, 2005a), this document presents the Second Quarter 2013 GMP and RMP report for the monitoring activities from April 1, 2013, through June 30, 2013.

1.1.1 Groundwater Monitoring Program and Surface Water Monitoring Program Monitoring Networks

Figure 1-2 shows the current locations and sampling frequencies of the monitoring wells in the GMP. The complete GMP includes over 100 wells that monitor the Alluvial Aquifer and the bedrock and consist of:

- One hundred fifteen monitoring wells in California (excluding two dry wells and five wells currently sampled by ARCADIS under the pilot test program)
- Eight monitoring wells in Arizona
- Two water supply wells
- Two active extraction wells
- Five test wells

Sampling frequencies for the GMP wells were updated beginning in First Quarter 2010 following the DTSC directive dated March 3, 2010 (DTSC, 2010b). Figure 1-2 shows these updated frequencies. Sampling frequencies for the Arizona monitoring wells were updated following the April 23, 2010 approval from the Arizona Department of Environmental Quality (2010), and the April 28, 2010 directive from DTSC (DTSC, 2010c).

Figure 1-3 shows the locations and sampling frequencies of the RMP, which consists of:

- Ten river channel surface water monitoring locations
- Four shoreline surface water monitoring locations
- Two other surface water monitoring locations

1.2 Interim Measure Performance Monitoring Program

In compliance with the requirements for IM monitoring and reporting outlined in the DTSC IM performance directive of February 2005 and in subsequent directives from the DTSC in 2007 (DTSC, 2005b, 2007a-c), this document presents the Second Quarter 2013 PMP evaluation report for the IM monitoring activities from April 1, 2013, through June 30, 2013.

The Topock IM project consists of groundwater extraction for hydraulic control of the plume boundaries in the Colorado River floodplain and management of extracted groundwater. The groundwater extraction, treatment, and injection systems are collectively referred to as IM-3. The IM monitors only the Alluvial Aquifer. Currently, the IM-3 facilities include a groundwater extraction system (four extraction wells: TW-2D, TW-3D, TW-2S, and PE-1), conveyance piping, a groundwater treatment plant, and an injection well field for the discharge of the treated groundwater. At this time, extraction wells PE-1 and TW-3D operate full time. Figure 1-1 shows the locations of the IM-3 extraction, conveyance, treatment, and injection facilities.

In a letter dated February 14, 2005, DTSC established the criteria for evaluating the performance of the IM (DTSC, 2005c). As defined by DTSC, the performance standard for this IM is to "establish and maintain a net landward hydraulic gradient, both horizontally and vertically, that ensures that hexavalent chromium [Cr(VI)] concentrations at or greater than 20 micrograms per liter [µg/L] in the floodplain are contained for removal and treatment" (DTSC, 2005b). A *Draft Performance Monitoring Plan for Interim Measures in the Floodplain Area, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California* (CH2M HILL, 2005) was submitted to DTSC on April 15, 2005 (herein referred to as the Performance Monitoring Plan).

The February 2005 DTSC directive also defined the monitoring and reporting requirements for the IM (DTSC, 2005b-c). In October 2007, DTSC modified the reporting requirements for the PMP (DTSC, 2007a) to discontinue monthly performance monitoring reports (the quarterly and annual reporting requirements were unchanged). Additional updates and modifications to the PMP were approved by DTSC in letters dated October 12, 2007, July 14, 2008, July 17, 2008, and July 23, 2010 (DTSC, 2007a, 2008a-b, and 2010a).

1.2.1 Performance Monitoring Program Monitoring Networks

Figure 1-4 shows the locations of wells used for IM extraction, performance monitoring, and hydraulic gradient measurements. With approval from DTSC, the list of wells included in the PMP was modified beginning August 1, 2008. The performance monitoring wells in service/active during this reporting period are defined as:

- Floodplain wells: monitoring wells on the Colorado River floodplain
- Intermediate wells: monitoring wells located immediately north, west, and southwest of the floodplain

1-2

- Interior wells: monitoring wells located upgradient of IM pumping
- Extraction wells: TW-2D, TW-3D, TW-2S, and PE-1

Three extraction wells (TW-2D, TW-3D, and TW-2S) are located on the MW-20 bench. Extraction well PE-1 is located on the floodplain approximately 450 feet east of extraction well TW-3D, as shown on Figure 1-4. Extraction wells TW-3D and PE-1 operate full time.

Groundwater monitoring wells installed on the Arizona side of the Colorado River are not formally part of the PMP, but some of these wells have been used to collect groundwater elevation data for evaluating the hydraulic gradient on the Arizona side of the river.

The PMP monitors hydrogeologic conditions in the Alluvial Aquifer. The wells screened in the unconsolidated alluvial fan and fluvial deposits, which comprise the Alluvial Aquifer, have been separated into three depth intervals to present groundwater quality and groundwater level data. The depth intervals of the Alluvial Aquifer in the floodplain area—designated upper (shallow wells), middle (mid-depth wells), and lower (deep wells)—are based on grouping the monitoring wells screened at common elevations. These divisions do not correspond to any lithostratigraphic layers within the aquifer. The Alluvial Aquifer is considered to be hydraulically undivided. The subdivision of the aquifer into three depth intervals is an appropriate construct for presenting and evaluating spatial and temporal distribution of groundwater quality data in the floodplain. The three-interval concept is also useful for presenting and evaluating lateral gradients while minimizing effects of vertical gradients and observing the influence of pumping from partially penetrating wells.

Second Quarter 2013 Monitoring Activities

This section summarizes the monitoring and sampling activities completed during the reporting period.

2.1 Groundwater Monitoring Program

2.1.1 Monthly

Cr(VI) and chromium samples were collected from the active IM extraction wells (PE-1 and TW-3D) in April, May, and June 2013.

2.1.2 Quarterly

Following the July 23, 2010, sampling schedule approval (DTSC, 2010a), the Second Quarter 2013 GMP quarterly groundwater monitoring event was conducted from April 15, 2013, through May 16, 2013, with one sample collected on June 18, 2013 (MW-66BR-270) from a slow recovery well. Select field parameters recorded during well purging included oxidation-reduction potential and pH. Groundwater samples were analyzed for Cr(VI), chromium, and specific conductance.

Groundwater samples were submitted for laboratory analysis of the following constituents (in addition to Cr(VI)) at selected GMP wells during the Second Quarter 2013 sampling event, including:

- California Code of Regulations Title 22 metals, which includes arsenic, at MW-12 and MW-22 (collected semiannually).
- Samples were also analyzed from a subset of wells for chemicals of potential concern (COPCs), including
 molybdenum, nitrate as nitrogen (referred to as nitrate hereafter), selenium, potential in situ byproducts
 (manganese and arsenic), and other analytes. In an email dated March 3, 2010, DTSC directed monitoring of
 these COPCs, potential in situ byproducts, and other analytes (DTSC, 2010d, 2011).
- Arsenic at select GMP wells screened in alluvial and fluvial sediments and select bedrock monitoring wells.

2.1.3 Other Monitoring

In addition, groundwater samples were submitted for laboratory analysis of background metals at selected wells during the Second Quarter 2013 sampling event, as recommended in the background study report (CH2M HILL, 2008), at MW-16 and MW-17.

2.2 Surface Water Monitoring Program

Quarterly surface water sampling was conducted on May 20, 2013 and May 21, 2013, from the complete RMP monitoring network. Samples were analyzed for Cr(VI), chromium, specific conductance, and pH. Samples were also analyzed for COPCs (molybdenum, nitrate, and selenium), in situ byproducts (manganese, iron, and arsenic), and geochemical indicator parameters to develop baseline concentrations for future remedy performance evaluation.

2.3 Performance Monitoring Program

PMP pressure transducers, which monitor the Alluvial Aquifer, are typically downloaded in the first week of every month (April, May, and June). The transducers in the key monitoring wells (MW-27-085, MW-31-125, MW-33-150, MW-34-100, and MW-45-095a; Figure 1-4) are downloaded via a cellular telemetry system.

SECTION 3

Results for Site-wide Groundwater Monitoring and Surface Water Sampling

3.1 Groundwater Results for Hexavalent Chromium and Chromium

Table 3-1 presents the results for Cr(VI), chromium, field oxidation-reduction potential, laboratory-specific conductance, and field pH in groundwater samples collected from the reporting period. During Second Quarter 2013, the maximum detected Cr(VI) concentration was 9,120 μ g/L at well MW-20-130. The laboratory reports for analytical results from Second Quarter 2013 sampling are presented in Appendix A.

Figures 3-1a through 3-1c present the Cr(VI) results for wells monitoring the shallow (upper depth interval), mid-depth (middle depth interval), and deep (lower depth interval) wells of the Alluvial Aquifer and bedrock, respectively, from Second Quarter 2013. Figures 3-1a through 3-1c each show the approximate outline of Cr(VI) concentration contours greater than 32 μ g/L for the Alluvial Aquifer and bedrock. These contour outlines are based on results from groundwater sampling events conducted in Second Quarter 2013. The value of 32 μ g/L is based on the calculated natural background upper tolerance limit for Cr(VI) in groundwater from the background study (CH2M HILL, 2008, 2009a).

The areas where Cr(VI) concentrations are greater than 32 μ g/L in the shallow, mid-depth, and deep intervals of the Alluvial Aquifer and bedrock wells are generally similar to the previous quarterly monitoring events (CH2M HILL, 2009c-e, 2010a-c, 2011a-d, 2012a-c, 2012e, and 2013a-b).

3.2 Other Groundwater Monitoring Results

3.2.1 Chemicals of Potential Concern, In Situ Byproducts, and Other Analytes

Table 3-2 presents the COPCs, in situ byproducts, and other analytes results for groundwater monitoring wells sampled in Second Quarter 2013. The wells where maximum concentrations of these analytes were reported are summarized as follows:

- MW-33-040 and MW-46-175 with a molybdenum concentration of 150 µg/L
- MW-66-165 with a nitrate concentration of 37.9 milligrams per liter
- MW-67-185 with a selenium concentration of 140 μg/L
- MW-22 with a manganese concentration of 2,200 μg/L
- MW-12 with an arsenic concentration of 33.0 (arsenic results are discussed in Section 3.2.3)
- MW-33-40 with a fluoride concentration of 10.0 milligrams per liter

3.2.2 Title 22 Metals

Table 3-3 presents the Title 22 metals results for the GMP monitoring wells MW-12 and MW-22 sampled during Second Quarter 2013. The trace metals detected in MW-12, in addition to chromium, were arsenic, barium, molybdenum, selenium, and vanadium. The dissolved concentrations of the trace metals—other than chromium and arsenic—are below the respective California maximum contaminant level (CA MCL) drinking water standards. The trace metals detected in MW-22 were arsenic, barium, molybdenum, and selenium. The dissolved concentrations of the trace metals—other than arsenic—are below the respective CA MCL drinking water standards.

3.2.3 Arsenic Sampling in Monitoring Wells

Select Alluvial Aquifer wells were sampled for arsenic in the Second Quarter 2013 event. These results are presented in Appendix B, Table B-1.

3.2.4 Other Sample Results

Groundwater analytical results for background metals are presented in Appendix B, Table B-2.

3.3 Surface Water Sampling Results

Table 3-4 presents results of Cr(VI), chromium, specific conductance, and lab pH from the surface water sampling event conducted during this reporting period. Cr(VI) was not detected above the reporting limit at any in-channel, shoreline, or other surface water monitoring locations.

Table 3-5 presents results for the COPCs (molybdenum, nitrate, and selenium), in situ byproducts (manganese, iron, and arsenic), and other geochemical indicator parameters for surface water samples. Nitrate and selenium results were below laboratory reporting limits, while low arsenic (less than 3 μ g/L) concentrations were detected at all sampled locations. Dissolved iron and manganese results were also generally low and near or below laboratory reporting limits, with the exception of the samples collected at C-MAR-S and C-MAR-D, where moderate values were reported. The C-MAR-S and C-MAR-D sample locations are located in proximity to marshy areas where naturally reducing geochemical conditions may be present. Elevated iron and manganese concentrations are typical of reduced geochemical environments.

3.4 Data Validation and Completeness

Laboratory analytical data from the Second Quarter 2013 sampling events were reviewed by project chemists to assess data quality and to identify deviations from analytical requirements.

The following bullets summarize the notable analytical qualifications in the data reported this quarter:

- Four Cr(VI) (method USEPA 218.6) samples were associated with an equipment blank that had a detect result.
 The associated sample results were less than five times the concentration of the equipment blank and therefore the sample results were qualified as "not detected at the reported concentration."
- Twenty-three USEPA method 218.6 Cr(VI) results exhibited a matrix interference issue that required a dilution to achieve satisfactory matrix spike recovery, resulting in an elevated reporting limit. The sample results were qualified, but no flags were added.
- Five samples analyzed for arsenic, chromium, and manganese (method SW6020A) had internal standards that
 recovered just below the lower control limits. The detect results were qualified and flagged "J." As explained
 in table notes, this indicates that the concentration or reporting limit is estimated by laboratory or data
 validation.
- One manganese (method SW6020A) field duplicate pair had a relative percentage difference greater than the upper control limit. The detected results were qualified and flagged "J."
- Three samples (two for cadmium and one for manganese; method SW6020A) had matrix spike recoveries that
 were outside the control limits; the associated non-detect results were qualified, and the listed reporting limit
 is estimated.
- Sixteen nitrate/nitrite samples (method USEPA 353.2) were received in the laboratory at a temperature greater than 6 degrees Centigrade. The non-detect results were qualified, and the listed reporting limit is estimated. The detect results were qualified and flagged "J."
- Seven Cr(VI) samples were analyzed outside the USEPA-recommended holding time. The non-detect results were qualified, and the listed reporting limit is estimated.
- Based on the March 2007 USEPA ruling, pH has a 15-minute holding time. As a result, method SM4500-HB
 (pH) samples analyzed in a certified lab require qualification; therefore, all pH results for the Second Quarter
 event analyzed in a certified lab were qualified as estimated and flagged "J."

3-2

•	No other significant analytical deficiencies were identified in the Second Quarter 2013 data. Additional details
	are provided in the data validation reports, which are kept in the project file and are available upon request.

Interim Measure Performance Monitoring Program Evaluation

4.1 Water Quality Results for Performance Monitoring Program Floodplain Wells

Appendix C, Table C-1, presents the results of the general chemistry and stable isotope analyses for PMP monitoring wells and river stations during sampling events from March 2005 through June 2013. In July 2008, DTSC approved modifications to the PMP IM chemical PMP (DTSC, 2008b). These wells are sampled annually (one well sampled biennially) during the Fourth Quarter sampling events, with additional samples collected to support a technology trial, and results are shown in Table C-1. Figure 1-4 shows the locations of the monitoring wells sampled for the performance monitoring parameters. Water samples from the selected performance monitoring locations are analyzed for general chemistry parameters, including total dissolved solids (TDS), chloride, sulfate, nitrate, bromide, calcium, potassium, magnesium, sodium, boron, alkalinity, deuterium, and oxygen-18 to monitor the effects of IM pumping on groundwater chemistry.

4.2 Hexavalent Chromium Distribution and Trends in Performance Monitoring Program Wells

The Second Quarter 2013 distribution of Cr(VI) in the upper (shallow wells), middle (mid-depth wells), and lower (deep wells) intervals of the Alluvial Aquifer is shown in plan view and cross-section on Figure 4-1.¹ Figure 4-2 presents the Second Quarter 2013 Cr(VI) results for cross-section B, oriented parallel to the Colorado River. The location of cross-section B is shown on Figure 1-4. The Cr(VI) concentration contours shown for the Alluvial Aquifer on these figures are based on results for groundwater samples collected in Second Quarter 2013.

Figure 4-3 presents Cr(VI) concentration trend graphs for selected deep monitoring wells in the floodplain area through June 2013. Sampling results are plotted for wells MW-34-100, MW-36-90, MW-36-100, MW-44-115, MW-44-125, and MW-46-175. The locations of the deep wells selected for performance evaluation are shown on Figure 1-4. Appendix C includes Cr(VI) concentration trend graphs for selected monitoring wells through June 2013.

Wells showing marked decreases in concentration are generally in the floodplain area where IM pumping is removing chromium in groundwater. Wells with historical detections near or at reporting limits (for chromium, a typical reporting limit is 0.2 to 1.0 ug/L) remained at these low levels during Second Quarter 2013. A review of Figure 4-3 and Appendix C indicates that Cr(VI) concentrations have remained steady or have decreased in many wells since IM and PE-1 pumping began in 2004 and 2005, respectively.

Key Cr(VI) and chromium trends for PMP groundwater monitoring wells (see Figure 1-4) sampled during Second Quarter 2013 include:

- Cr(VI) results for the MW-20 cluster (located near the TW-3D pumping well) indicate stable concentrations at the shallow well MW-20-070 (since 2010), decreasing concentrations at MW-20-100 (since March 2008), and variable concentrations at MW-20-130 (Appendix C, Figure C-3).
- Cr(VI) results for MW-26 and the MW-31 cluster have decreased. The lowest Cr(VI) concentration reported to date for MW-26 (1,790 µg/L) was observed during May 2013 (Appendix C, Figure C-4).

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¹ On Figures 4-1 and 4-2, the Cr(VI) concentrations are color coded based on the groundwater background Cr(VI) concentration, which is 32 μg/L (CH2M HILL, 2009a). The 20-μg/L and 50-μg/L Cr(VI) concentration contours presented on Figures 4-1 and 4-2 are shown in accordance with DTSC's 2005 IM directive and are not based on the background Cr(VI) concentration for groundwater.

- Cr(VI) results for MW-28-90 have remained below or near the reporting limit since 2004, as presented in Appendix C, Figure C-4.
- As presented in Appendix C, Figure C-5, Cr(VI) results for mid-depth well MW-33-90 have been fairly stable since monitoring began (2004). Deep MW-33 well cluster Cr(VI) concentrations have shown stable trends since 2008, while shallow well MW-33-40 has remained below or near the reporting limit since 2004.
- As shown on Figure 4-3 and in Appendix C, Figure C-6, Cr(VI) results for MW-34-100 have been variable, but generally declining, since June 2006. In addition to this primary overall downward trend in Cr(VI) concentration, MW-34-100 also shows a consistent but secondary seasonal effect in concentration related to high (spring/summer) and low (winter) Colorado River levels.
- The secondary trend of seasonal fluctuation in Cr(VI) is also seen in other monitoring wells; specifically, superimposed on a stable Cr(VI) seasonal trend is seen at the MW-35 cluster (Appendix C, Figure C-6) and a stable to decreasing trend for MW-46-175 (Figure 4-3 and Appendix C, Figure C-11). River levels are discussed in Section 4.6.
- Cr(VI) results for MW-44-115 have shown a steady declining trend since the well was constructed in 2006 (Figure 4-3 and Appendix C, Figure C-10).
- As presented on Figure 4-3 and in Appendix C, Figure C-11, Cr(VI) results for deep well MW-46-175 have shown a seasonally fluctuating trend since 2007. The April 2013 Cr(VI) concentration of 26.4 μg/L is the lowest concentration reported for this well to date.
- As presented in Appendix C, Figure C-11, Cr(VI) results for MW-47-55 Cr(VI) have been fairly stable since late 2010, while Cr(VI) results have been stable at MW-47-115 since March 2008.
- As presented in Appendix C, Figure C-12, Cr(VI) results for MW-50-95 have steadily declined from a high of over 300 μg/L in 2007 to less than 15 μg/L in 2012 and 2013 monitoring.
- Cr(VI) results for well TW-04, a deeper well, have shown an overall declining trend since March 2007, as presented in Appendix C, Figure C-19.

4.3 Performance Monitoring Program Contingency Plan Hexavalent Chromium Monitoring

The Topock Interim Measures Contingency Plan (IMCP) was developed to detect and control any possible migration of the Cr(VI) plume toward the Colorado River. Currently, the IMCP consists of 24 wells (CH2M HILL, 2005, 2006; PG&E, 2007, 2008). Appendix C includes Cr(VI) concentration trend graphs for the IMCP wells. The IMCP well Cr(VI) results in Second Quarter 2013 were all below their trigger levels.

4.4 Extraction Systems Operations

Pumping data for the IM-3 groundwater extraction system for the reporting period of April 1 through June 30, 2013, are presented in Table 4-1. From April 1, 2013, through June 30, 2013, the volume of groundwater extracted and treated by the IM-3 system was 16,792,273 gallons. This resulted in the removal of an estimated 98 pounds (44.5 kilograms) of chromium from the aquifer during the period from March 1, 2013, through May 31, 2013. To date, the IMs have removed approximately 7,600 pounds of chromium from the floodplain at the Topock site through May 2013.

During Second Quarter 2013, extraction wells TW-3D and PE-1 operated at a combined pumping rate of 128.1 gallons per minute (gpm), including periods of planned and unplanned downtime. The average monthly pumping rates during the reporting period were 117.9 gpm (April 2013), 134.4 gpm (May 2013), and 131.9 gpm

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² Chromium removed this reporting period includes the period of March 1 through May 31, 2013. On July 23, 2010, DTSC approved a revised reporting schedule for this report that included a revised IM-3 sample collection period from March 1, 2013 through May 31, 2013.

(June 2013). Extraction well TW-2D operated for a couple of hours, and TW-2S was not operated during Second Quarter 2013. The operational run-time percentage for the IM extraction system was 94.6 percent during this reporting period. The operations log for the extraction system during Second Quarter 2013, including planned and unplanned downtime, is included in Appendix D.

The concentrate (that is, saline water) from the reverse osmosis system was shipped offsite as non-hazardous waste and was transported to Liquid Environmental Solutions in Phoenix, Arizona, for treatment and disposal. Seven containers of solids from the IM-3 facility were disposed of at the U.S. Ecology Chemical Waste Management facility in Beatty, Nevada, during Second Quarter 2013. Daily IM-3 inspections included general facility inspections, flow measurements, and site security monitoring. Daily logs with documentation of inspections are maintained onsite.

During the reporting period, Cr(VI) concentrations in TW-3D remained stable, ranging from a maximum value of 881 μ g/L in May 2013 to a minimum value of 766 μ g/L in April 2013, as shown in Table 4-2. TDS concentrations in TW-3D for this reporting period have also remained stable, as shown in Table 4-2.

The Cr(VI) concentrations in the extracted groundwater at well PE-1 on the floodplain ranged from 5.6 to 5.8 μ g/L during the reporting period, as shown in Table 4-2. TDS concentrations in PE-1 for this reporting period have also remained stable.

4.5 Hydraulic Gradient and River Levels during Quarterly Period

During the reporting period, water levels were recorded at intervals of 30 minutes with pressure transducers in more than 50 wells in the Alluvial Aquifer and two river monitoring stations (I-3 and RRB). The data are typically continuous, with only short interruptions for sampling or maintenance. The locations of the wells monitored are shown on Figure 1-4.

Daily average groundwater and river elevations calculated from the pressure transducer data for the reporting period are summarized in Appendix E, Table E-1. Groundwater elevations (or hydraulic heads) are adjusted for temperature and salinity differences between wells (that is, adjusted to a common freshwater equivalent), as described in the Performance Monitoring Plan. Groundwater elevation hydrographs for the PMP wells during the reporting period are included in Appendix E. The elevation of the Colorado River measured at the I-3 gauge station (location shown on Figure 1-4) is also shown on the hydrographs in Appendix E.

Average Second Quarter 2013 groundwater elevations for the shallow, mid-depth, and deep wells are presented and contoured in plan view on Figures 4-4a through 4-4c. Average Second Quarter 2013 groundwater elevations for wells on floodplain cross-section A are presented and contoured on Figure 4-5. Several monitoring wells are significantly deeper than other wells in the lower depth interval. Due to vertical gradients present at the Topock site, water levels in deeper wells tend to be higher than water levels in shallower wells.

Hydraulic gradients were measured during the reporting period for well pairs selected for performance monitoring of the two pumping centers (TW-3D and PE-1). The following well pairs were approved by DTSC on October 12, 2007 (DTSC, 2007a) to define the gradients induced while pumping from two locations:

- MW-31-135 and MW-33-150 (northern gradient pair)
- MW-45-95 and MW-34-100 (central gradient pair)
- MW-45-95 and MW-27-85 (southern gradient pair)

Table 4-3 presents the average monthly hydraulic gradients that were measured between the gradient well pairs in Second Quarter 2013. Figure 4-6 presents graphs of the hydraulic gradients, monthly average pumping rates, and river levels for the quarterly period. Strong landward gradients were measured each month. The overall average gradients for all well pairs ranged from 0.0042 to 0.0057 feet per foot (ft/ft), which is 4.2 to 5.7 times greater than the required gradient of 0.001 ft/ft. The gradient for the northern well pair ranged from 2.1 to 2.3 times the target gradient of 0.001 ft/ft. For the central well pair, the average landward gradient ranged from

7.6 to 10.7 times the target gradient. The southern well pair gradients averaged 2.9 to 4.0 times the target gradient for the reporting period.

4.6 Projected River Levels during Next Quarter

The Colorado River stage near the Topock Compressor Station is measured at the I-3 location and is directly influenced by releases from Davis Dam and, to a lesser degree, from Lake Havasu elevations, both of which are controlled by the United States Bureau of Reclamation (USBR). Total releases from Davis Dam follow a predictable annual cycle, with largest monthly releases typically in spring and early summer and smallest monthly releases in late fall/winter (November and December). In addition to this annual cycle is a diurnal cycle determined primarily by daily fluctuations in electric power demand. Releases within a given 24-hour period often fluctuate over a wider range of flows than that of monthly average flows over an entire year.

Figure 4-7 shows river stage measured at I-3 superimposed on the projected I-3 river levels. Projected river levels for future months are based on the USBR projections of Davis Dam discharge and Lake Havasu levels from the preceding month. As an example, the projected river level for July 2013 is based on the June 2013 USBR data of Davis Dam release and Lake Havasu level, not the actual release and level values. The variability between measured and projected river levels is due to the difference between measured and actual Davis Dam release and Lake Havasu levels. The more recent data plotted on Figure 4-7 are summarized in Table 4-4. The future projections shown on Figure 4-7 are based on USBR long-range projections of Davis Dam releases and Lake Havasu levels from June 2013. There is more uncertainty in these projections at longer times in the future since water demand is based on various elements including climatic factors.

Current USBR projections, presented in Table 4-4, show that the average projected Davis Dam release for July 2013 (14,400 cubic feet per second) will be less than the actual release in June 2013 (15,588 cubic feet per second). Based on July 2013 USBR predictions, it is anticipated that the Colorado River level at the I-3 gauge location in July 2013 will be approximately 0.47 feet lower compared to the actual levels in June 2013. Current projections show that the water levels will continue to decrease during the next quarterly reporting period (July through October 2013), as shown on Figure 4-7.

4.7 Quarterly Performance Monitoring Program Evaluation Summary

The groundwater elevation and hydraulic gradient data from April 2013 through June 2013 performance monitoring indicate that the minimum landward gradient target of 0.001 ft/ft was exceeded each month during the quarterly reporting period. The overall average landward gradients during Second Quarter 2013 were 4.2 to 5.7 times the required minimum magnitude. The current gradient well pairs are adequate to define the capture of the Cr(VI) plume while pumping from extraction wells TW-3D and PE-1. Based on the hydraulic and monitoring data and evaluation presented in this report, the IM performance standard has been met for the Second Quarter 2013 reporting period.

A total of 16,792,273 gallons of groundwater was extracted between April and June 2013 by the IM-3 treatment facility. The average pumping rate for the IM extraction system during Second Quarter 2013, including system downtime, was 128.1 gpm. An estimated 98 pounds (44.5 kilograms) of chromium were removed and treated between March 1 and May 31, 2013. To date, the IMs have removed approximately 7,600 pounds of chromium from the floodplain at the Topock site through May 2013 (Figure 4-1).

The wells that are monitored to detect trends in Cr(VI) in the IM pumping area (for example, MW-36-100, MW-39-100, MW-44-115, MW-44-125, and MW-46-175) continue to show overall stable or declining Cr(VI) concentrations relative to prior monitoring results, as shown in Appendix C.

4-4

SECTION 5

Upcoming Operation and Monitoring Events

Reporting of the IM extraction and monitoring activities will continue as described in the PMP and under direction from DTSC. All monitoring results, operations, and performance monitoring data will be reported in the Third Quarter 2013 monitoring report, which will be submitted by November 29, 2013.

5.1 Groundwater Monitoring Program

5.1.1 Quarterly Monitoring

As described in the July 23, 2010, DTSC sampling schedule approval (DTSC, 2010a), the third monitoring event will occur September 9, 2013 through October 3, 2013.

5.1.2 Monthly Monitoring

Monthly sampling of the two active extraction wells (TW-3D and PE-1) will continue to be performed during the first 2 weeks of each month.

5.2 Surface Water Monitoring Program

The Third Quarter 2013 surface water monitoring event was conducted at locations in the RMP monitoring network and occurred July 15, 2013 and July 16, 2013. Results will be reported in the Third Quarter 2013 monitoring report.

5.3 Performance Monitoring Program

5.3.1 Extraction

Per DTSC direction, PG&E will continue to operate wells TW-3D and PE-1 at a target combined pumping rate of 135 gpm during Third Quarter 2013, except for periods when planned and unplanned downtime occurs. Extracted groundwater treated at the IM-3 facility will be discharged into the IM-3 injection wells in accordance with compliance requirements of the waste discharge Applicable, Relevant, and Appropriate Requirements. Saline water and solids generated as byproducts of the treatment process will continue to be transported for offsite disposal.

PG&E will balance the pumping rates between wells TW-3D and PE-1 to maintain the target pumping rate and to maintain the DTSC-specified hydraulic gradients across the Alluvial Aquifer. Well TW-2D will serve as a backup to extraction wells TW-3D and PE-1.

5.3.2 Transducer Download

Downloads of the transducers in the key gradient control wells (MW-27-085, MW-31-135, MW-33-150, MW-34-100, and MW-45-095) will continue to be conducted via telemetry during Third Quarter 2013. Downloads of the remainder of the transducers will occur during the first week of each month during Third Quarter 2013.

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Table 1-1
Topock Monitoring Reporting Schedule
Second Quarter 2013 Interim Measures Performance Monitoring and
Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Program	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Groundwater Monitoring Program	January - March	April - June	July - October	November - December
Surface Water Monitoring Program	January - March	April - June	July - October	November - December
Performance Monitoring Program	January - March	April - June	July - October	November - December
IM-3 Monitoring (Chromium removed)	January - March	April - June	July - September	October - December

Table 3-1
Groundwater Sampling Results, April 2012 through June 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

	Aquifer Zone					Selected Field Parameters		
Location ID		Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	ORP (mV)	Field pH	
MW-9	SA	05-Dec-12	259	257	2,800	-24	7.4	
MW-10	SA	15-May-12	269	278	3,000	39	7.5	
		10-Dec-12	484	461	2,700	12	7.7	
		14-May-13	267	269	10,000	240	7.4	
MW-12	SA	07-May-12	3,330	2,880	6,400	95	8.2	
		02-Oct-12	2,740	2,970	7,100	200	7.8	
		27-Nov-12	2,310	2,630	6,700	100	8.0	
		26-Feb-13	2,580	2,610 J	6,500	160	8.4	
		26-Feb-13 FD	2,570	2,850 J	6,500	FD	FD	
		09-May-13	2,440	2,620	6,300	210	8.2	
MW-13	SA	11-Dec-12	20.2	24.6	2,000	-8.9	7.6	
MW-14	SA	13-Dec-12	19.9	21.8	1,700	-18	7.6	
MW-15	SA	15-Nov-12	10.6	11.4	1,600	110	7.7	
MW-16	SA	24-Apr-12	10.0	10.6	980	32	8.1	
		08-Nov-12	9.7	10.0	1,300	-46	8.1	
		24-Apr-13	10.6	10.4	1,100	200	8.0	
MW-17	SA	25-Apr-12	13.3	13.3	1,300	29	8.3	
		03-Dec-12	13.0	14.0	1,400	160	8.0	
		24-Apr-13	12.9	11.8	1,500	220	7.9	
MW-18	SA	04-Dec-12	20.0	20.7	1,400	130	7.5	
MW-19	SA	01-May-12	363	353	2,100	33	7.4	
		01-May-12 FD	368	364	2,100	FD	FD	
		04-Oct-12	250	241	2,200	220	7.1	
		26-Nov-12	209	212	2,200	160	7.4	
		12-Mar-13	202	197	2,100	200	7.2	
		02-May-13	335	331	2,000	240	7.4	
		02-May-13 FD	336	341	1,900	FD	FD	
MW-20-70	SA	07-May-12	3,330	3,410	2,300	110	7.7	
		04-Oct-12	3,280	3,030	2,300	210	7.4	
		27-Nov-12	3,020	3,110	2,300	110	7.5	
		12-Mar-13	3,160	3,310	2,200	220	7.4	
		09-May-13	2,800	3,040	2,000	240	7.7	
MW-20-100	MA	08-May-12	4,740	5,030	3,000	100	7.3	

Table 3-1
Groundwater Sampling Results, April 2012 through June 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

	Aquifer Zone						Selected Field Parameters		
Location ID		Sample Date		Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	ORP (mV)	Field pH	
MW-20-100	MA	04-Oct-12		3,700	3,590	2,900	220	7.0	
		29-Nov-12		2,910	3,090	2,600	150	7.3	
		13-Mar-13		3,170	3,290	2,600	160	7.1	
		09-May-13		3,340	3,780	2,600	270	7.3	
MW-20-130	DA	10-May-12		10,900	10,800	12,000	66	7.5	
		09-Oct-12		9,610	11,000	12,000	250	7.1	
		29-Nov-12		9,540	9,710	11,000	170	7.2	
		29-Nov-12 F	D	9,560	9,270	11,000	FD	FD	
		14-Mar-13		9,870	9,690	12,000	240	7.3	
		14-May-13		9,120	10,500	10,000	190	7.4	
MW-21	SA	26-Apr-12	Ī	0.56	1.8	9,700	33	7.5	
		12-Sep-12		ND (1.0)	2.0	12,000	58	R	
		13-Nov-12		2.3	3.1	10,000	9.0	7.0	
		07-Feb-13		2.6	4.6	8,500	200	6.9	
		24-Apr-13		1.5	1.9	11,000	210	7.1	
MW-22	SA	11-Apr-12	Ī	ND (1.0)	ND (1.0)	16,000	-91	7.0	
		10-Dec-12		ND (2.0)	ND (1.0)	32,000	-52	6.6	
		15-May-13		ND (1.0)	ND (1.0)	13,000	-91	6.9	
MW-23-060	BR	30-Apr-12		29.7	32.4	14,000	-76	R	
		30-Apr-12 F	D	29.9	33.4	14,000	FD	FD	
		12-Sep-12		32.8	35.2	16,000	-46	R	
		08-Nov-12		31.6	35.5	19,000	61	R	
		18-Feb-13		33.7	34.8	17,000	63	10.0	
		23-Apr-13		34.3	38.3	19,000	100	9.4	
MW-23-080	BR	30-Apr-12	ĺ	6.0	8.2	15,000	-130	R	
		12-Sep-12		12.8	15.9	16,000	-110	R	
		12-Sep-12 F	D	14.2	15.2	16,000	FD	FD	
		08-Nov-12		19.2	21.6	19,000	-80	R	
		18-Feb-13		11.2	10.6	17,000	50	10.7	
		23-Apr-13		14.0	15.0	20,000	63	10.3	
MW-24BR	BR	16-May-12	Ī	ND (1.0)	ND (1.0)	15,000	-110	8.2	
		26-Sep-12		ND (1.0)	ND (1.0)	14,000	-140	7.7	
		13-Nov-12		ND (1.0)	ND (1.0)	14,000	-160	8.0	
		14-Mar-13		ND (1.0)	ND (1.0)	14,000	-47	8.0	
		07-May-13		ND (1.0)	ND (1.0)	14,000	-190	7.8	

Table 3-1
Groundwater Sampling Results, April 2012 through June 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

						Selected Field Parameters		
Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (μg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	ORP (mV)	Field pH	
MW-25	SA	11-Dec-12	192	216	1,700	16	7.3	
MW-26	SA	07-May-12	1,810	1,890	4,000	130	7.4	
		04-Oct-12	1,950	1,980	4,100	190	7.0	
		27-Nov-12	1,800	1,820	4,000	110	7.2	
		12-Mar-13	1,820	1,710	4,100	240	7.1	
		07-May-13	1,790	1,870	3,900	240	7.3	
MW-27-20	SA	03-Dec-12	0.25	1.3	950	-33	7.3	
		15-Apr-13	ND (0.2)	ND (1.0)	1,000	-70	7.4	
MW-27-60	MA	01-Oct-12	ND (0.2)	ND (1.0)	1,100	-140	7.8	
		03-Dec-12	ND (0.2)	ND (1.0)	1,000	-61	7.8	
		04-Feb-13	ND (0.2)	ND (1.0)	990	-66	7.6	
		04-Feb-13 FD	ND (0.2)	ND (1.0)	1,000	FD	FD	
		15-Apr-13	ND (0.2)	ND (1.0)	1,100	-96	7.6	
MW-27-85	DA	09-Apr-12	ND (1.0)	ND (1.0)	13,000	-22	7.5	
		01-Oct-12	ND (1.0)	ND (1.0)	12,000	-51	7.3	
		03-Dec-12	ND (1.0)	ND (1.0)	11,000	28	7.4	
		04-Feb-13	ND (1.0)	ND (1.0)	11,000	50	7.2	
		15-Apr-13	ND (1.0)	ND (1.0)	13,000	-42	7.4	
		15-Apr-13 FD	ND (1.0)	ND (1.0)	13,000	FD	FD	
MW-28-25	SA	10-Apr-12	ND (0.2)	ND (1.0)	1,100	-5.3	7.6	
		05-Dec-12	ND (0.2)	1.4	1,000	43	7.3	
		18-Apr-13	ND (0.2)	ND (1.0)	1,000	58	7.4	
MW-28-90	DA	10-Apr-12	ND (0.2)	ND (1.0)	7,500	-89	7.4	
		10-Apr-12 FD	ND (1.0)	ND (1.0)	7,600	FD	FD	
		10-Sep-12	ND (0.2)	ND (1.0)	7,400	-210	7.0	
		05-Dec-12	ND (1.0)	ND (1.0)	7,200	-48	7.2	
		05-Feb-13	ND (0.2)	ND (1.0)	7,000	-30	7.1	
		18-Apr-13	ND (0.2)	ND (1.0)	7,400	-79	7.2	
MW-29	SA	10-Apr-12	ND (0.2)	1.3	3,000	-130	7.4	
		05-Dec-12	ND (0.2)	ND (1.0)	2,800	-67	7.3	
		05-Dec-12 FD	ND (0.2)	ND (1.0)	2,400	FD	FD	
		18-Apr-13	ND (0.2)	ND (1.0)	2,100	-110	7.3	
MW-30-30	SA	10-Apr-12	ND (1.0)	ND (1.0)	10,000	-180	7.8	
		03-Dec-12	ND (1.0)	5.5	28,000	-83	7.5	

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							Selected Field Parameters		
Location ID	Aquifer Zone	Sample Date		Hexavalent Chromium (μg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	ORP (mV)	Field pH	
MW-30-30	SA	15-Apr-13		ND (0.2)	ND (1.0)	9,000	-150	7.7	
		15-Apr-13	FD	ND (0.2)	ND (1.0)	8,800	FD	FD	
MW-30-50	MA	03-Dec-12		ND (0.2)	ND (1.0)	1,100	-26	7.8	
MW-31-60	SA	16-May-12		304	272	4,000	35	7.5	
		13-Nov-12		334	369	3,300	77	7.3	
		07-May-13		275	271	3,600	130	7.5	
MW-31-135	DA	15-Nov-12		12.4	13.4	12,000	110	7.6	
MW-32-20	SA	05-Dec-12		ND (2.0)	ND (1.0)	45,000	-92	6.7	
MW-32-35	SA	09-Apr-12		ND (1.0)	ND (1.0)	17,000	-150	7.3	
		05-Dec-12		ND (1.0)	ND (1.0)	15,000	-130	7.0	
		17-Apr-13		ND (1.0)	ND (1.0)	16,000	-150	7.1	
		17-Apr-13	FD	ND (1.0)	ND (1.0)	15,000	FD	FD	
MW-33-40	SA	23-Apr-12		ND (0.2)	ND (1.0)	6,100	-54	8.4	
		10-Sep-12		ND (0.2)	ND (1.0)	10,000	-2.5	7.6	
		05-Dec-12		ND (1.0)	2.8	8,300	-100	8.0	
		05-Dec-12	FD	ND (1.0)	2.5	8,100	FD	FD	
		25-Feb-13		ND (0.2)	ND (1.0)	6,100	47	8.0	
		22-Apr-13		ND (0.2)	ND (1.0)	7,000	82	8.1	
MW-33-90	MA	30-Apr-12		16.4	17.2	8,500	25	7.7	
		24-Sep-12		16.5	17.2	10,000	170	7.1	
		08-Nov-12		16.5	18.2	12,000	130	7.2	
		14-Feb-13		17.8	17.9	8,700	180	7.3	
		14-Feb-13	FD	16.2	18.3	8,800	FD	FD	
		22-Apr-13		15.4	15.7	11,000	210	7.3	
MW-33-150	DA	23-Apr-12		11.3	12.0	15,000	20	7.7	
		23-Apr-12	FD	11.5	12.1	15,000	FD	FD	
		11-Sep-12		10.9	11.9	16,000	-61	7.4	
		06-Dec-12		12.4	12.4	17,000	20	7.4	
		05-Feb-13		11.5 J	12.5	16,000	100	7.4	
		22-Apr-13		11.2	11.8	19,000	260	7.5	
MW-33-210	DA	23-Apr-12		10.5	11.0	17,000	1.6	7.5	
		11-Sep-12		12.6	13.2	19,000	-74	7.3	
		06-Dec-12		13.3	10.9	19,000	21	7.3	
		05-Feb-13		12.9	14.0	18,000	120	7.3	

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Groundwater Sampling Results, April 2012 through June 2013
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							Selected Field Parameters		
Location ID	Aquifer Zone	Sample Date		Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	ORP (mV)	Field pH	
MW-33-210	DA	23-Apr-13		10.2	10.6	23,000	200	7.3	
MW-34-55	MA	12-Dec-12		ND (0.2)	ND (1.0)	980	-13	7.6	
MW-34-80	DA	09-Apr-12		ND (1.0)	ND (1.0)	8,300	-34	7.6	
		01-Oct-12		ND (0.2)	ND (1.0)	8,000	-31	7.4	
		12-Dec-12		ND (0.2)	ND (1.0)	7,200	19	7.3	
		12-Dec-12	FD	ND (0.2)	ND (1.0)	7,200	FD	FD	
		05-Feb-13		ND (1.0)	ND (1.0)	7,000	120	7.3	
		16-Apr-13		ND (0.2)	ND (1.0)	7,800	-12	7.2	
MW-34-100	DA	09-Apr-12		11.5	12.4	17,000	-22	7.6	
		09-Apr-12	FD	11.6	11.3	17,000	FD	FD	
		01-Oct-12		70.0	71.9	19,000	85	7.5	
		01-Oct-12	FD	70.0	75.1	18,000	FD	FD	
		26-Nov-12		166	169	17,000	100	7.5	
		26-Nov-12	FD	167	173	17,000	FD	FD	
		12-Dec-12		228	263		61	7.7	
		24-Jan-13		283	292		52	7.9	
		26-Feb-13		76.8	71.9	17,000	110	7.5	
		26-Feb-13	FD	77.1	71.2	17,000	FD	FD	
		16-Apr-13		15.0	15.9	18,000	140	7.0	
		16-Apr-13	FD	15.0	15.5	18,000	FD	FD	
MW-35-60	SA	26-Apr-12		32.6	32.1	5,800	42	7.7	
		10-Sep-12		22.7	24.5	7,600	80	8.1	
		04-Dec-12		22.3	29.6	7,100	75	7.1	
		19-Feb-13		24.3	25.3	6,500	140	7.8	
		23-Apr-13		25.4	24.4	7,000	260	7.5	
MW-35-135	DA	26-Apr-12		28.6	30.2	9,900	26	7.9	
		04-Dec-12		30.6	37.7	10,000	61	7.6	
		23-Apr-13		27.4	28.9	12,000	140	7.6	
MW-36-20	SA	04-Dec-12		ND (0.2)	ND (1.0)	6,000	-170	7.6	
		04-Dec-12	FD	ND (0.2)	ND (1.0)	6,200	FD	FD	
MW-36-40	SA	04-Dec-12		ND (0.2)	ND (1.0)	1,500	-170	7.7	
MW-36-50	MA	04-Dec-12		ND (0.2)	ND (1.0)	1,100	-110	7.6	
MW-36-70	MA	04-Dec-12		ND (0.2)	ND (1.0)	1,100	-110	7.9	
MW-36-90	DA	10-Apr-12		ND (0.2)	ND (1.0)	1,300	-70	8.5	

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Groundwater Sampling Results, April 2012 through June 2013
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Location ID		Sample Date				Selected Field Parameters	
	Aquifer Zone		Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	ORP (mV)	Field pH
MW-36-90	DA	04-Dec-12	ND (0.2)	ND (1.0)	1,200	-54	8.3
		15-May-13	ND (0.2)	ND (1.0)	980	210	8.3
MW-36-100	DA	10-Apr-12	59.8	70.8	9,500	-130	7.4
		10-Oct-12	68.5	72.0	9,300	-48	7.1
		08-Nov-12	62.7	72.8	10,000	-18	7.1
		11-Mar-13	58.7	58.3	8,600	23	7.2
		24-Apr-13	56.5	52.6	9,900	-9	7.2
MW-37S	MA	14-Nov-12	9.8	10.3	5,400	56	7.6
MW-37D	DA	04-Dec-12	26.2	27.7	16,000	55	7.7
		30-Apr-13	108	120	15,000	170	7.5
MW-39-50	MA	03-Dec-12	ND (0.2)	ND (1.0)	1,300	120	7.9
MW-39-60	MA	03-Dec-12	ND (1.0)	ND (1.0)	1,500	32	8.0
MW-39-70	MA	03-Dec-12	ND (0.2)	ND (1.0)	2,500	83	7.7
MW-39-80	DA	03-Dec-12	ND (0.2)	ND (1.0)	6,700	44	7.2
MW-39-100	DA	13-Dec-12	93.2	82.0	17,000	110	6.5
MW-40S	SA	03-Dec-12	8.0	9.5	2,200	170	7.7
MW-40D	DA	03-Dec-12	157	176	15,000	130	7.6
		01-May-13	134	137	14,000	250	7.4
MW-41S	SA	03-Dec-12	17.7	19.1	5,000	120	7.8
MW-41M	DA	05-Nov-12	9.9	13.4	16,000	-160	7.7
MW-41D	DA	26-Apr-12	2.2	3.0	20,000	-66	7.9
		05-Nov-12	3.3	4.4	22,000	-180	7.8
		23-Apr-13	2.9	3.0	26,000	210	7.6
MW-42-30	SA	06-Dec-12	ND (0.2)	ND (1.0)	4,400	-150	7.9
MW-42-55	MA	09-Apr-12	ND (0.2)	ND (1.0)	5,000	-120	7.8
		11-Sep-12	ND (0.2)	1.7	2,600	-130	7.8
		11-Sep-12 FD	ND (0.2)	1.6	2,600	FD	FD
		06-Dec-12	ND (0.2)	1.4	2,300	-57	7.9
		04-Feb-13	ND (0.2)	1.4	2,600	-83	7.8
		16-Apr-13	ND (0.2)	1.2	2,500	-97	7.9
MW-42-65	MA	09-Apr-12	ND (1.0)	ND (1.0)	9,000	-45	7.5
		11-Sep-12	ND (0.2)	ND (1.0)	7,900	-110	7.2

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Location ID							Selected Field Parameters	
	Aquifer Zone	Sample Date		Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	ORP (mV)	Field pH
MW-42-65	MA	06-Dec-12		ND (1.0)	ND (1.0)	8,400	14	7.2
		04-Feb-13		ND (1.0)	ND (1.0)	8,700	15	7.1
		04-Feb-13	FD	ND (1.0)	ND (1.0)	8,500	FD	FD
		17-Apr-13		ND (0.2)	ND (1.0)	8,000	-36	7.3
MW-43-25	SA	10-Dec-12		ND (0.2)	ND (1.0)	1,200	-120	7.4
		17-Apr-13		ND (0.2)	ND (1.0)	1,400	-160	7.5
MW-43-75	DA	10-Dec-12		ND (1.0)	ND (1.0)	12,000	-81	7.3
MW-43-90	DA	10-Dec-12		ND (1.0)	ND (1.0)	17,000	-36	6.9
		17-Apr-13		ND (1.0)	ND (1.0)	18,000	-80	6.9
MW-44-70	MA	12-Apr-12		ND (0.2)	ND (1.0)	2,300	-240	7.7
		06-Dec-12		ND (0.2)	ND (1.0)	2,100	-69	7.6
		22-Apr-13		ND (0.2)	ND (1.0)	2,400	-86	7.5
MW-44-115	DA	12-Apr-12		122	134	11,000	-170	8.1
		12-Apr-12	FD	124	125	11,000	FD	FD
		27-Sep-12		88.2	98.2	11,000	-85	7.8
		26-Nov-12		73.6	78.1	11,000	21	7.8
		26-Feb-13		75.9	78.9	11,000	110	7.8
		24-Apr-13		64.5	65.4	13,000	180	7.9
MW-44-125	DA	12-Apr-12		ND (0.2)	17.9	11,000	-260	7.9
		13-Sep-12		ND (1.0)	5.3	12,000	-190	7.9
		13-Sep-12	FD	ND (1.0)	4.0	12,000	FD	FD
		06-Nov-12		ND (1.0)	6.4	12,000	-170	7.9
		06-Nov-12	FD	ND (1.0)	5.9	10,000	FD	FD
		13-Feb-13		4.2	8.2	12,000	-130	7.9
		13-Feb-13	FD	3.5	8.4	12,000	FD	FD
		18-Apr-13		ND (1.0)	5.3	9,400	-160	7.7
		18-Apr-13	FD	ND (1.0)	5.3	9,700	FD	FD
MW-45-095a	DA	13-Dec-12		20.2	20.4	9,000	100	7.3
MW-46-175	DA	23-Apr-12		34.4	40.5	16,000	-100	8.6
		26-Sep-12		46.7	52.6	18,000	-35	8.1
		09-Nov-12		71.0	73.5	18,000	120	8.2
		12-Dec-12		73.2	79.7		36	8.5
		24-Jan-13		78.7	79.3		18	8.8
		25-Feb-13		50.4	53.7	18,000	130	8.2

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Location ID	Aquifer Zone					Selected Field Parameter	
		Sample Date	Hexavalent Chromium (μg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	ORP (mV)	Field pH
MW-46-175	DA	24-Apr-13	26.4	26.3	23,000	57	8.1
MW-46-205	DA	12-Apr-12	5.1	5.9	19,000	-140	8.5
		12-Dec-12	ND (4.9)	5.1	22,000	4.1	8.4
		24-Apr-13	5.6	5.4	28,000	63	8.2
MW-47-55	SA	25-Apr-12	16.5	16.6	4,400	35	7.8
		24-Sep-12	20.7	21.4	4,800	350	7.5
		07-Nov-12	28.8	29.6	5,100	160	7.3
		11-Mar-13	16.7	16.4	4,300	200	7.2
		24-Apr-13	16.4	14.3	5,200	220	7.5
MW-47-115	DA	25-Apr-12	22.7	23.6	12,000	10	8.0
		25-Sep-12	20.0	23.2	14,000	93	7.4
		07-Nov-12	17.3	19.2	16,000	120	7.4
		27-Feb-13	21.0	22.8	13,000	120	7.3
		24-Apr-13	23.7	21.1	16,000	240	7.5
MW-48	BR	25-Apr-12	ND (1.0)	ND (1.0)	17,000	-24	7.6
		13-Sep-12	ND (1.0)	ND (1.0)	18,000	81	R
		07-Nov-12	ND (1.0)	ND (1.0)	20,000	-120	7.6
		07-Feb-13	ND (1.0)	ND (1.0)	15,000	200	6.9
		25-Apr-13	ND (1.0)	ND (1.0)	23,000	250	7.2
MW-49-135	DA	11-Dec-12	1.4	29.3	14,000	59	7.9
MW-49-275	DA	11-Dec-12	ND (1.0)	1.6	26,000	45	8.2
MW-49-365	DA	11-Dec-12	ND (2.0)	ND (1.0)	39,000	17	8.1
MW-50-095	MA	25-Apr-12	14.7	15.4	4,800	0.2	8.2
		25-Apr-12 FD	14.6	15.5	4,800	FD	FD
		19-Sep-12	13.7	14.9	5,300	60	7.7
		05-Nov-12	12.9	12.5	5,400	220	7.6
		14-Feb-13	12.4	13.7	4,600	150	7.5
		24-Apr-13	13.6	12.4	5,800	230	7.6
		24-Apr-13 FD	13.4	12.3	5,700	FD	FD
MW-50-200	DA	10-May-12	9,370	9,190	21,000	45	7.7
		03-Oct-12	8,290	8,720	22,000	150	7.4
		03-Oct-12 FD	8,000	8,520	22,000	FD	FD
		29-Nov-12	6,680	7,000	20,000	80	7.4
		27-Feb-13	7,410	7,510 J	20,000	220	7.6

Table 3-1
Groundwater Sampling Results, April 2012 through June 2013
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Location ID	Aquifer Zone	Sample Date				Selected Field Parameters	
			Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	ORP (mV)	Field pH
MW-50-200	DA	14-May-13	7,630	8,670	19,000	210	7.6
MW-51	MA	08-May-12	4,740	5,140	10,000	99	7.5
		09-Oct-12	4,630	5,100	11,000		
		28-Nov-12	4,480	4,370	10,000	130	7.3
		14-Mar-13	4,740	4,950	11,000	180	7.2
		13-May-13	4,170	4,950	9,300	210	7.4
MW-52S	MA	11-Apr-12	ND (0.2)	ND (1.0)	10,000	-110	7.2
		05-Dec-12	ND (1.0)	ND (1.0)	9,200	-120	6.9
		16-May-13	ND (0.2)	ND (1.0)	8,400	-120	6.9
MW-52M	DA	11-Apr-12	ND (1.0)	ND (1.0)	16,000	-130	7.6
		05-Dec-12	ND (1.0)	ND (1.0)	16,000	-140	7.5
		16-May-13	ND (1.0)	ND (1.0)	14,000	-140	7.6
MW-52D	DA	11-Apr-12	ND (1.0)	ND (1.0)	19,000	-150	7.9
		05-Dec-12	ND (1.0)	ND (1.0)	22,000	-180	7.9
		16-May-13	ND (1.0)	ND (1.0)	20,000	-190	8.0
MW-53M	DA	11-Apr-12	ND (1.0)	ND (1.0)	18,000	-160	8.3
		05-Dec-12	ND (1.0)	ND (1.0)	19,000	-200	8.2
		05-Dec-12 FD	ND (1.0)	ND (1.0)	20,000	FD	FD
		16-May-13	ND (1.0)	ND (1.0)	19,000	-180	8.1
MW-53D	DA	11-Apr-12	ND (1.0)	ND (1.0)	30,000	-190	8.4
		06-Dec-12	ND (2.0)	ND (1.0)	25,000	-200	8.2
		16-May-13	ND (1.0)	ND (1.0)	24,000	-220	8.3
MW-54-85	DA	24-Apr-12	ND (0.2)	ND (1.0)	10,000	-170	7.8
		12-Dec-12	ND (1.0)	ND (1.0)	10,100	-140	7.5
		25-Apr-13	ND (0.2) J	1.3	9,170	-90	7.6
MW-54-140	DA	24-Apr-12	ND (1.0)	ND (1.0)	12,600	-43	8.0
		12-Dec-12	ND (1.0)	ND (1.0)	12,700	-66	7.7
		25-Apr-13	ND (0.2) J	ND (1.0)	11,800	-26	7.7
MW-54-195	DA	24-Apr-12	ND (1.0)	ND (5.0)	19,400	-170	8.3
		24-Apr-12 FD	ND (1.0)	ND (5.0)	19,100	FD	FD
		12-Dec-12	ND (1.0)	ND (1.0)	19,200	-180	8.2
		25-Apr-13	ND (1.0) J	ND (1.0)	18,300	56	8.1
		25-Apr-13 FD	ND (1.0) J	ND (1.0)	18,200	FD	FD
MW-55-45	MA	03-Apr-12	ND (0.2)	ND (1.0)		-160	7.4

Table 3-1 Groundwater Sampling Results, April 2012 through June 2013 Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone					Selected Field Parameters	
		Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	ORP (mV)	Field pH
MW-55-45	MA	12-Dec-12	ND (0.2)	ND (1.0)	1,510	-190	7.6
MW-55-120	DA	03-Apr-12	6.7	6.5		28	7.9
		12-Dec-12	7.1	6.8	8,840	-56	7.9
		12-Dec-12 FD	7.0	6.9	8,800	FD	FD
MW-56S	SA	17-May-12	ND (0.2)	ND (1.0)	6,160	-120	8.0
		06-Dec-12	ND (0.2)	ND (1.0)	5,380	-120	7.1
		15-May-13	ND (0.2) J	1.4	6,000	-130	7.0
MW-56M	DA	17-May-12	ND (1.0)	ND (1.0)	14,900	-120	8.0
		06-Dec-12	ND (1.0)	ND (1.0)	14,500	-120	7.1
		15-May-13	ND (1.0) J	1.1 J	13,800	-120	7.1
MW-56D	DA	17-May-12	ND (1.0)	ND (1.0)	21,800	-110	8.2
		06-Dec-12	ND (2.0)	ND (1.0)	21,400	-150	7.5
		15-May-13	ND (1.0) J	ND (1.0)	19,800	-150	7.7
MW-57-070	BR	03-May-12	288	314	2,600	120	7.1
		12-Sep-12	609	614	2,300	9.2	7.1
		13-Dec-12	724	799	2,100	130	7.0
		13-Dec-12 FD	752	851	2,100	FD	FD
		20-Feb-13	272	338	2,100	190	7.1
		20-Feb-13 FD	268	376	2,100	FD	FD
		11-Mar-13	594	562	2,200	150	7.1
		06-May-13	611	696	2,100	260	7.1
MW-57-185	BR	30-Apr-12	7.1	8.6	16,000	-59	8.9
		11-Sep-12	7.8	9.1	18,000	-50	R
		08-Nov-12	9.5	10.7	21,000	-130	8.7
		06-Feb-13	10.4	11.4	17,000	170	8.3
		23-Apr-13	10.2	9.8	23,000	150	9.0
MW-58BR	BR	28-Feb-13	ND (1.0)	ND (1.0)	7,300	5.0	7.6
		30-Apr-13	ND (1.0)	ND (1.0)	8,400	-61	7.5
MW-58BR-UPR-160	BR	15-May-12	ND (1.0)	1.4	11,000	-120	7.5
		03-Oct-12	ND (1.0)	ND (1.0)	10,000	-120	7.0
MW-58BR-LWR-160	BR	16-May-12	2.4	7.4	11,000	-88	8.4
		04-Oct-12	2.3	10.2	9,400	-91	8.0
MW-59-100	SA	08-May-12	4,610	4,690	11,000	130	7.0
		02-Oct-12	4,510	4,640	9,700	310	6.6

Table 3-1 Groundwater Sampling Results, April 2012 through June 2013 Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone					Selected Field Parameters	
		Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	ORP (mV)	Field pH
MW-59-100	SA	28-Nov-12	3,980	3,970	9,400	170	6.8
		27-Feb-13	3,920	4,030	9,800	170	6.8
		13-May-13	4,110	4,150	8,800	150	6.8
MW-60-125	BR	03-May-12	882	936	8,400	98	7.4
		20-Sep-12	848	846	9,600	63	7.6
		06-Dec-12	867	804	8,700	-76	7.5
		20-Feb-13	1,020	1,000	8,400	140	7.3
		06-May-13	988	959	8,600	210	7.4
MW-60BR-245	BR	17-May-12	74.2	77.0	17,000	-130	8.6
		19-Sep-12	89.7	97.2	18,000	-140	8.6
		05-Dec-12	61.4	59.2	17,000	-8	8.7
		14-Mar-13	90.6	125	16,000	120	8.0
		14-Mar-13 FD	93.9	110	16,000	FD	FD
		07-May-13	46.6	49.7	18,000		
MW-61-110	BR	03-May-12	486	578	16,000	55	7.4
		27-Sep-12	656	714	17,000	5.0	7.1
		27-Sep-12 FD	661	738	17,000	FD	FD
		27-Nov-12	666	709	15,000	12	7.2
		27-Nov-12 FD	678	716	15,000	FD	FD
		25-Feb-13	637	682 J	15,000	16	7.3
		02-May-13	518	574	14,000	76	7.4
MW-62-065	BR	02-May-12	443	433	6,600	34	7.6
		12-Sep-12	588	627	6,400	-28	7.3
		10-Dec-12	505	543	6,200	46	7.4
		19-Feb-13	404	406	5,400	61	7.8
		25-Apr-13	589	607	7,300	130	7.4
MW-62-110	BR	10-May-12	828	941	8,900	180	7.5
		13-Sep-12	894	923	9,200	130	7.4
		11-Dec-12	904	944	9,000	130	6.6
		26-Feb-13	1,050	969	8,400	-51	7.8
		08-May-13	733	782	7,800	170	7.1
MW-62-190	BR	10-May-12	ND (1.0)	ND (1.0)	19,000	-210	7.7
		13-Sep-12	ND (1.0)	ND (1.0)	19,000	-280	7.8
		11-Dec-12	ND (1.0)	ND (1.0)	18,000	100	7.5
		26-Feb-13	ND (1.0)	ND (1.0)	17,000	-14	8.0

Table 3-1 Groundwater Sampling Results, April 2012 through June 2013 Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

						Selected Fie	d Parameters
Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (μg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	ORP (mV)	Field pH
MW-62-190	BR	08-May-13	ND (1.0)	ND (1.0)	1,600	-30	7.5
MW-63-065	BR	26-Apr-12	0.76	1.5	6,900	26	7.3
		10-Sep-12	1.5	2.3	7,600	96	8.0
		07-Nov-12	1.2	2.0	8,800	23	7.3
		06-Feb-13	1.2	1.5	6,300	190	7.0
		25-Apr-13	1.3	1.5	8,100	140	7.1
MW-64BR	BR	01-Mar-13	ND (1.0)	ND (1.0)	12,000	-19	7.2
		01-May-13	ND (1.0)	ND (1.0)	12,000	48	7.3
MW-64BR-UPR-150	BR	16-Apr-12	ND (1.0)	2.1	12,000	-140	8.0
		08-Oct-12	ND (1.0)	ND (1.0)	12,000	-140	8.0
MW-64BR-LWR-150	BR	19-Apr-12	21.9	23.2	13,000	-34	7.9
		10-Oct-12	ND (1.0)	1.0	14,000	-180	7.9
MW-65-160	SA	01-May-12	51.0	54.6	3,900	-2.2	7.3
		18-Sep-12	75.7	79.6	4,300	-76	7.2
		04-Dec-12	78.5	85.1	4,100	-9.7	7.3
		19-Feb-13	78.8	77.1	4,000	120	7.8
		01-May-13	111	112	3,600	230	7.3
MW-65-225	DA	02-May-12	365	387	13,000	110	7.7
		18-Sep-12	528	570	12,000	-69	7.0
		05-Dec-12	634	637	9,400	-16	7.4
		19-Feb-13	630	627	10,000	45	7.6
		02-May-13	534	549	10,000	250	7.2
		02-May-13 FD	548	572	10,000	FD	FD
MW-66-165	SA	02-May-12	651	682	4,600	48	7.7
		17-Sep-12	653	665	4,500	11	7.2
		06-Dec-12	622	583	4,300	46	7.3
		20-Feb-13	636	613	4,300	110	7.2
		02-May-13	737	695	4,100	230	7.1
MW-66-230	DA	10-May-12	5,880	5,900	19,000	26	7.8
		10-May-12 FD	5,560	5,720	19,000	FD	FD
		17-Sep-12	6,200	6,040	19,000	-89	8.0
		10-Dec-12	6,190	5,910	19,000	-34	8.0
		21-Feb-13	6,510	6,400	18,000	150	7.9
		13-May-13	6,520	7,280	17,000	220	7.9

Table 3-1 Groundwater Sampling Results, April 2012 through June 2013 Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

						Selected Fie	ld Parameters
Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	ORP (mV)	Field pH
MW-66BR-270	BR	24-May-12	ND (1.0)	1.1	17,000		
		02-Oct-12	ND (1.0)	ND (1.0)	18,000	-97	10.6
		20-Dec-12	ND (1.0)	ND (1.0)	19,000	42	9.8
		12-Mar-13	ND (1.0)	ND (1.0)	18,000	-210	9.7
		18-Jun-13	ND (1.0)	ND (1.0)	17,000	-170	10.3
MW-67-185	SA	03-May-12	2,180	2,230	4,400	100	7.3
		20-Sep-12	2,370	2,320	4,700	40	7.4
		06-Dec-12	2,300	2,270	4,400	-56	7.4
		21-Feb-13	2,190	2,100	4,300	140	7.4
		21-Feb-13 FI	2,180	2,110	4,200	FD	FD
		09-May-13	2,400	2,550	4,500	290	7.2
MW-67-225	MA	07-May-12	3,180	3,260	7,400	100	7.5
		20-Sep-12	3,200	3,420	8,000	310	7.2
		10-Dec-12	3,210	3,110	7,500	-30	7.5
		21-Feb-13	3,310	3,110	7,000	140	7.4
		09-May-13	3,140	3,280	6,800	150	7.4
MW-67-260	DA	07-May-12	2,130	2,090	18,000	65	8.2
		20-Sep-12	2,130	2,160	18,000	-140	8.5
		06-Dec-12	2,020	1,930	18,000	-100	8.3
		21-Feb-13	2,130	2,060	17,000	170	8.1
		09-May-13	2,120	2,220	16,000	120	8.1
		09-May-13 FI	2,140	2,250	16,000	FD	FD
MW-68-180	SA	10-May-12	5,970	5,990	3,200	76	7.4
		20-Sep-12	16,400	16,900	4,100	370	7.3
		11-Dec-12	20,200	21,800	4,400	45	7.4
		11-Dec-12 FI	20,400	21,700	4,400	FD	FD
		21-Feb-13	17,300	15,600	3,700	140	7.4
		13-May-13	5,010	5,590	2,800	64	6.7
MW-68-240	DA	03-May-12	1,820	1,900	16,000	87	7.3
		20-Sep-12	2,000	1,980	17,000	R	7.5
		06-Dec-12	1,990	1,870	16,000	-110	7.5
		20-Feb-13	1,970	2,020	15,000	140	7.2
		08-May-13	2,050	2,160	14,000	66	7.3
MW-68BR-280	BR	09-May-12	ND (1.0)	ND (1.0)	21,000	-130	8.5
		03-Oct-12	ND (1.0)	ND (1.0)	22,000	-140	8.2

Table 3-1 Groundwater Sampling Results, April 2012 through June 2013 Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

						Selected Fie	ld Parameters
Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	ORP (mV)	Field pH
MW-68BR-280	BR	12-Nov-12	ND (1.0)	ND (1.0)	21,000	-120	8.3
		18-Feb-13	ND (1.0)	ND (1.0)	21,000	-36	8.5
		08-May-13	ND (1.0)	ND (1.0)	19,000	-62	8.5
MW-69-195	BR	02-May-12	446	488	3,800	71	7.7
		19-Sep-12	789	840	3,900	76	7.1
		05-Dec-12	849	869	3,800	-47	7.3
		20-Feb-13	909	852	3,500	130	7.1
		06-May-13	919	868	3,600	230	6.9
MW-70-105	BR	01-May-12	76.3	77.9	3,000	-30	7.9
		12-Sep-12	80.8	85.6	3,300	-150	7.9
		04-Dec-12	65.1	71.1	3,500	18	8.0
		19-Feb-13	93.2	91.7	3,300	-130	8.4
		25-Apr-13	198	201	3,800	37	7.8
MW-70BR-225	BR	17-May-12	2,460	2,460	14,000	42	7.4
		17-May-12 FD	2,380	2,550	14,000	FD	FD
		18-Sep-12	2,410	2,500	14,000	42	7.2
		13-Dec-12	1,980	1,980	14,000	-39	7.4
		26-Feb-13	1,960	1,880	13,000	140	7.7
		07-May-13	2,000	2,070	13,000	170	7.3
MW-71-035	SA	03-May-12	ND (1.0)	ND (1.0)	7,100	21	7.5
		19-Sep-12	ND (0.2)	ND (1.0)	7,500	120	7.1
		08-Nov-12	ND (0.2)	ND (1.0)	9,300	190	7.4
		07-Feb-13	0.78	ND (1.0)	6,800	230	7.1
		30-Apr-13	0.44	ND (1.0)	7,800	220	7.3
MW-72-080	BR	01-May-12	87.6	89.0	16,000	-26	7.7
		19-Sep-12	151	158	15,000	37	7.7
		05-Dec-12	150	150	16,000	89	7.8
		19-Feb-13	122	119	16,000	-46	8.2
		25-Apr-13	116	124	20,000	130	7.7
MW-72BR-200	BR	13-Sep-12	3.9	4.5	15,000	-200	8.7
		13-Sep-12 FD	3.8	4.3	15,000	FD	FD
		14-Nov-12	6.4	7.3	16,000	-99	8.3
		07-Feb-13	7.9	8.2	12,000	35	8.3
		29-Apr-13	4.9	5.7	16,000	86	8.2
MW-73-080	BR	02-May-12	32.9	38.0	11,000	15	7.2

Table 3-1 Groundwater Sampling Results, April 2012 through June 2013 Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

						Selected Fie	ld Parameters
Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	ORP (mV)	Field pH
MW-73-080	BR	13-Sep-12	37.3	39.3	11,000	-15	7.3
		05-Dec-12	35.6	36.2	11,000	47	7.2
		19-Feb-13	25.1	25.8	8,800	40	9.0
		01-May-13	31.8	32.8	9,200	270	7.4
MW-74-240	BR	10-May-12	ND (0.2)	ND (1.0)	1,300	-240	9.7
		27-Sep-12	0.28	ND (1.0)	1,200	-210	9.6
		20-Dec-12	ND (0.2)	ND (1.0)	1,100	-12	9.0
		20-Dec-12 FD	ND (0.2)	ND (1.0)	1,100	FD	FD
		01-Mar-13	ND (0.2)	ND (1.0)	890	-41	9.1
		02-May-13	ND (0.2)	ND (1.0)	810	-32	8.7
OW-3S	SA	13-Nov-12	26.8	23.5	1,500	65	7.6
OW-3M	MA	13-Nov-12	16.5	15.2	5,600	17	7.8
OW-3D	DA	13-Nov-12	9.5	10.8	8,600	12	7.7
PE-1	DA	03-Apr-12	7.4	7.5	4,910		
		01-May-12	6.9	7.7	5,040		
		05-Jun-12	6.5	6.8	4,960		
		02-Jul-12	6.6	6.9	4,870		
		07-Aug-12	6.2	7.3	4,830		
		04-Sep-12	6.8	8.8	4,770		
		02-Oct-12	6.3	7.0	4,700		
		06-Nov-12	6.9	8.0	4,760		
		04-Dec-12	7.0	7.3	4,760		
		02-Jan-13	8.1	8.0	4,490		
		05-Feb-13	7.7	8.4	4,490		
		05-Mar-13	6.5	6.6	4,410		
		01-Apr-13	5.6	5.6	4,540		
		01-May-13	5.0	5.8	4,540		
		04-Jun-13	5.1	5.6	4,350		
PGE-7BR	BR	11-Dec-12	ND (1.0)	ND (1.0)	18,000	-230	7.7
PGE-8	BR	07-Nov-12	ND (1.0)	1.6	23,000	-300	8.4
Park Moabi-3	MA	08-Nov-12	7.2	8.3 UF	1,600	-13	7.8
Park Moabi-4	MA	08-Nov-12	21.3	23.0 UF	2,200	430	7.8
TW-1	SA-MA-DA	16-May-12	3,090	3,400	7,100	41	7.3
		01-Oct-12	3,190	3,190	7,400	110	7.3

Table 3-1 Groundwater Sampling Results, April 2012 through June 2013 Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

						Selected Fie	ld Parameters
Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	ORP (mV)	Field pH
TW-1	SA-MA-DA	11-Dec-12	3,100	3,230	7,300	-15	7.2
		11-Dec-12 FD	2,980	3,090	7,600	FD	FD
		21-Feb-13	2,830	3,060	7,200	160	7.1
		14-May-13	2,830	3,160	6,500	320	7.1
TW-2S	SA-MA	13-Dec-12	478	516	2,400	-27	7.6
TW-2D	DA	13-Dec-12	192	228	9,000	-33	7.1
TW-3D	DA	03-Apr-12	937	929	8,450		
		01-May-12	951	990	8,470		
		05-Jun-12	922	906	8,370		
		02-Jul-12	922	878	8,290		
		07-Aug-12	885	946	8,200		
		04-Sep-12	788	931	8,260		
		02-Oct-12	1,000	975	8,250		
		06-Nov-12	953	891	8,300		
		04-Dec-12	893	879	8,470		
		02-Jan-13	897	925	8,000		
		05-Feb-13	1,020	950	8,260		
		05-Mar-13	867	898	8,150		
		01-Apr-13	836	766	8,110		
		01-May-13	746	881	8,040		
		04-Jun-13	846	847	7,630		
TW-4	DA	15-Nov-12	7.7	9.1	22,000	120	7.5
TW-5	DA	15-Nov-12	13.5	15.6	16,000	160	7.4

Table 3-1

Groundwater Sampling Results, April 2012 through June 2013 Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Notes:

(---) = data not collected, available, rejected, or field instrument malfunction.

FD = field duplicate sample.

J = concentration or reporting limit (RL) estimated by laboratory or data validation.

mV = millivolts.

ND = not detected at listed RL.

ORP = oxidation-reduction potential.

R = result exceeded analytical criteria for precision and accuracy; should not be used for project decision making.

RL = reporting limit.

µg/L = micrograms per liter.

µS/cm = microSiemens per centimeter.

Beginning February 1, 2008, hexavalent chromium samples are field filtered per DTSC - approved change from analysis method SW7199 to E218.6.

The RLs for certain hexavalent chromium results from Method E218.6 analyses have been elevated above the standard RL of 0.2 µg/L due to required sample dilution to accommodate matrix interferences.

Monitoring wells MW-11, MW-24A, MW-24B, MW-38S, and MW-38D are currently sampled as part of the upland in situ pilot test monitoring. Results from these wells are presented in the in situ pilot test reports (ARCADIS, 2012) and are not included in this table.

ORP is reported to two significant figures. Specific conductance is reported to three significant figures.

Wells are assigned to separate Aguifer zones for results reporting:

SA: shallow interval of Alluvial Aguifer. MA: mid-depth interval of Alluvial Aquifer.

DA: deep interval of Alluvial Aquifer.

BR: well completed in bedrock (Miocene Conglomerate or pre-Tertiary crystalline rock).

Table 3-2
Groundwater COPCs and In Situ Byproducts Sampling Results, Second Quarter 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Arsenic Dissolved (µg/L)	Fluoride Dissolved (mg/L)	Molybdenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Manganese Dissolved (μg/L)	Nitrate as N (mg/L)
MW-10	SA	14-May-13		4.30	32.0	6.4		11.7
MW-12	SA	09-May-13	33.0		10.0	12.0		13.2 J
MW-16	SA	24-Apr-13	9.7		12.0	1.9	ND (0.5)	
MW-17	SA	24-Apr-13	1.6		15.0	10.0	ND (0.5)	
MW-20-70	SA	09-May-13			36.0	5.4		10.1 J
MW-20-100	MA	09-May-13			3.3	6.8		14.0 J
MW-20-130	DA	14-May-13	4.6		41.0	24.0	ND (0.5)	13.0
MW-21	SA	24-Apr-13			64.0	20.0		2.67
MW-22	SA	15-May-13	13.0		38.0	0.57	2200	
MW-23-060	BR	23-Apr-13	4.3				ND (0.5)	
MW-23-080	BR	23-Apr-13	3.6				ND (0.5)	
MW-26	SA	07-May-13	2.2		24.0	43.0	ND (0.5)	17.7 J
MW-27-20	SA	15-Apr-13	1.6		4.8	ND (0.5)	96.0	ND (0.5)
MW-27-60	MA	15-Apr-13	6.8	0.59	3.7	ND (0.5)	140	ND (0.5)
MW-27-85	DA	15-Apr-13	1.3	2.80	19.0	ND (0.5)	85.0	
		15-Apr-13 _{FD}	1.4	ND (2.5)	19.0	ND (0.5)	86.0	
MW-28-25	SA	18-Apr-13	1.7		4.4	ND (0.5)	25.0	ND (0.5)
MW-28-90	DA	18-Apr-13	1.7	3.10	21.0	ND (0.5)	120	ND (0.5)
MW-29	SA	18-Apr-13	4.1	1.10	9.1	1.1	250	ND (0.5)
MW-30-30	SA	15-Apr-13			26.0	ND (0.5)		ND (0.5)
		15-Apr-13 _{FD}			25.0	ND (0.5)		ND (0.5)
MW-32-35	SA	17-Apr-13	27.0				1300	
		17-Apr-13 _{FD}	26.0				1300	
MW-33-40	SA	22-Apr-13	15.0	10.0	150	ND (2.5)	ND (0.5) J	ND (0.5)
MW-33-90	MA	22-Apr-13	1.7	4.60	15.0	0.56	ND (0.5)	1.53
MW-33-150	DA	22-Apr-13	2.2	5.70	35.0	ND (2.5)	2.3	1.51
MW-33-210	DA	23-Apr-13	1.6	5.60	15.0	ND (2.5)	9.1	1.47
MW-34-80	DA	16-Apr-13	1.3				4.5	
MW-34-100	DA	16-Apr-13	1.3		32.0	ND (2.5)	15.0	ND (0.5)
		16-Apr-13 _{FD}	1.3		31.0	ND (0.5)	15.0	ND (0.5)
MW-35-60	SA	23-Apr-13	1.4		8.5	ND (2.5)	ND (0.5)	11.4
MW-36-90	DA	15-May-13	17.0					
MW-36-100	DA	24-Apr-13	7.8		33.0	ND (2.5)	15.0	ND (0.5)
MW-37D	DA	30-Apr-13			45.0	ND (2.5)		ND (0.5)
MW-40D	DA	01-May-13	4.4		50.0	2.0	ND (0.5)	3.16

Table 3-2
Groundwater COPCs and In Situ Byproducts Sampling Results, Second Quarter 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Arsenic Dissolved (µg/L)	Fluoride Dissolved (mg/L)	Molybdenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Manganese Dissolved (µg/L)	Nitrate as N (mg/L)
MW-42-55	MA	16-Apr-13	11.0					
MW-42-65	MA	17-Apr-13	2.5				860	
MW-43-25	SA	17-Apr-13	19.0				270	
MW-43-90	DA	17-Apr-13	3.2				870	
MW-44-70	MA	22-Apr-13	4.0				87.0	
MW-44-115	DA	24-Apr-13	6.3		73.0	ND (2.5)	ND (0.5)	ND (0.5)
MW-44-125	DA	18-Apr-13	3.2		130	ND (0.5)	480	ND (0.5)
		18-Apr-13 _{FD}	3.3		130	ND (0.5)	480	ND (0.5)
MW-46-175	DA	24-Apr-13			150	ND (2.5)		1.12
MW-51	MA	13-May-13	3.6		41.0	17.0	ND (0.5)	11.8
MW-52D	DA	16-May-13	3.2				94.0	
MW-52M	DA	16-May-13	1.3					
MW-52S	MA	16-May-13	0.21					
MW-53D	DA	16-May-13	2.8				1500	
MW-53M	DA	16-May-13	0.8				290	
MW-54-85	DA	25-Apr-13	2.6				49.4	
MW-54-140	DA	25-Apr-13	1.4 J				4.7 J	
MW-54-195	DA	25-Apr-13	ND (0.2)				13.7 J	
		25-Apr-13 _{FD}	ND (0.2)				47.7 J	
MW-57-185	BR	23-Apr-13	13.0		79.0	ND (2.5)	190	ND (0.5)
MW-58BR	BR	30-Apr-13	1.4					
MW-59-100	SA	13-May-13	1.9		5.3	3.9	ND (0.5)	3.95
MW-60-125	BR	06-May-13	2.0		14.0	5.0	ND (0.5)	4.46 J
MW-60BR-245	BR	07-May-13	7.7		51.0	1.9	ND (0.5)	ND (0.5) J
MW-61-110	BR	02-May-13	3.3		23.0	0.88	110	0.753
MW-62-110	BR	08-May-13	8.5		40.0	2.4	66.0	3.56 J
MW-62-190	BR	08-May-13	4.1		68.0	ND (2.5)	510	ND (0.5) J
MW-63-065	BR	25-Apr-13	1.9		19.0	ND (2.5)	ND (0.5)	0.831
MW-64BR	BR	01-May-13	3.4					
MW-65-160	SA	01-May-13	1.1		23.0	7.3	16.0	12.1
MW-65-225	DA	02-May-13	2.5		36.0	6.9	ND (0.5)	9.77
		02-May-13 _{FD}	2.6		36.0	6.5	ND (0.5)	9.61
MW-66-165	SA	02-May-13	1.6		5.6	37.0	ND (0.5)	37.9
MW-66-230	DA	13-May-13	5.6		77.0	12.0	ND (0.5)	14.7
MW-66BR-270	BR	18-Jun-13	0.24		29.0	0.52	ND (0.5)	

Table 3-2
Groundwater COPCs and In Situ Byproducts Sampling Results, Second Quarter 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Arsenic Dissolved (µg/L)	Fluoride Dissolved (mg/L)	Molybdenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Manganese Dissolved (µg/L)	Nitrate as N (mg/L)
MW-67-185	SA	09-May-13	1.9		9.2	140	ND (0.5)	29.5 J
MW-67-225	MA	09-May-13	2.8		29.0	59.0	ND (0.5)	22.4 J
MW-67-260	DA	09-May-13	11.0		76.0	1.2	43.0	1.40 J
		09-May-13 _{FD}	11.0		78.0	ND (2.5)	41.0	1.39 J
MW-68-180	SA	13-May-13	2.5		38.0	10.0	ND (0.5)	12.2
MW-68-240	DA	08-May-13	1.9		20.0	3.6	ND (0.5)	4.83 J
MW-68BR-280	BR	08-May-13	1.6		71.0	ND (0.5)	94.0	ND (0.5) J
MW-69-195	BR	06-May-13	2.6		53.0	11.0	ND (0.5)	16.7 J
MW-70-105	BR	25-Apr-13	5.9		81.0	3.8	170	4.50
MW-70BR-225	BR	07-May-13	3.1		16.0	2.9	ND (0.5)	4.25 J
MW-71-035	SA	30-Apr-13	1.8		60.0	2.6	27.0	1.82
MW-72-080	BR	25-Apr-13	12.0		73.0	ND (2.5)	ND (2.5)	1.21
MW-72BR-200	BR	29-Apr-13	14.0		74.0	ND (0.5)	ND (0.5)	ND (0.5)
MW-73-080	BR	01-May-13	1.6		20.0	4.8	ND (0.5)	5.96
MW-74-240	BR	02-May-13	11.0		78.0	1.8	ND (0.5)	0.854
TW-1	SA-MA-DA	14-May-13			13.0	19.0		15.8

Table 3-2

Groundwater COPCs and In Situ Byproducts Sampling Results, Second Quarter 2013 Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Notes:

(---) = data not collected, available, rejected, or field instrument malfunction.

COPC = contaminants of potential concern.

FD = field duplicate sample.

J = concentration or reporting limit estimated by laboratory or data validation.

mg/L = milligrams per liter.

ND = not detected at listed reporting limit.

 μ g/L = micrograms per liter.

Starting in Fourth Quarter 2012, nitrate samples were analyzed using USEPA Method 353.2, except for TW-3D and PE-1, which were still analyzed using USEPA Method 300.0. USEPA Method 353.2 reports a combination of nitrate and nitrite as nitrogen. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for USEPA Method 353.2 are expected to be essentially the same as previous samples analyzed using USEPA Method 300.0 and reported as nitrate as nitrogen.

The Background Study Upper Tolerance Limit (UTL) for arsenic is 24.3 µg/L.

The USEPA and California maximum contaminant level (MCL) for arsenic is 10 µg/L.

The Background Study UTL for molybdenum is 36.3 µg/L.

There is no USEPA or California MCL for molybdenum.

The Background Study UTL for selenium is 10.3 µg/L.

The USEPA and California MCL for selenium is 50.0 µg/L.

The secondary USEPA and California MCL for manganese is 50 ug/L.

The Background Study UTL for nitrate as nitrogen is 5.03 mg/L.

The USEPA and California MCL for nitrate as nitrogen is 10 mg/L.

The Background Study UTL for fluoride is 7.1 mg/L.

The USEPA MCL for fluoride is 4 mg/L, and the California MCL for fluoride is 2 mg/L.

Wells are assigned to separate Aquifer zones for results reporting:

SA = shallow interval of Alluvial Aquifer.

MA = mid-depth interval of Alluvial Aquifer.

DA = deep interval of Alluvial Aquifer.

PA = perched aguifer (unsaturated zone).

BR = well completed in bedrock (Miocene Conglomerate or pre-Tertiary crystalline rock).

Table 3-3

Title 22 Metals Results, Second Quarter 2013

Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide

Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

	California MCL:	6	10	1,000	4	5	NE	50	1,000*	15	2	NE	100	50	100*	2	NE	5,000*
Well ID	Sample Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Chromium	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
MW-12	05/09/2013	ND (0.5)	33.0	52.0	ND (1.0)	ND (3.0)	ND (3.0)	2,620	ND (1.0)	ND (10)	ND (0.2)	10.0	ND (5.0)	12.0	ND (3.0)	ND (0.5)	11.0	ND (10)
MW-22	05/15/2013	ND (0.5)	13.0	75.0	ND (2.0)	ND (6.0) J	ND (6.0)	ND (1.0)	ND (10)	ND (20)	ND (0.2)	38.0	ND (10)	0.57	ND (6.0)	ND (0.5)	ND (6.0)	ND (20)

Notes:

* = Secondary USEPA MCL.

FD = field duplicate sample.

J = concentration or reporting limit estimated by laboratory or data validation.

MCL = maximum contaminant level.
ND = not detected at listed reporting limit.

NE = not established.

USEPA = United States Environmental Protection Agency.

 μ g/L = micrograms per liter.

Title 22 metals are the metals listed in California Code of Regulations, Title 22, Section 66261.24(a)(2)(A).

The maximum contaminant levels (MCLs) listed, in micrograms per liter (µg/L), are the California primary drinking water standards, except where noted.

All results are dissolved metals concentrations in μ g/L from field-filtered samples.

Metals analyzed by Methods SW6010B or SW6020A or SW7470A.

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Table 3-4
Surface Water Sampling Results, Second Quarter 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Hexavalent Chromium (μg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Lab pH
In-channel Loc	cations				-
C-BNS-D	05/20/2013	ND (0.2)	ND (1.0)	827	8.3 J
C-CON-S	05/21/2013	ND (0.2)	ND (1.0)	834	8.3 J
C-CON-D	05/21/2013	ND (0.2)	ND (1.0)	836	8.3 J
C-I-3-S	05/20/2013	ND (0.2)	ND (1.0)	830	8.1 J
C-I-3-D	05/20/2013	ND (0.2)	ND (1.0)	830	8.3 J
C-MAR-S	05/20/2013	ND (0.2)	ND (1.0)	960	8.3 J
C-MAR-D	05/20/2013	ND (0.2)	ND (1.0)	954	7.6 J
C-NR1-S	05/21/2013	ND (0.2)	ND (1.0)	827	8.3 J
C-NR1-D	05/21/2013	ND (0.2)	ND (1.0)	834	8.3 J
C-NR3-S	05/21/2013	ND (0.2)	ND (1.0)	835	8.2 J
C-NR3-D	05/21/2013	ND (0.2)	ND (1.0)	826	8.3 J
C-NR4-S	05/21/2013	ND (0.2)	ND (1.0)	835	8.1 J
C-NR4-D	05/21/2013	ND (0.2)	ND (1.0)	836	8.2 J
C-R22a-S	05/20/2013	ND (0.2)	ND (1.0)	834	7.6 J
C-R22a-D	05/20/2013	ND (0.2)	ND (1.0)	838	8.2 J
C-R27-S	05/20/2013	ND (0.2)	ND (1.0)	832	8.3 J
C-R27-D	05/20/2013	ND (0.2)	ND (1.0)	832	8.2 J
C-TAZ-S	05/20/2013	ND (0.2)	ND (1.0)	824	8.2 J
C-TAZ-D	05/20/2013	ND (0.2)	ND (1.0)	833	8.3 J
Shoreline Sam	nples				
R-19	05/21/2013	ND (0.2)	ND (1.0)	835	8.3 J
R-28	05/21/2013	ND (0.2)	ND (1.0)	836	8.2 J
R63	05/20/2013	ND (0.2)	ND (1.0)	858	8.1 J
RRB	05/21/2013	ND (0.2)	ND (1.0)	844	8.2 J
Other Surface	Water Monitoring Lo	ocations			
SW1	05/20/2013	ND (0.2)	ND (1.0)	867	7.4 J
SW2	05/20/2013	ND (0.2)	ND (1.0)	853	7.5 J

Table 3-4

Surface Water Sampling Results, Second Quarter 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Notes:

J = concentration or reporting limit estimated by laboratory or data validation. ND = not detected at listed reporting limit. μ g/L = micrograms per liter. μ S/cm = microSiemens per centimeter.

Hexavalent chromium analytical Method USEPA 218.6 (reporting limit 0.2 μg/L for undiluted samples).

Other analytical methods: dissolved chromium - Method SW6020A; specific conductance - USEPA 120.1; pH -SM4500-HB.

pH is reported to two significant figures.

Table 3-5 COPCs, In Situ Byproducts, and Geochemical Indicator Parameters in Surface Water Samples, Second Quarter 2013 Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Alkalinity, bicarbonate as CaCO3	Alkalinity, carbonate as CaCO3	Alkalinity, total as CaCO3	Arsenic, dissolved	Iron, Total	Iron, dissolved	Manganese, dissolved	Molybdenum, dissolved	Nitrate/Nitrite as Nitrogen	Selenium, dissolved	Total suspended solids	
	Date	mg/L	mg/L	mg/L	μg/L	μg/L	μg/L	μg/L	μg/L	mg/L	μg/L	mg/L	
In-channel Loc	ations												
C-BNS-D	05/20/2013	129	ND (5.0)	129	2.6	ND (20.0)	ND (20.0)	0.88	4.0	ND (0.5)	ND (5.0)	ND (10.0)	
C-CON-S	05/21/2013	135	ND (5.0)	135	2.4	ND (20.0)	ND (20.0)	0.74	4.1	ND (0.5)	ND (5.0)	ND (10.0)	
C-CON-D	05/21/2013	132	ND (5.0)	132	2.5	ND (20.0)	ND (20.0)	0.68	4.2	ND (0.5)	ND (5.0)	ND (10.0)	
C-I-3-S	05/20/2013	123	ND (5.0)	123	2.5	ND (20.0)	ND (20.0)	0.74	3.9	ND (0.5)	ND (5.0)	ND (10.0)	
C-I-3-D	05/20/2013	125	ND (5.0)	125	2.5	ND (20.0)	ND (20.0)	0.73	4.0	ND (0.5)	ND (5.0)	ND (10.0)	
C-MAR-S	05/20/2013	164	ND (5.0)	164	2.6	772	210	44.1	4.2	ND (0.5)	ND (5.0)	23.2	
C-MAR-D	05/20/2013	159	ND (5.0)	159	2.4	824	ND (20.0)	42.6	4.2	ND (0.5)	ND (5.0)	28.8	
C-NR1-S	05/21/2013	131	ND (5.0)	131	2.5	22.5	ND (20.0)	0.76	4.4	ND (0.5)	ND (5.0)	ND (10.0)	
C-NR1-D	05/21/2013	132	ND (5.0)	132	2.4	26.1	ND (20.0)	0.64	4.2	ND (0.5)	ND (5.0)	ND (10.0)	
C-NR3-S	05/21/2013	129	ND (5.0)	129	2.4	ND (20.0)	ND (20.0)	0.8	4.0	ND (0.5)	ND (5.0)	ND (10.0)	
C-NR3-D	05/21/2013	127	ND (5.0)	127	2.6	ND (20.0)	ND (20.0)	0.7	4.2	ND (0.5)	ND (5.0)	ND (10.0)	
C-NR4-S	05/21/2013	123	ND (5.0)	123	2.5	ND (20.0)	ND (20.0)	0.74	4.1	ND (0.5)	ND (5.0)	ND (10.0)	
C-NR4-D	05/21/2013	127	ND (5.0)	127	2.4	ND (20.0)	ND (20.0)	0.67	4.0	ND (0.5)	ND (5.0)	ND (10.0)	
C-R22a-S	05/20/2013	126	ND (5.0)	126	2.4	26.1	ND (20.0)	1.2	3.9	ND (0.5)	ND (5.0)	ND (10.0)	
C-R22a-D	05/20/2013	126	ND (5.0)	126	2.6	27.5	ND (20.0)	1.2	4.0	ND (0.5)	ND (5.0)	ND (10.0)	
C-R27-S	05/20/2013	130	ND (5.0)	130	2.6	25.8	ND (20.0)	1.0	3.8	ND (0.5)	ND (5.0)	ND (10.0)	
C-R27-D	05/20/2013	130	ND (5.0)	130	2.6	26.4	ND (20.0)	1.2	3.9	ND (0.5)	ND (5.0)	ND (10.0)	
C-TAZ-S	05/20/2013	118	ND (5.0)	118	2.4	ND (20.0)	ND (20.0)	0.84	4.0	ND (0.5)	ND (5.0)	ND (10.0)	
C-TAZ-D	05/20/2013	126	ND (5.0)	126	2.4	ND (20.0)	ND (20.0)	0.75	3.7	ND (0.5)	ND (5.0)	ND (10.0)	
Shoreline Sam	ples												
R-19	05/21/2013	126	ND (5.0)	126	2.5	20.2	ND (20.0)	0.95	3.9	ND (0.5)	ND (5.0)	ND (10.0)	
R-28	05/21/2013	127	ND (5.0)	127	2.3	ND (20.0)	ND (20.0)	0.91	4.0	ND (0.5)	ND (5.0)	ND (10.0)	
R63	05/20/2013	119	ND (5.0)	119	2.6	106	ND (20.0)	5.6	4.0	ND (0.5)	ND (5.0)	ND (10.0)	
RRB	05/21/2013	114	ND (5.0)	114	2.5	38.3	ND (20.0)	5.2	4.0	ND (0.5)	ND (5.0)	ND (10.0)	

Notes:

CaCO3 = calcium carbonate.

COPC = contaminants of potential concern (molybdenum, selenium, and nitrate).

J = concentration or reporting limit estimated by laboratory or data validation.

mg/L = milligrams per liter.

ND = not detected at listed reporting limit.

TSS = total suspended solids.

μg/L = micrograms per liter.

Geochemical indicator parameters (TSS and alkalinity). In situ byproducts (arsenic, iron and manganese).

Methods:

Alkalinity - SM2320B. Metals - SW6010B/SW6020A.

Nitrate - USEPA 300.0.

Total Suspended Solids - SM2540D.

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Table 4-1
Pumping Rate and Extracted Volume for IM System, Second Quarter 2013
Second Quarter 2013 Interim Measure Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

	April 201	3	May 201	3	June 2013	3	Second Quarter 2013		
Extraction Well ID	Average Pumping Rate ^a (gpm)	Volume Pumped (gal)							
TW-02S	0.00	0	0.00	0	0.00	0	0.00	0	
TW-02D	0.47	20,206	0.00	0	0.00	0	0.16	20,206	
TW-03D	93.59	4,043,244	106.98	4,775,700	105.10	4,540,111	101.89	13,359,055	
PE-01	23.79	1,027,918	27.45	1,225,247	26.85	1,159,847	26.03	3,413,012	
TOTAL	117.9	5,091,368	134.4	6,000,947	131.9	5,699,957	128.1	16,792,273	

Chromium Removed This Quarter (kg) 44.5
Chromium Removed Project to Date (kg) 3450
Chromium Removed This Quarter (lb) 98.1
Chromium Removed Project to Date (lb) 7600

Notes:

ac-ft = acre-feet.

DTSC = Department of Toxic Substances Control.

gal = gallons.

GMP = Groundwater Monitoring Program.

gpm = gallons per minute.

kg = kilograms.

lb = pounds.

PMP = Performance Monitoring Program.

Chromium removed includes the period of March 1, 2013 through May 31, 2013. On July 23, 2010 DTSC approved a revised reporting schedule for this report that included a revised IM-3 sample collection period from March 1, 2013 through May 31, 2013

^a The "Average Pumping Rate" is the overall average during the reporting period, including system downtime, based on flow meter readings.

Table 4-2
Analytical Results for Extraction Wells, April 2012 through June 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Sample Date	Dissolved Chromium (μg/L)	Hexavalent Chromium (μg/L)	Total Dissolved Solids (mg/L)
TW-3D	03-Apr-12	929 LF	937	5,300
	01-May-12	990 LF	951	5,230
	05-Jun-12	906 LF	922	4,760
	02-Jul-12	878 LF	922	5,020
	07-Aug-12	946 LF	885	5,570
	04-Sep-12	931 LF	788	5,040
	02-Oct-12	975 LF	1,000	4,890
	06-Nov-12	891 LF	953	5,020
	04-Dec-12	879 LF	893	5,060
	02-Jan-13	925 LF	897	5,070
	05-Feb-13	950 LF	1,020	5,120
	05-Mar-13	898 LF	867	5,290
	01-Apr-13	766 LF	836	5,140
	01-May-13	881 LF	746	4,990
	04-Jun-13	847 LF	846	5,030
PE-1	03-Apr-12	7.50 LF	7.40	2,800
	01-May-12	7.70 LF	6.90	2,960
	05-Jun-12	6.80 LF	6.50	2,840
	02-Jul-12	6.90 LF	6.60	2,840
	07-Aug-12	7.30 LF	6.20	2,870
	04-Sep-12	8.80 LF	6.80	2,800
	02-Oct-12	7.00 LF	6.30	2,720
	06-Nov-12	8.00 LF	6.90	2,710
	04-Dec-12	7.30 LF	7.00	2,780
	02-Jan-13	8.00 LF	8.10	2,760
	05-Feb-13	8.40 LF	7.70	2,660
	05-Mar-13	6.60 LF	6.50	2,820
	01-Apr-13	5.60 LF	5.60	2,780
	01-May-13	5.80 LF	5.00	2,760
	04-Jun-13	5.60 LF	5.10	2,650

Notes:

J = concentration or reporting limit estimated by laboratory or data validation.

LF = lab filtered.

mg/L = milligrams per liter.

 μ g/L = micrograms per liter.

Groundwater samples from active extraction wells are taken at sample taps in Valve Vault 1 on the MW-20 Bench.

Dissolved chromium was analyzed by Method SW6020A or USEPA200.8 or USEPA200.7, hexavalent chromium analyzed by Method SM3500-CrB or USEPA218.6 and total dissolved solids were analyzed by Method SM2540C.

Table 4-3
Average Hydraulic Gradients Measured at Well Pairs, Second Quarter 2013
Second Quarter 2013 Interim Measure Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well Pair	Reporting Period	Mean Landward ^b Hydraulic Gradient (feet/foot)	Days in ^c Monthly Average	
	April	0.0042	NA	
Overall Average	May	0.0057	NA	
	June	0.0055	NA	
Northern Gradient Pair	April	0.0021	30 / 30	
MW-31-135 / MW-33-150	May	0.0023	31 / 31	
	June	0.0023	30 / 30	
Central Gradient Pair	April	0.0076	30 / 30	
MW-45-95 / MW-34-100	May	0.0107	31 / 31	
	June	0.0102	30 / 30	
Southern Gradient Pair	April	0.0029	30 / 30	
MW-45-95 / MW-27-85	May	0.0040	31 / 31	
	June	0.0039	30 / 30	

Notes:

NA = All available data used in calculating overall average except where noted.

- a Refer to Figure 1-4 for location of well pairs.
- b For IM pumping, the target landward gradient for the selected well pairs is 0.001 feet/foot.
- c Number of days transducers in both wells were operating correctly / total number of days in month.

Table 4-4Predicted and Actual Monthly Average Davis Dam Discharge and Colorado River Elevation at I-3
Second Quarter 2013 Interim Measures Performance Monitoring and
Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

	Davis Dam Release			Colorado River Elevation at I-3		
Month	Projected (cfs)	Actual (cfs)	Difference (cfs)	Predicted (ft amsl)	Actual (ft amsl)	Difference (feet)
January 2011	7,700	8,172	-472	453.1	453.34	0.2
February 2011	11,000	10,547	453	454.2	454.38	0.2
March 2011	15,900	15,875	25	455.9	456.22	0.3
April 2011	17,900	17,595	305	456.9	457.02	0.2
May 2011	16,400	15,437	963	456.6	456.40	-0.2
June 2011	16,100	16,024	76	456.5	456.75	0.2
July 2011	15,500	15,333	167	456.3	456.30	0.1
August 2011	13,300	13,368	-68	455.4	455.67	0.3
September 2011	12,700	12,052	648	455.2	455.25	0.1
October 2011	9,200	9,934	-734	453.9	454.30	0.4
November 2011	8,600	7,838	762	453.7	453.61	-0.1
December 2011	6,600	6,262	338	452.6	452.49	-0.1
January 2012	9,800	10,378	-578	453.7	453.99	0.3
Febraury 2012	12,300	12,614	-314	454.8	455.25	0.4
March 2012	14,800	15,134	-334	455.8	455.88	0.1
April 2012	18,300	18,330	-30	457.1	457.33	0.2
May 2012	15,900	15,938	-38	456.4	456.63	0.2
June 2012	15,900	15,996	-96	456.4	456.59	0.2
July 2012	14,500	13,087	1,413	456.0	455.72	-0.3
August 2012	12,200	12,104	96	455.2	455.45	0.3
September 2012	13,000	12,147	853	455.2	455.31	0.1
October 2012	8,400	9,037	-637	453.6	453.95	0.3
November 2012	8,500	8,390	110	453.6	NA	NA
December 2012	6,300	6,427	-127	452.6	452.17	-0.4
January 2013	8,300	8,299	1	453.2	453.28	0.04
February 2013	10,600	10,972	-372	454.3	454.63	0.4
March 2013	15,200	15,545	-345	456.0	456.29	0.3
April 2013	17,600	17,090	510	456.9	456.74	-0.1
May 2013	15,800	15,592	208	456.4	456.44	0.0
June 2013	15,700	15,588	112	456.5	456.47	0.0
July 2013	14,400			456.0		

Notes

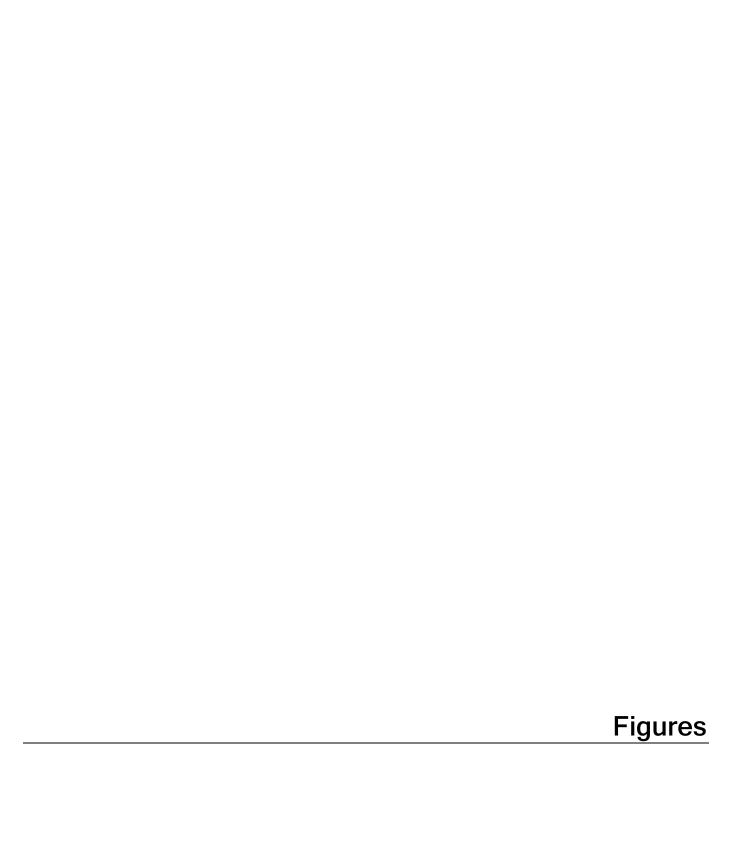
cfs = cubic feet per second; ft amsl = feet above mean sea level.

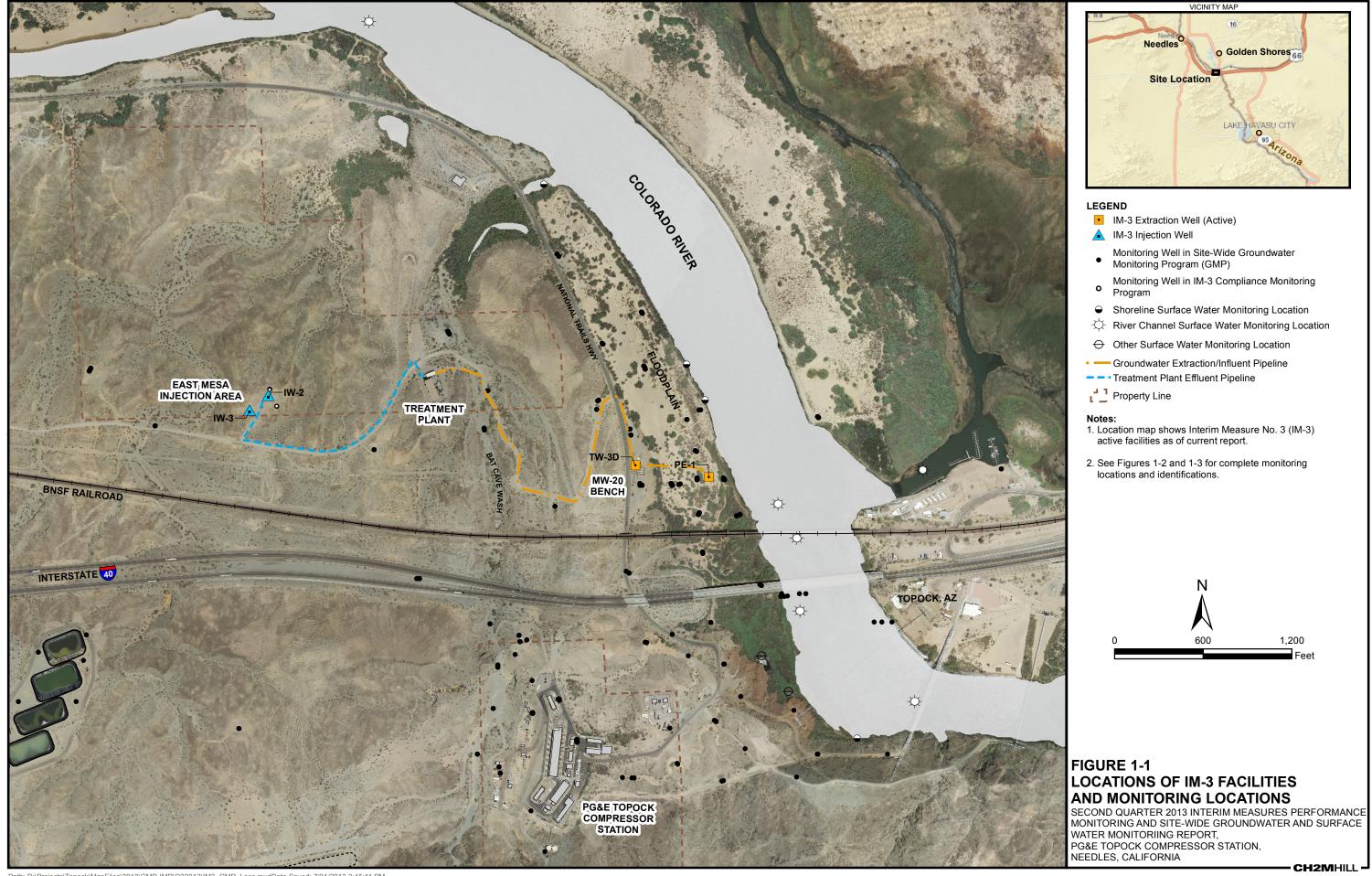
NA = Data unavailable during this time period.

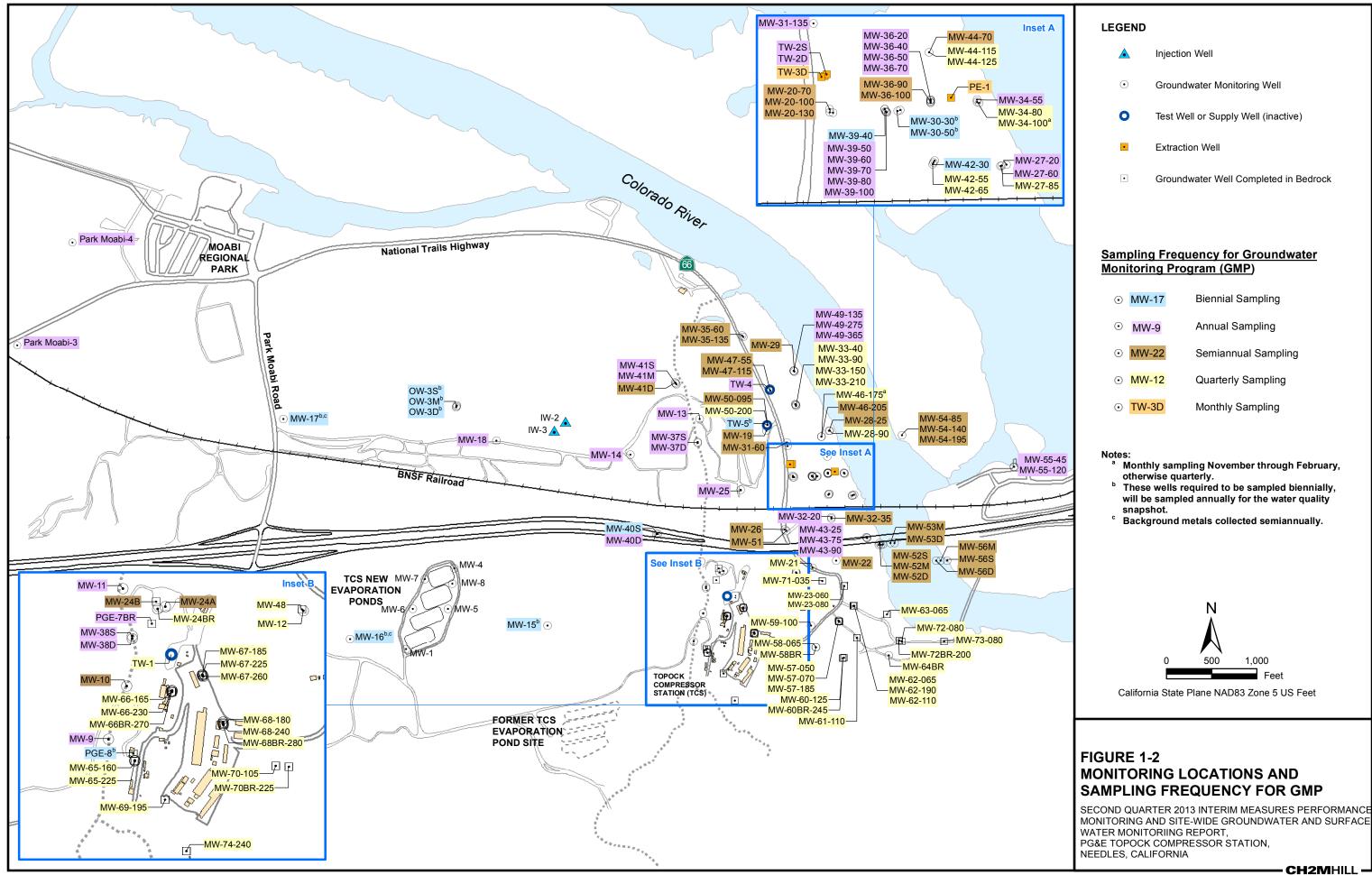
Projected river level for each month in the past is calculated based on the preceding months' U.S. Bureau of Reclamation (USBR) projections of Davis Dam release and stage in Lake Havasu. Future projections of river level at I-3 are based upon July 2013 USBR projections. These data are reported monthly by the U.S. Department of Interior, at http://www.usbr.gov/lc/region/g4000/24mo.pdf.

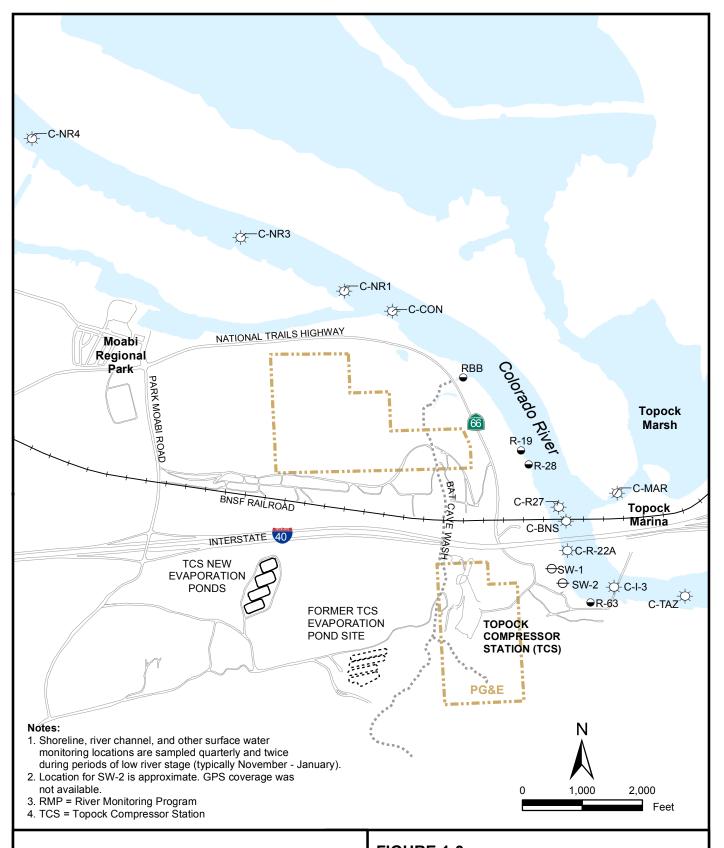
The difference in I-3 elevation is the difference between the I-3 elevation predicted and the actual elevation measured at I-3. The source of this difference is differences between USBR projections and actual dam releases/Havasu reservoir levels, rather than the multiple regression error.

For data prior to 2011, seeFourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California (CH2MHILL, 2013a).







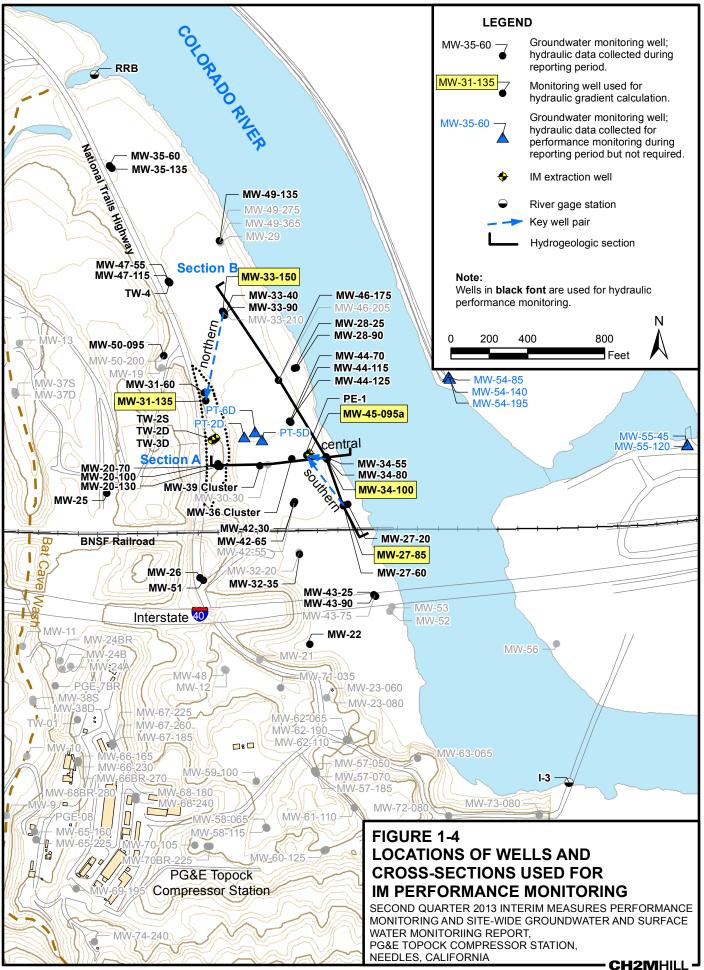


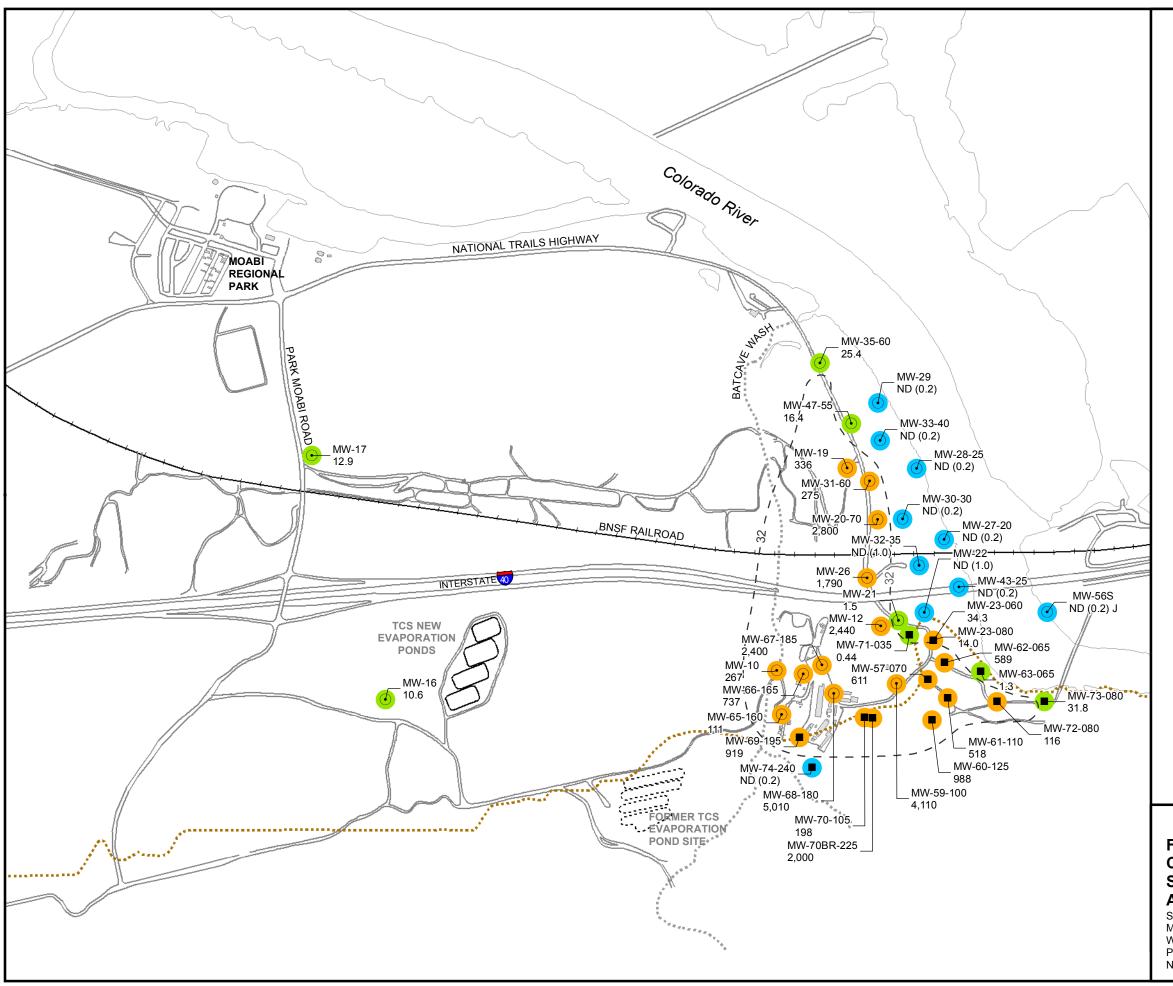
- Shoreline Surface Water Monitoring Location
- River Channel Surface Water Monitoring Location
- Other Surface Water Monitoring Location

FIGURE 1-3 MONITORING LOCATIONS AND SAMPLING FREQUENCY FOR RMP

SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

· CH2MHILL





- Alluvial Aquifer well sampled during sampling event
- Bedrock well sampled during sampling event
- 6.48 Concentration of hexavalent chromium [Cr(VI)] in groundwater, micrograms per liter (μg/L)

Results shown are maximum concentrations in primary and duplicate samples from wells completed in **Shallow zone** of Alluvial Aquifer and Bedrock.

ND (0.2) Cr(VI) not detected at listed reporting limit

Cr(VI) Concentrations - Second Quarter 2013

Not detected at analytical reporting limit

Concentration between reporting limit and 32 µg/L

Concentration ≥ 32 μg/L

Approximate outline of monitoring wells in Alluvial Aquifer and Bedrock with Cr(VI) concentrations ≥ 32 μg/L based on Second Quarter 2013 sampling results.

Approximate bedrock contact at 455 feet above mean sea level.

Notes

- Results plotted are maximum concentration from primary and duplicate samples, see Table 3-1 for complete results.
- Long screened wells and wells screened across more than one depth interval are generally not posted on this map. See Table 3-1 for complete results.

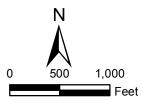
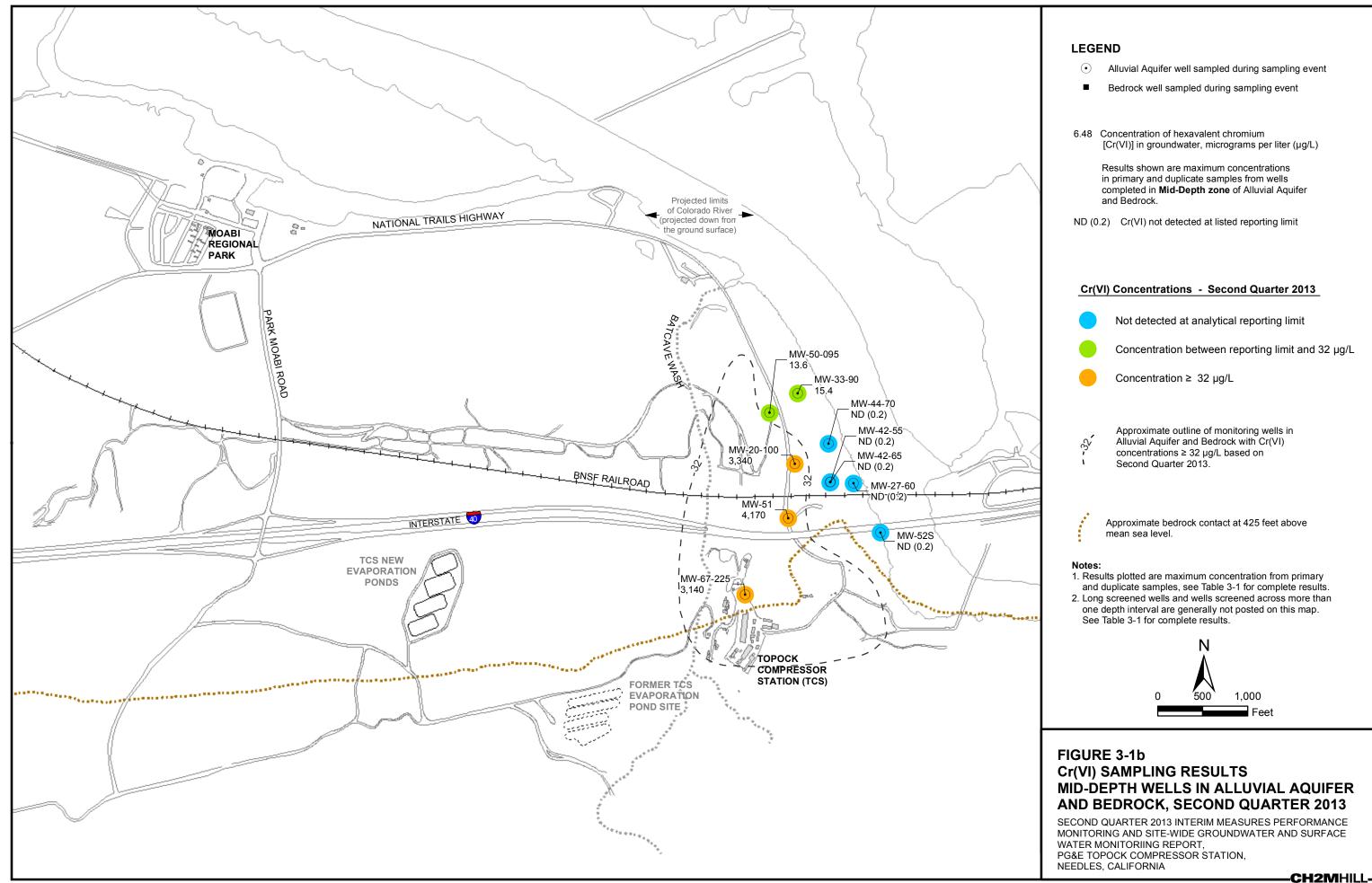
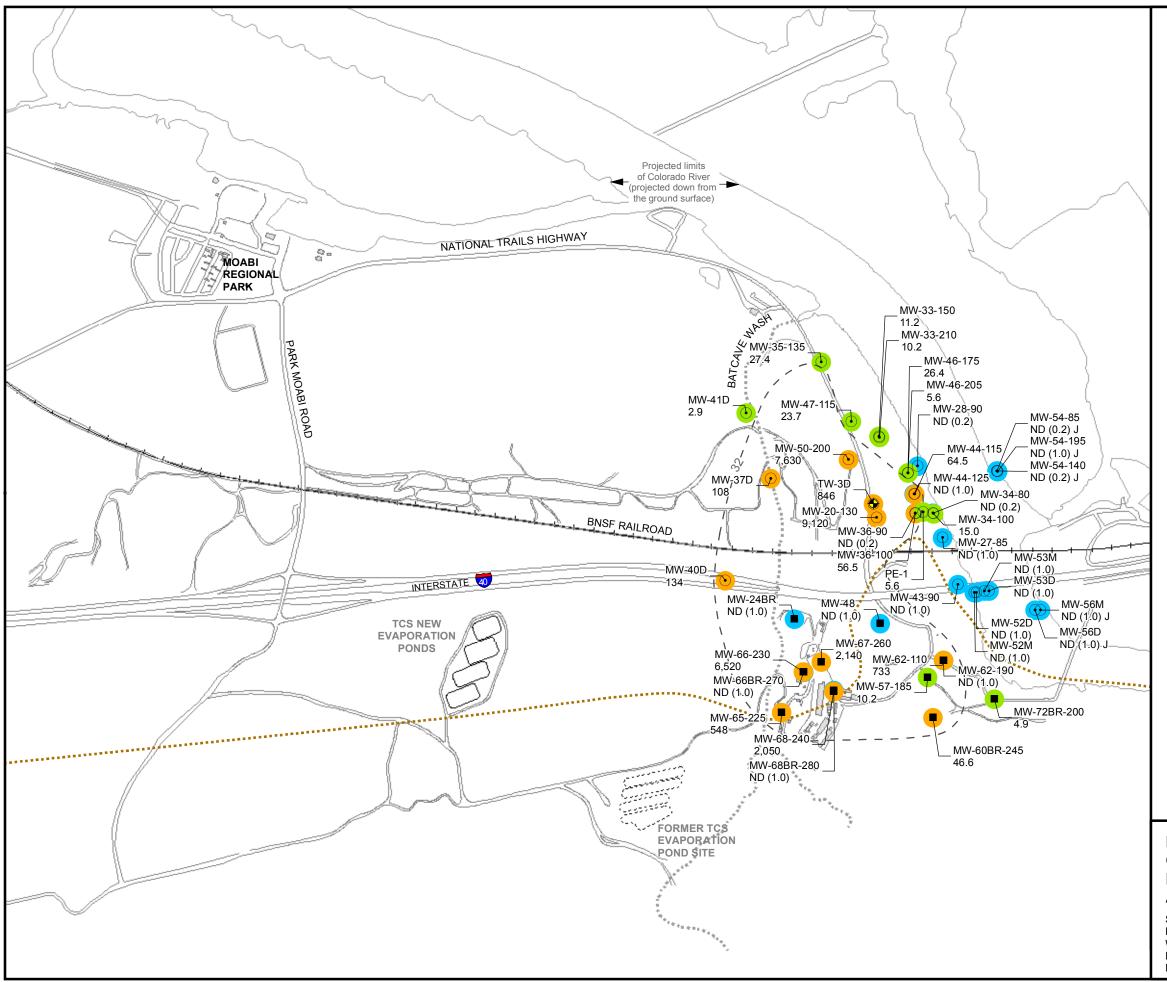


FIGURE 3-1a Cr(VI) SAMPLING RESULTS, SHALLOW WELLS IN ALLUVIAL AQUIFER AND BEDROCK, SECOND QUARTER 2013

SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

· CH2MHILL ·





- Extraction well sampled during sampling event
- Alluvial Aguifer well sampled during sampling event
- Bedrock well sampled during sampling event
- 6.48 Concentration of hexavalent chromium [Cr(VI)] in groundwater, micrograms per liter (µg/L)

Results shown are maximum concentrations in primary and duplicate samples from wells completed in **Deep zone** of Alluvial Aquifer and Bedrock.

ND (0.2) Cr(VI) not detected at listed reporting limit

Cr(VI) Concentrations - Second Quarter 2013

Not detected at analytical reporting limit



Concentration between reporting limit and 32 µg/L



Concentration ≥ 32 µg/L



Approximate outline of monitoring wells in Alluvial Aguifer and Bedrock with Cr(VI) concentrations ≥ 32 µg/L based on Second Quarter 2012.



Approximate bedrock contact at 395 feet above mean sea level.

- 1. Results plotted are maximum concentration from primary and duplicate samples, see Table 3-1 for complete results.
- 2. In the floodplain area, the 32 µg/L line for Cr(VI) in deep zone (80-90 feet below Colorado River) is estimated based on available groundwater sampling, hydrogeologic and geochemical data. There are no data confirming the existence of Cr(VI) under the Colorado River.
- 3. Long screened wells and wells screened across more than one depth interval are generally not posted on this map. See Table 3-1 for complete results.
- 4. TCS = Topock Compressor Station

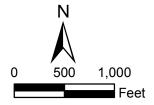
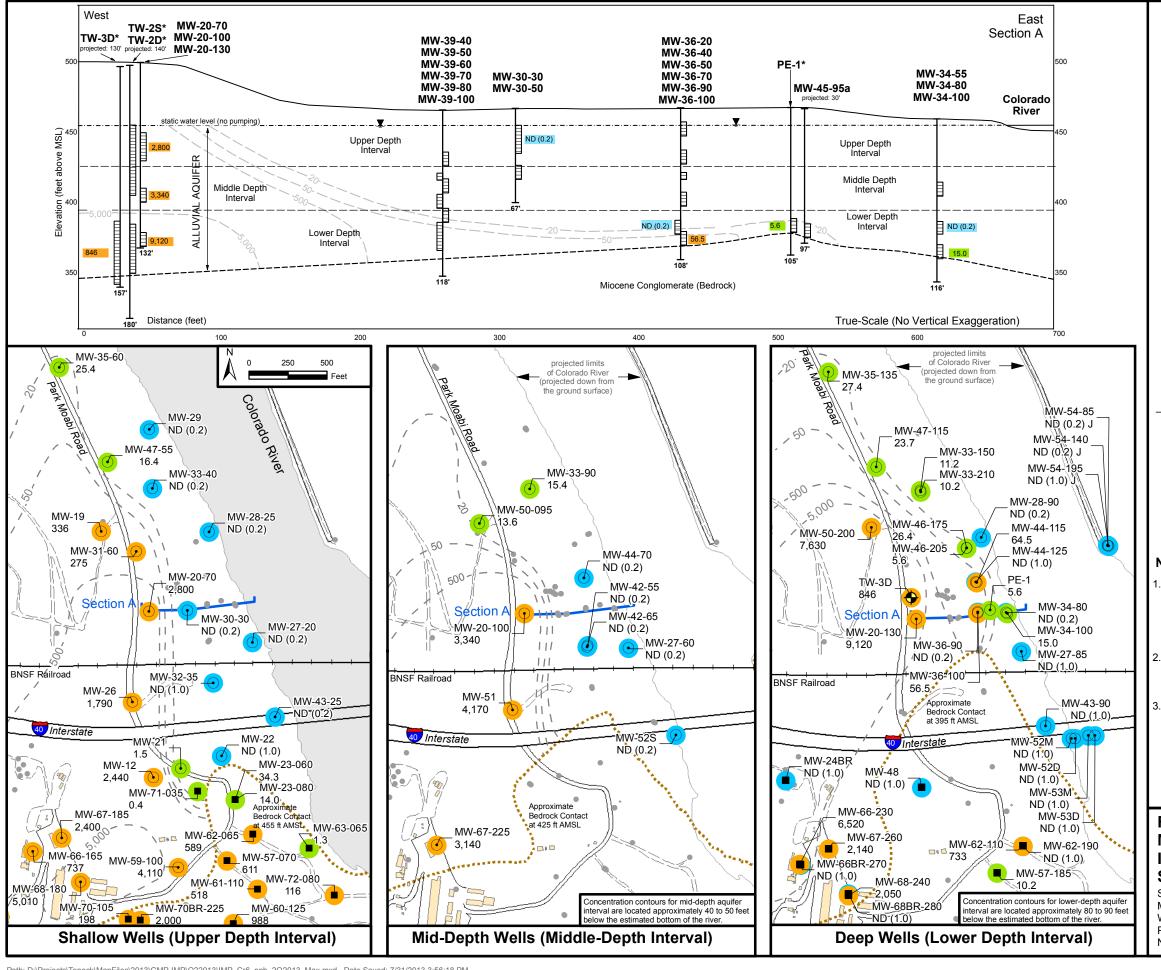


FIGURE 3-1c Cr(VI) SAMPLING RESULTS, **DEEP WELLS IN ALLUVIAL AQUIFER AND BEDROCK, SECOND QUARTER 2013**

SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



- Alluvial Aguifer well sampled during sampling event
- Bedrock well sampled during sampling event
- Extraction well sampled during sampling event
- Well not sampled during sampling event
- 6.48 Concentration of hexavalent chromium [Cr(VI)] in groundwater, micrograms per liter (µg/L).

 Results posted are maximum Cr(VI) concentrations.

ND (0.2) Cr(VI) not detected at listed reporting limit

Cr(VI) Concentrations - Second Quarter 2013

- Not detected at analytical reporting limit
- Concentration between reporting limit and 32 μg/L
- Concentration ≥ 32 μg/L
 - Approximate outline of monitoring wells in

 Alluvial Aquifer with Cr(VI) concentrations

 > 32 µg/L based on Second Quarter 2013
 groundwater sampling results
- Hydrogeologic Section A
 - Approximate bedrock contact

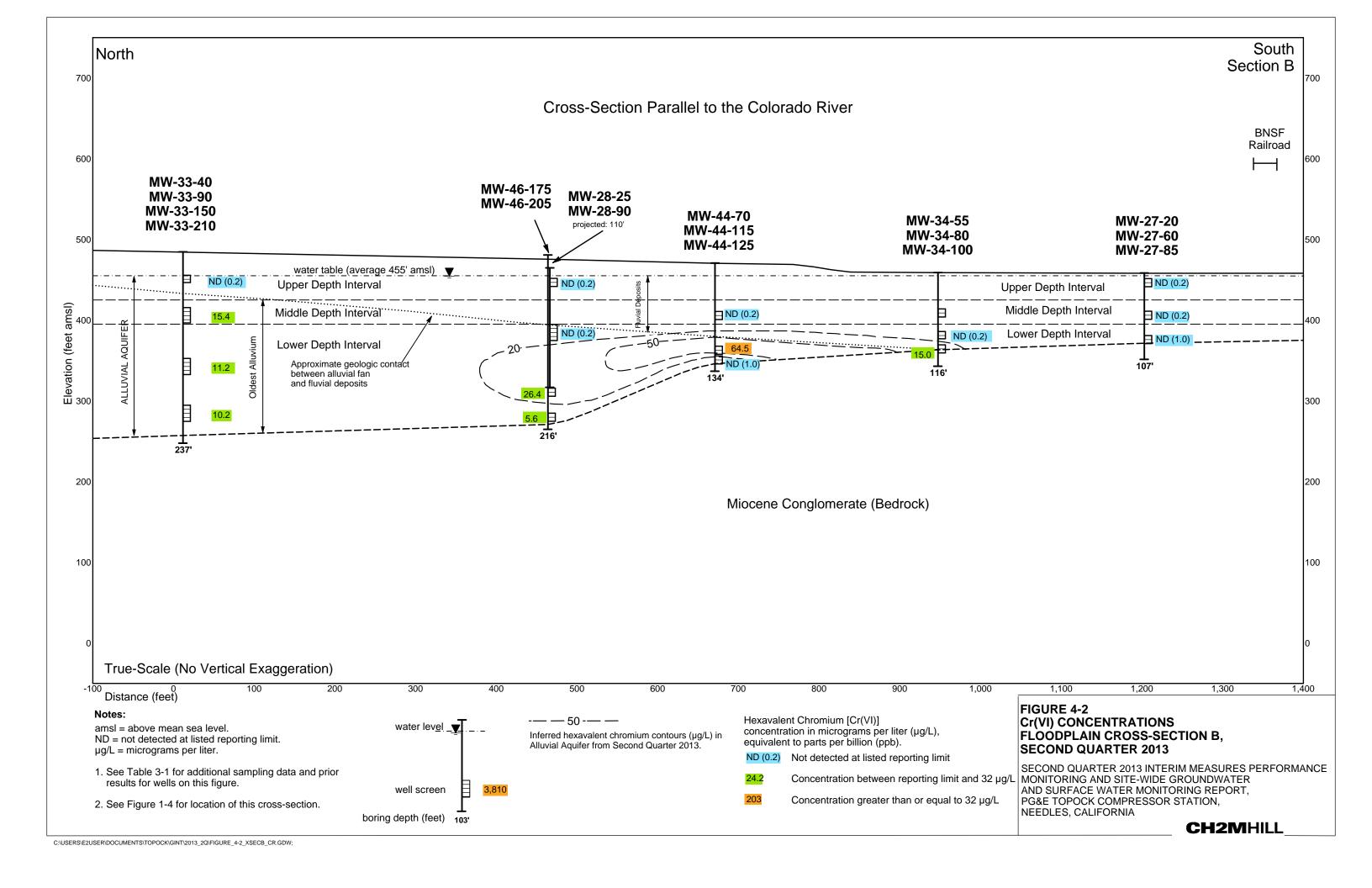
Notes:

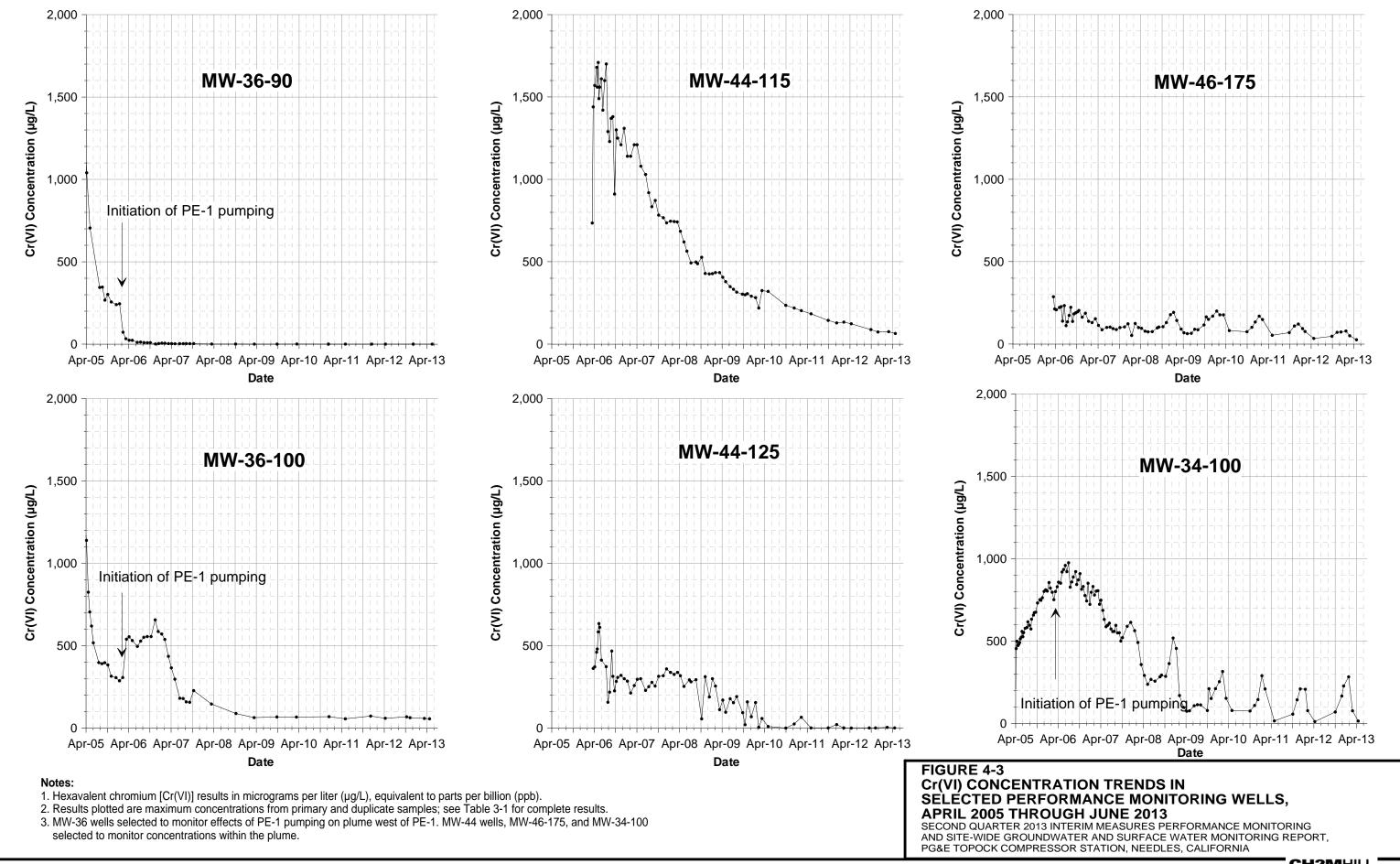
- The Cr(VI) concentration contours of 20 and 50 μg/L are shown in accordance with DTSC's 2005 IM performance monitoring directive. The IM performance standard was established for containment of Cr(VI) concentrations greater than 20 ug/L in the floodplain portion of the Alluvial Aquifer.
- Extraction wells PE-01, TW-2S, TW-2D, and TW-3D are not included in contouring. These wells draw water from a larger area and do not represent Cr(VI) concentrations at their specific locations.
- Long screened wells and wells screened across more than one depth interval are generally not posted on this map. See Table 3-1 for complete results.

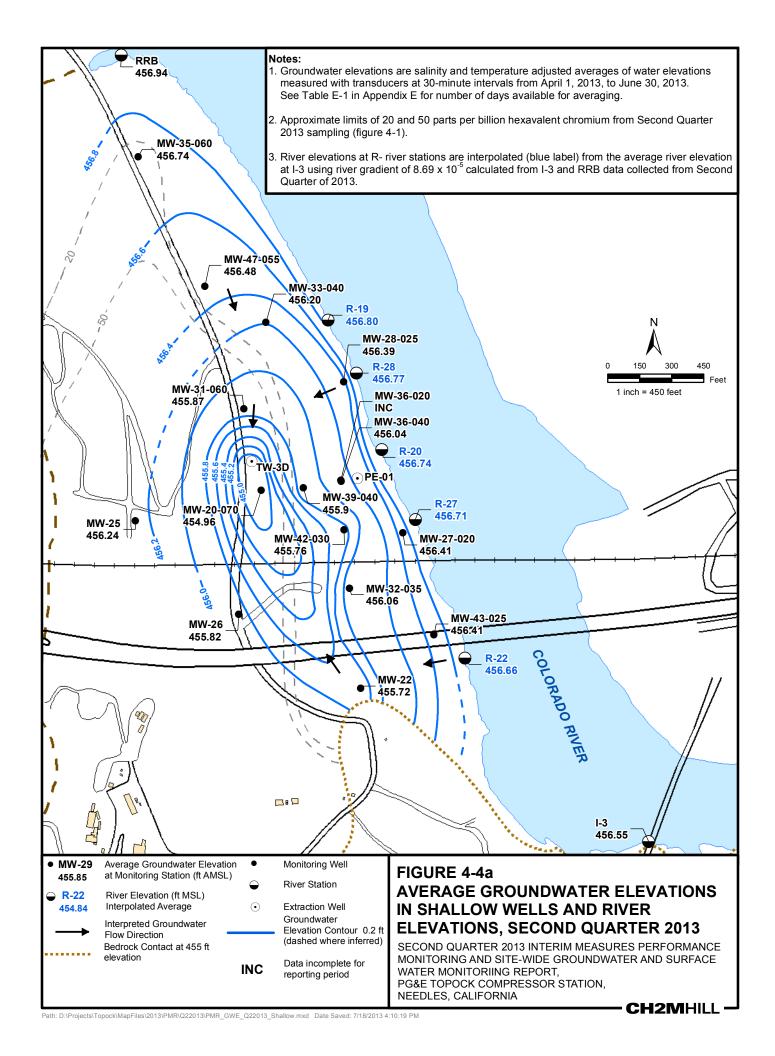
FIGURE 4-1 MAXIMUM Cr(VI) CONCENTRATIONS IN ALLUVIAL AQUIFER AND BEDROCK, SECOND QUARTER 2013

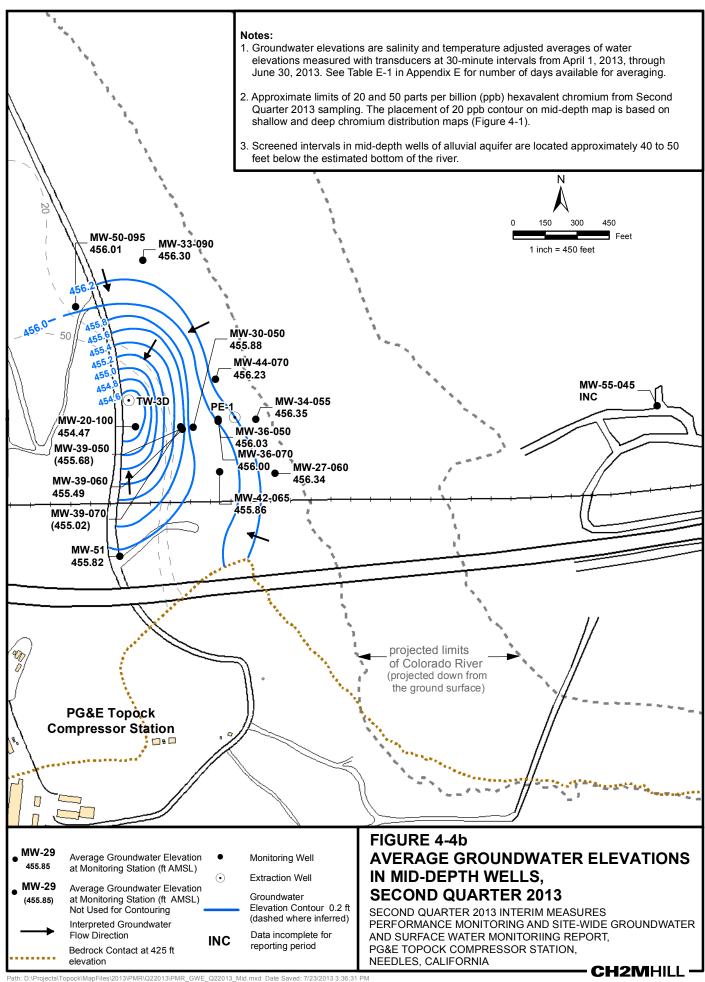
SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

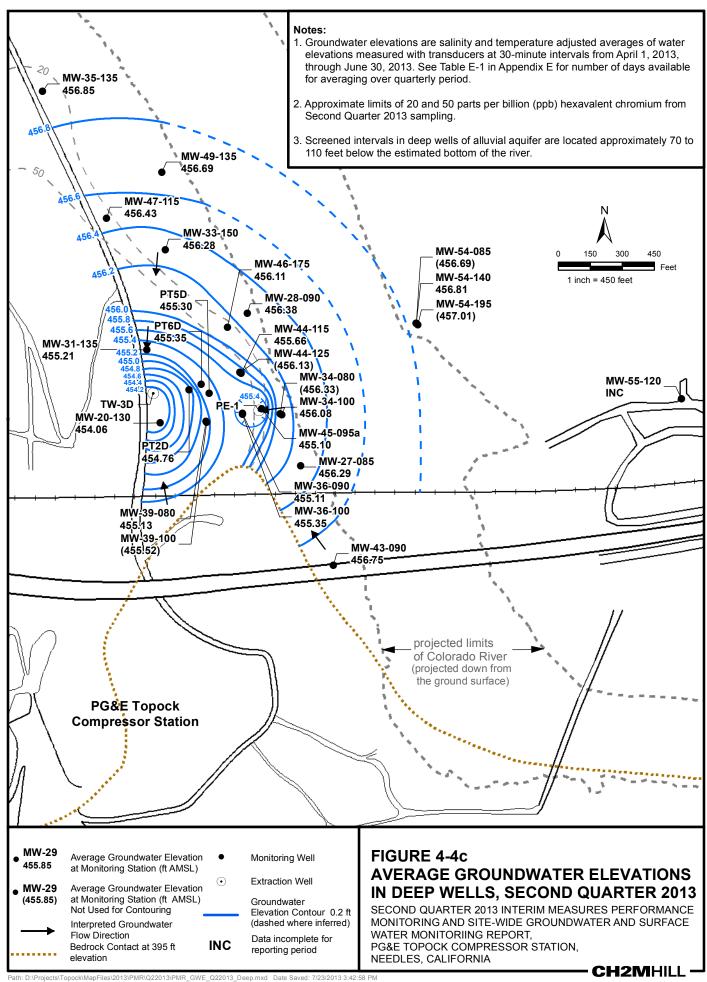
- CH2MHILL -

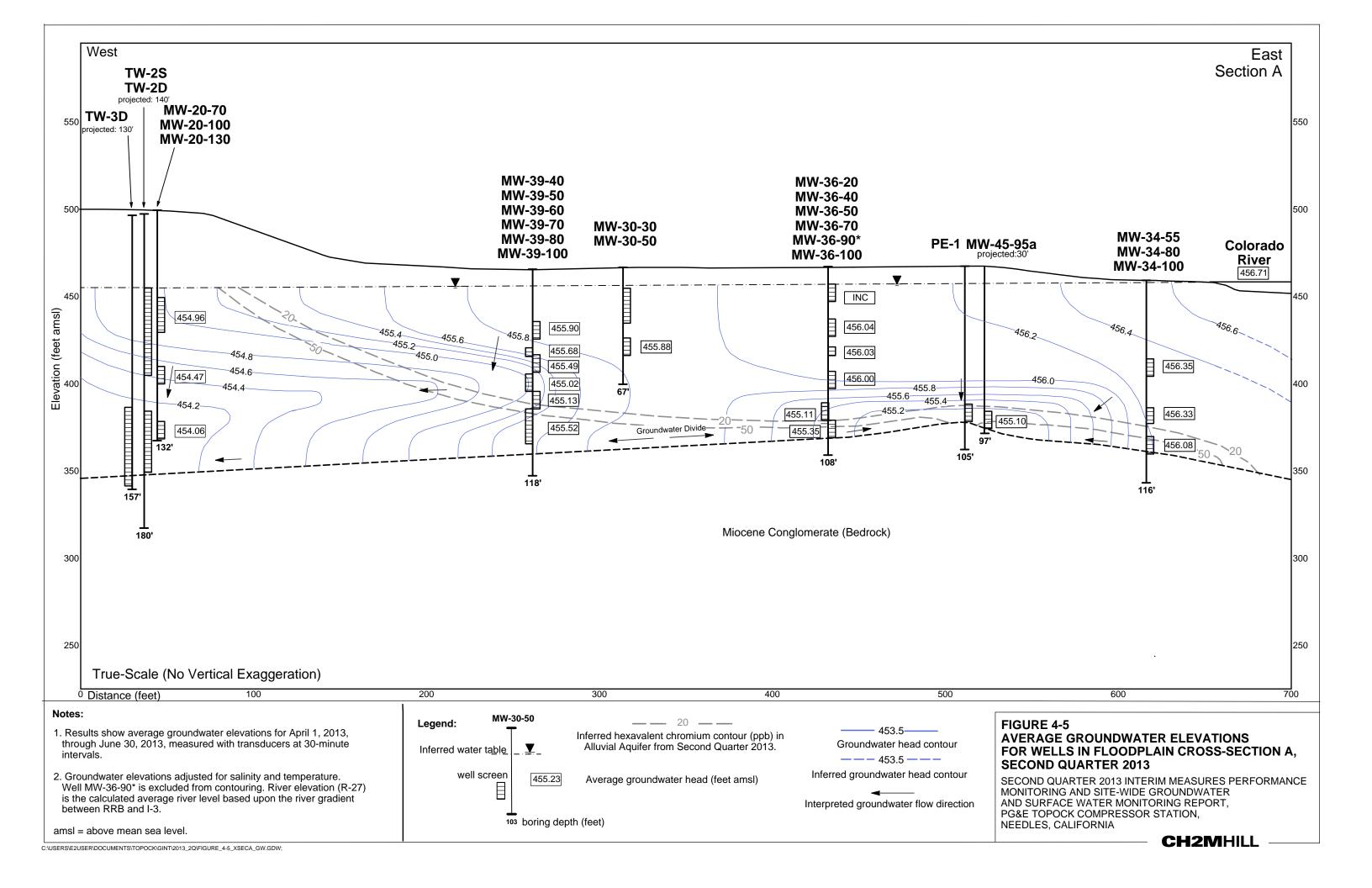


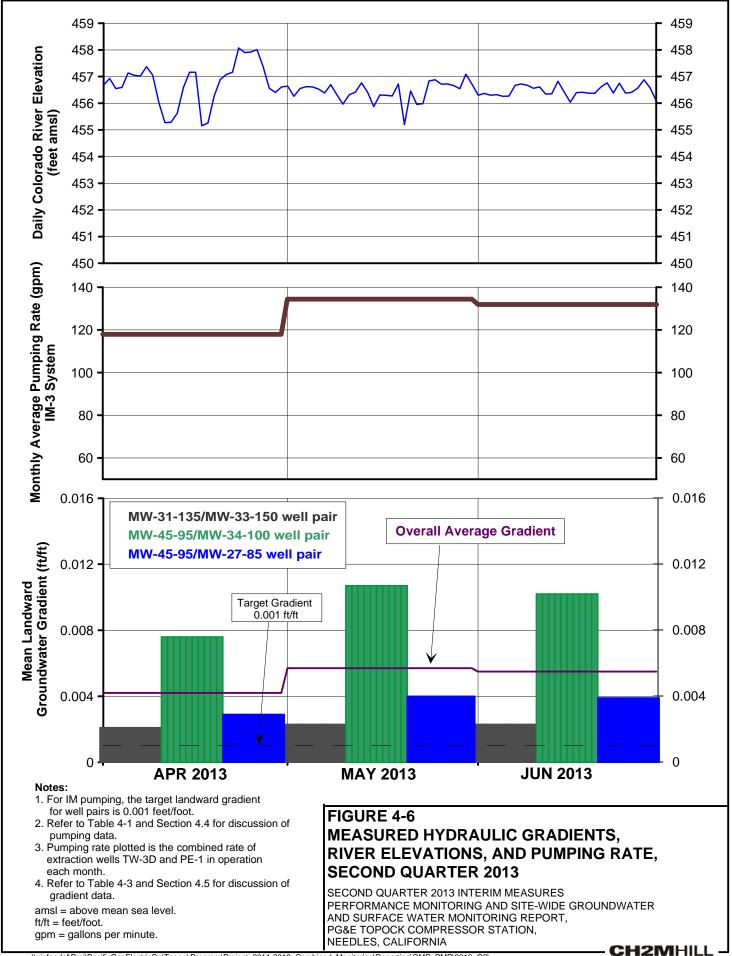


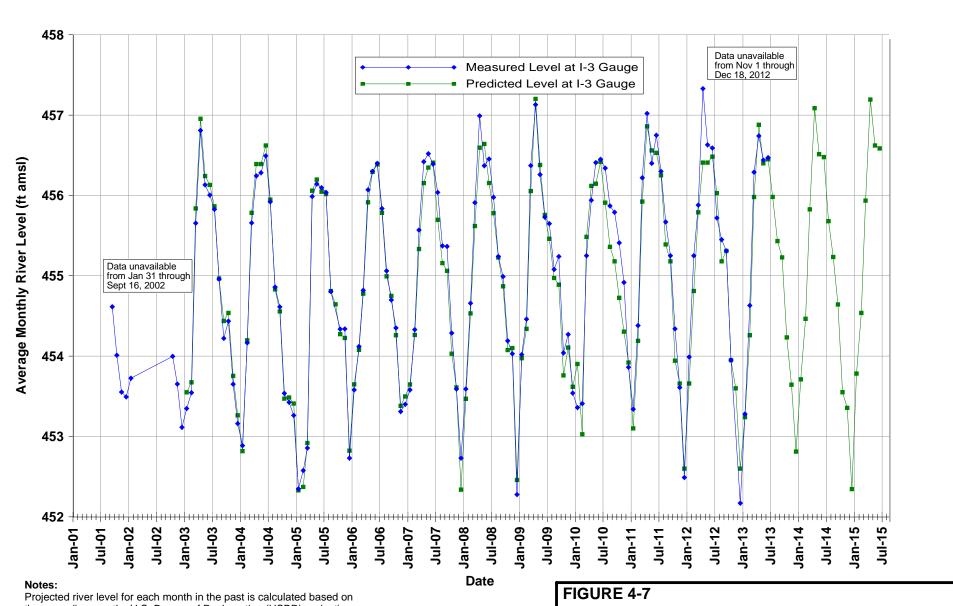












Projected river level for each month in the past is calculated based on the preceding months U.S. Bureau of Reclamation (USBR) projections of Davis Dam release and stage in Lake Havasu. Future projections of river level at I-3 are based upon July 2013 USBR projections. These data are reported monthly by the U.S. Department of Interior at http://www.usbr.gov/lc/region/g4000/24mo.pdf.

amsl = above mean sea level.

FIGURE 4-7 PAST AND PREDICTED FUTURE RIVER LEVELS AT TOPOCK COMPRESSOR STATION

SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

Appendix A Lab Reports, Second Quarter 2013 (Provided on CD-ROM only with hardcopy submittal)

Truesdail Laboratories, Inc.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

April 11, 2013

E2 Consulting Engineers, Inc. Mr. Shawn Duffy 155 Grand Ave., Suite 1000 Oakland, California 94612

Dear Mr. Duffy:

SUBJECT:

REVISED CASE NARRATIVE PG&E TOPOCK IM3PLANT-EW-205, GROUNDWATER

MONITORING PROJECT, TLI NO.: 807142

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-EW-205 groundwatermonitoring project for Total Dissolved and Hexavalent Chromium, Total Dissolved Solids, pH, and Specific Conductivity. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, wet chemistry raw data, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody on April 1, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Samples for Total Dissolved Chromium were analyzed by method EPA 200.8 with the approval of Mr. Shawn Duffy.

Samples for pH analysis by SM 4500-H B were received past the method specified holding time. Mr. Duffy approved the analysis of the samples.

No other violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,

TRUESDAIL LABORATORIES, INC.

L- Mona Nassimi

Manager, Analytical Services

Michael Ngo

Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

Client: E2 Consulting Engineers, Inc. 155 Grand Ave. Suite 1000

Oakland, CA 94612

Attention: Shawn Duffy

Sample: Two (2) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 456827.01.DM

Laboratory No.: 807142 Date: April 11, 2013

Collected: April 1, 2013 Received: April 1, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 4500-H B	рН	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
EPA 200.8	Metals by ICP/MS	Bita Emami
EPA 218.6	Hexavalent Chromium	Tom Martinez
SM 3500-CrB	Hexavalent Chromium	Jenny Tankunakorn



14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Client: E2 Consulting Engineers, Inc. 155 Grand Ave. Suite 1000

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

Project No.: 456827.01.DM **P.O. No.:** 456827.01.DM

Laboratory No.: 807142 Date Received: April 1, 2013

Analytical Results Summary

		Analysis	Extraction		Sample	_			
Lab Sample ID	Field ID	Method	Method	Sample Date	Time	Parameter	Result	Units	RL
807142-001	PE-01-205	E120.1	NONE	4/1/2013	8:00	EC	4540	umhos/cm	2.00
807142-001	PE-01-205	E200.8	LABFLT	4/1/2013	8:00	Chromium	5.6	ug/L	1.0
807142-001	PE-01-205	E218.6	LABFLT	4/1/2013	8:00	Chromium, Hexavalent	5.6	ug/L	0.20
807142-001	PE-01-205	SM2540C	NONE	4/1/2013	8:00	Total Dissolved Solids	2780	mg/L	125
807142-001	PE-01-205	SM4500HB	NONE	4/1/2013	8:00	PH	7.52 J	pН	4.00
807142-002	TW-03D-205	E120.1	NONE	4/1/2013	8:00	EC	8110	umhos/cm	2.00
807142-002	TW-03D-205	E200.8	LABFLT	4/1/2013	8:00	Chromium	766	ug/L	2.0
807142-002	TW-03D-205	SM2540C	NONE	4/1/2013	8:00	Total Dissolved Solids	5140	mg/L	250
807142-002	TW-03D-205	SM3500-CrB	LABFLT	4/1/2013	8:00	Chromium, Hexavalent	836	ug/L	250
807142-002	TW-03D-205	SM4500HB	NONE	4/1/2013	8:00	PH	7.24 J	pН	4.00

ND: Non Detected (below reporting limit)

Note: The following "Significant Figures" rule has been applied to all results: Results below 0.01 will have two (2) significant figures. Result above or equal to 0.01 will have three (3) significant figures. Quality Control data will always have three (3) significant figures.

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

Page 1 of 7

Printed 4/11/2013

14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

Laboratory No. 807142

REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

Project Number: 456827.01.DM P.O. Number: 456827.01.DM

Release Number:

Samples Received on 4/1/2013 9:00:00 PM

		•						
Field ID				Lab ID	Co	llected	Matr	ix
PE-01-205				807142-001	04/01	/2013 08:00	Wat	er
TW-03D-205				807142-002	04/01	/2013 08:00	Wat	er
Specific Conductivity -	EPA 120.1		Batcl	h 04EC13A				
Parameter		Unit	Ana	alyzed	DF	MDL	RL	Result
807142-001 Specific Condu	ctivity	umhos/	cm 04/0	2/2013	1.00	0.116	2.00	4540
807142-002 Specific Conduc	ctivity	umhos/	cm 04/0	2/2013	1.00	0.116	2.00	8110
Method Blank								
Parameter	Unit	DF	Result					
Specific Conductivity	umhos	1.00	ND					
Duplicate							Lab ID =	807142-002
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	nce Range
Specific Conductivity	umhos	1.00	8100	8110		0.123	0 - 10	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince Range
Specific Conductivity	umhos	1.00	690	706		97.7	90 - 110)
MRCCS - Secondary	r sadis							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Specific Conductivity	umhos	1.00	686	706		97.2	90 - 110)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Specific Conductivity	umhos	1.00	960	998		96.2	90 - 110)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

Page 2 of 7 Printed 4/11/2013

Parameter		Unit	Ana	lyzed I	DF_	MDL	RL	Result
807142-001 Chromium, Hex	avalent	ug/L	04/04	/2013 09:43 1	.00	0.00920	0.20	5.6
Method Blank								
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result ND					
Duplicate							Lab ID =	807191-002
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 3.83	Expected 3.86		RPD 0.762	Accepta 0 - 20	ince Range
Low Level Calibration	Verification							
Parameter Chromium, Hexavalent Lab Control Sample	Unit ug/L	DF 1.00	Result 0.183	Expected 0.200		Recovery 91.3	Accepta 70 - 130	ince Range)
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 4.86	Expected 5.00		Recovery 97.3	90 - 110	ince Range) 807142-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 15.6	Expected/Adde 15.6(10.0)	d	Recovery 100.	90 - 110	ince Range) 807191-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 8.56	Expected/Adde 8.86(5.00)	d	Recovery 94.0	90 - 110	ince Range) 807191-002
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 8.54	Expected/Adde 8.86(5.00)	d	Recovery 93.7	90 - 110	ince Range) 807191-003
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 6.02	Expected/Adde 6.29(5.00)	d	Recovery 94.5	90 - 110	ince Range) 807191-004
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 7.09	Expected/Adde 7.36(5.00)	d	Recovery 94.5	90 - 110	nce Range 807191-005
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 8.49	Expected/Adde 8.80(5.00)	d	Recovery 93.9	Accepta 90 - 110	nce Range



Client: E2 Consulting En	gineers, In		roject Name: roject Numbe	PG&E Topock P r: 456827.01.DM	roject	Page 4 of 7 Printed 4/11/2013
MRCVS - Primary						
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.84	Expected 10.0	Recovery 98.4	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.81	Expected 10.0	Recovery 98.1	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.95	Expected 10.0	Recovery 99.5	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 9.77	Expected 10.0	Recovery 97.7	Acceptance Range 95 - 105
Chromium, Hexavalent b	y SM 350	0-Cr B Unit		04CrH13A lyzed D	F MDL	RL Result
807142-002 Chromium, Hexa	valent	ug/L	04/09	/2013 15:48 25	.0 110	250 836
Method Blank						
Parameter Chromium, Hexavalent Duplicate	Unit ug/L	DF 1.00	Result ND			Lab ID = 807142-002
Parameter Chromium, Hexavalent Lab Control Sample	Unit ug/L	DF 25.0	Result 687	Expected 836	RPD 19.6	Acceptance Range 0 - 20
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 94.2	Expected 100	Recovery 94.2	Acceptance Range 90 - 110 Lab ID = 807142-002
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 25.0	Result 3250	Expected/Added 3340(2500)	Recovery 96.5	Acceptance Range 85 - 115
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 94.2	Expected 100	Recovery 94.2	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 59.6	Expected 60.0	Recovery 99.3	Acceptance Range 90 - 110

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

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pH by SM 4500-H B			Batch	04PH13A				
Parameter		Unit	Ana	ılyzed	DF	MDL	RL	Result
807142-001 pH		рН	04/02	2/2013 07:33	1.00	0.0250	4.00	7.52
807142-002 pH		рН	04/02	04/02/2013 07:35 1.00 0.0250		4.00	7.24	
Duplicate							Lab ID =	807142-002
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range
рН	рН	1.00	7.26	7.24		0.276	0 - 20	
Lab Control Sample)							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
рН	рН	1.00	7.01	7.00		100	90 - 110)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
рН	рΗ	1.00	6.98	7.00		99.7	90 - 110)

Total Dissolved Solids	Total Dissolved Solids by SM 2540 C				Batch 04TDS13A					
Parameter		Unit	Ana	llyzed	DF	MDL	RL	Result		
807142-001 Total Dissolve	d Solids	mg/L	04/03	04/03/2013		0.757	125	2780		
807142-002 Total Dissolve	d Solids	mg/L	04/03	3/2013	1.00	0.757	250	5140		
Method Blank										
Parameter	Unit	DF	Result							
Total Dissolved Solids	mg/L	1.00	ND							
Duplicate							Lab ID =	807144-001		
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	nce Range		
Total Dissolved Solids	mg/L	1.00	320	315		1.57	0 - 10			
Duplicate							Lab ID =	807145-012		
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	nce Range		
Total Dissolved Solids	mg/L	1.00	348	342		1.74	0 - 10			
Lab Control Sample	Carlos de									
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range		
Total Dissolved Solids	mg/L	1.00	489	500		97.8	90 - 110)		



Client: E2 Consulting Engineers, Inc.

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Parameter		Unit	Ana	lyzed C	F	MDL	RL	Result
807142-001 Chromium		ug/L	04/04	/2013 12:54 2.	00	0.184	1.0	5.6
807142-002 Chromium		ug/L	04/04	/2013 13:22 10	0.0	0.920	2.0	766
Method Blank								
Parameter	Unit	DF	Result					
Chromium	ug/L	1.00	ND					
Duplicate							Lab ID =	807145-012
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range
Chromium	ug/L	2.00	ND	0		0	0 - 20	
Low Level Calibration	Verification							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	0.190	0.200		95.0	70 - 130)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Chromium	ug/L	2.00	43.7	50.0		87.3	85 - 115	5
Matrix Spike							Lab ID =	807145-012
Parameter	Unit	DF	Result	Expected/Added	ı F	Recovery	Accepta	ince Range
Chromium	ug/L	2.00	42.7	50.0(50.0)		85.4	75 - 125	5
Matrix Spike Duplicate	e /,						Lab ID =	807145-012
Parameter	Unit	DF	Result	Expected/Added	l F	Recovery	Accepta	ince Range
Chromium	ug/L	2.00	42.1	50.0(50.0)		84.2	75 - 125	5
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince Range
Chromium	ug/L	1.00	18.7	20.0		93.5	90 - 110)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ince Range
Chromium	ug/L	1.00	18.8	20.0		93.9	90 - 110)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	R	Recovery	Accepta	nce Range
Chromium	ug/L	1.00	18.6	20.0		93.0	90 - 110)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	R	Recovery	Accepta	nce Range
Chromium	ug/L	1.00	18.6	20.0		93.2	90 - 110)



Client: E2 Consulting Er	gineers, Ind	> .	Project Name: Project Number:	PG&E Topock 456827.01.DN	•	Page 7 of 7 Printed 4/11/2013
Interference Check S	tandard A					
Parameter Chromium Interference Check S	Unit ug/L tandard A	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Parameter Chromium Interference Check S	Unit ug/L tandard AB	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Parameter Chromium Interference Check S	Unit ug/L tandard AB	DF 1.00	Result 20.5	Expected 20.0	Recovery 102	Acceptance Range 80 - 120
Parameter Chromium Serial Dilution	Unit ug/L	DF 1.00	Result 19.6	Expected 20.0	Recovery 97.9	Acceptance Range 80 - 120 Lab ID = 807142-002
Parameter Chromium	Unit ug/L	DF 50.0	Result 813	Expected 766	RPD 5.99	Acceptance Range 0 - 10

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

to,

Mona Nassimi

Manager, Analytical Services



Total Dissolved Solids by SM 2540 C

Calculations

Batch: 04TDS13A Date Analyzed: 4/3/13

Laboratory Number	Sample volume, ml	Initial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL,	Reported Value, ppm	DF
Blank	100	75.4399	75.4400	75.4399	0.0001	No	0.0000	0.0	25.0	ND	11
807136-1	50	51.0519	51.1017	51,1013	0.0004	No	0.0494	988.0	50.0	988.0	1
807136-2	50	50.503	50.5294	50.5294	0.0000	No	0.0264	528.0	50.0	528.0	1
807136-3	50	49.3483	49.3775	49.3772	0.0003	No	0.0289	578.0	50.0	578.0	1
807136-4	50	50.83	50.861	50.8606	0.0004	No	0.0306	612,0	50,0	612.0	1
807141-1	10	51.4585	51.5009	51.5008	0.0001	No	0.0423	4230.0	250.0	4230.0	1
807141-2	10	51.8809	51.9229	51.9229	0.0000	No	0.0420	4200.0	250.0	4200.0	1
807141-3	2	51.8552	51.9161	51.9161	0.0000	No	0.0609	30450.0	1250.0	30450.0	. 1
807142-1	20	51.4288	51.4844	51.4844	0.0000	No	0.0556	2780.0	125.0	2780.0	1
807142-2	10	50.5572	50.6087	50.6086	0.0001	No	0.0514	5140.0	250.0	5140.0	1
807144-1	100	75.2770	75.3085	75.3085	0.0000	No	0.0315	315.0	25.0	315.0	1
807144-1D	100	78.3689	78.4013	78.4009	0.0004	No	0.0320	320.0	25.0	320.0	1
LCS	100	74.6691	74.718	74.718	0.0000	No	0.0489	489.0	25.0	489.0	1
807145-3	50	46.9796	47.0555	47.0555	0.0000	No	0.0759	1518.0	50.0	1518.0	1
807145-4	50	50.6959	50.7812	50.7812	0.0000	No	0.0853	1706.0	50.0	1706.0	11
807145-5	50	51.8810	52.0201	52.0201	0.0000	No	0.1391	2782.0	50.0	2782.0	1
807145-6	50	47,7614	47.8065	47.8062	0,0003	No	0.0448	896.0	50.0	896.0	1
807145-7	50	49.1798	49.2254	49.225	0.0004	No	0.0452	904.0	50.0	904.0	1
807145-8	50	49.4983	49.5549	49.5549	0.0000	No	0.0566	1132.0	50.0	1132.0	1_
807145-9	100	75.2727	75.3011	75.3009	0.0002	No	0.0282	282.0	25.0	282.0	1
807145-10	100	73.5910	73.6187	73.6184	0.0003	No	0.0274	274.0	25.0	274.0	11
807145-11	100	77.7796	77.8138	77.8134	0.0004	No	0.0338	338.0	25.0	338.0	1
807145-12	100	66.9068	66,9413	66.941	0.0003	No	0.0342	342.0	25.0	342.0	1
807145-12D	100	73.4420	73.4769	73.4768	0.0001	No	0.0348	348.0	25.0	348.0	1

Calculation as follows:

Filterable residue (TDS), mg/L =

Where:

A = weight of dish + residue in grams. B = weight of dish in grams. C = mL of sample filtered.

$$\left(\frac{A-B}{C}\right) \times 10^6$$

RL= reporting limit.
ND = not detected (below the reporting limit)

Laboratory Control Sample (LCS) Summary

QC Std	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?	
LCS1	489	500	97.8%	90-110%	Yes	
LCSD						

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
807144-1	0.0315	0.032	0.8%	≤5%	Yes
807145-12	0.0342	0.0348	0.9%	5%	Yes

$$P = \left(\frac{LC}{LT}\right) \times 10^{6}$$

LCS Recovery

P = Percent recovery.

LC= Measured LCS value (ppm). LT = Theoretical LCS value (ppm).

Duplicate Determination Difference

A = Weght of the first sample in (g).

B = Weght of the second sample in (g).

C = Average weight in (g).

Maksim G.

Reviewer Printed Name

Jenny T.

Analyst Printed Name

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 04TDS13A

Date Analyzed: 4/3/13

Laboratory Number	EC	TDS/EC Ratio: 0.559	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
807136-1	1728	0.57	1123,2	0,88
807136-2	903	0.58	586.95	0.90
807136-3	923	0.63	599.95	0.96
807136-4	1015	0.60	659.75	0.93
807141-1	6920	0.61	4498	0.94
807141-2	7380	0.57	4797	0.88
807141-3	41700	0.73	27105	1.12
807142-1	4540	0.61	2951	0.94
807142-2	8110	0.63	5271.5	0.98
807144-1	484	0.65	314.6	1.00
807144-1D	484	0.66	314.6	1.02
LCS				
807145-3	2140	0.71	1391	1.09
807145-4	2400	0.71	1560	1.09
807145-5	3860	0.72	2509	1.11
807145-6	1340	0.67	871	1.03
807145-7	1340	0.67	871	1.04
807145-8	1610	0.70	1046.5	1.08
807145-9	442	0.64	287.3	0.98
807145-10	438	0.63	284.7	0.96
807145-11	510	0.66	331.5	1.02
807145-12	506	0.68	328.9	1.04
807145-12D	506	0.69	328.9	1.06



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TRUESDAIL LABORATORIES, INC. 14201 Franklin Avenue, Tustin, CA 92780-7008 (714)730-6239 FAX: (714) 730-6462 www.truesdail.com **CHAIN OF CUSTODY RECORD**

[IM3Plant-EW-205]	20	7	4	
		M.	M	A

TURNAROUND TIME 10 Days

DATE 04/01/13 PAGE 1 OF 1

)	9 9	F		7								****
COMPANY	CH2M HILL /E2				Ī		$\overline{}$	$\overline{}$	$\overline{}$	$\overline{}$	$\overline{}$	/	7	7	1	$\overline{}$	7	7	$\overline{}$		<u></u>	7	COMMENTS	
PROJECT NAME	PG&E Topock I	M3Plant-EV	٧															/ 			/ /	,	COMINCHIS	
PHONE	530-229-33	303	FAX 53	0-339-3303_		/	, ,ere	/ /	/ /	/ ,	/ /	/	/ , ,	/ /	/	/ _ ,	/ /		/ /	/ /				
ADDRESS	155 Grand Ave	Ste 1000					ab fil						1			/		/		ROF CONTAINED				
	Oakland, CA 94	1612				/2/	š/_						1			/	1	1	/	TE.	/			
P.O. NUMBER	456827.01.DM				,	/80/	(خ)		/ /	/_/	/ /	7	/ /	/ /	/ /	/ /	/ /	/ /	/ /					
SAMPLERS (SIGNA	ATURE				Sou.	Dog C	DH (15.	70S (120.1) EC (120.1)	Cr(V)) (3	7/278,6								/	NUMBES	10 X 37				
SAMPLE I.D.		DATE	TIME	DESCRIPTION	13	\\display{\begin{align*} \begin{align*} alig	Ha H	[B	\\ <u>\</u>						/		/_/	/	\ <u>\{\times}{\times}\</u>					
PE-01-205		04/01/13	800	Ground water	x		Х	Х	Х										4	. (6 %	11 -	- 7	
TW-03D-2	05	04/01/13	800	Ground water	Х	Х	Х	х											4			7/2	(7.00.7	
																				~	<i>V</i>		,	
						espessed to	a P	appanentielle appa given			ece es en es estatos													
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						e,	10	demonstration (magazinate)		Q	C									***************************************				***************************************
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																			8	тот,	AL NUME	3ER OF	CONTAINER	s
																		•						

C	HAIN OF CUSTODY SI	SAMPLE CONDITIONS			
Signature (Relinquished)	Printed Ryan Philys	Company/ Agency CH2 M	Date/ リー1-13 Time 15:15	RECEIVED COOL Ø WARM □ 3,4 °€	
Signature (Received)	Printed Hipolife	Company/ Agency	Date/ 4-1-13 Time /5:/5	CUSTODY SEALED YES NO T	
Signature (Relinquished)	Printed Name Hi folito	Company/ Agency	Date/ 4-(2)	SPECIAL REQUIREMENTS:	
Signature (Received)	Printed Shale 4 nor	Company/ / / Z _] «Agency / Z _]	Date/ 4/1//3	0	
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time		
Signature (Received)	Printed Name	Company/ Agency	Date/ Time		

044

Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Numbe	er Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
3/18/13	806910-	5 9.5	MIA	NA	NIA	gr,
)
	-7					
	-8			-	ļ .	<i> </i>
	-9	'			/	
	-10					
	-//					
	-12	-		1	1	
3/18/19	806921_	7.0	2ml/100ml	9.5	16:00	1B
V	J2	1)	Ų	/	V
03/19/13	306943-	7	2ml/100 ml	9.3	16:30	1-1 AV
1,	11 -2	1	4	1	16:40	_1
03/20/13	806965-1	7	2ml / 100ml	9.5	9:45	RB
1	806966-1	9.5	НА	NIA	NIG	RM
	-2					
	1-3	b				
03/20/13	8069677	7.	2m/100ml	9.5	(6100	Riz
	807046	7.0	2ml/100ml	9.5	16:45	TM
3/21/13	887068	7.0	2011/100ml	9,5	8:50	724
03/27/13	806670-1	7.0	2ml/100ml	9.5	9:30	m
04/02/13	807141-1	7.0	2 ml/100 ml	9.5	7:25	724
	- 2					
	J -3					
04/02/13	807/42-1	7.0	2 ml/100 ml	9.5	7:30	Try
↓	1 -2					1
04/2/13	807144-1	9,5	NIA	NIA	A	Try
	<u> </u>		<u> </u>	<u> </u>	<u> </u>	J
04/02/13	807/45-1	9,5	NA	MA	WA.	7m
	-2					
	-1					4
	1 -4					





	·			Turbio	dity/pH C	heck			
	Sample Number	Turbidity	pН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
	807023-1	۷1	42	3/25/13	n	ges			
	807025 -	41	72	L	T	yes	1250		
	207038 (1-4)	<1	72	3-25-13	BI	No	9 .c. AM		
	807065	41	72	3/26/13	w	NO	17:00	4-1-13	PH < 2
	807042	i	42	1	<u> </u>	yes			
	807043		1						
	807052	1	1	1					
	20.7088	Ϋ́	72	3-27-13	BE	メヒら	8 m AM		
	307075	> 1	ć 2	L L	pe	yes			
	150508	21	>2	1	or	yer No	12:40	4-1-13	PH<1
	807085	٤١	72	į į	pr	yes.	15:50		
	807083(10-12)	۷)_	72	ů _	4	NO	18:00	04-01	PH<2
	S07100(1-7)	<1	₹2.	3-85 -13	BE	ye 5		t	
	8070 99(1-5)			3-28-13					
	807/06(1-3)	31	プ ユ	3-29-13	_ \dagger .	Wo	8 100AM	u_1	PH < 2
	307110(F5)	< 1	۷ ک	4-1-13	BE	Xes			
	30 7137L1-204)		72	4-2-13		No	7:30AM		
	807136 (1-4)			6		L	7:3 AM	-	
	303117	41	42.	4/2/13	Eς	yes			
	403138								
	807139	L	Ţ	1	7	L			,
	89 7141 (1-3)	17		4-2-13	BV	x 47.	,		
	80 7/42(1-2)		72						
	807144 (D9T)	(1	<2						
	80714511-12	<1	< 2						
Τ	80714569-127			1					
	807147 (1-51			}					
	807450	72							
	807151								
	807152								
	807153							-	
	807154				_ { _				
	807155		<u> </u>	1010	<u> </u>	11.00			<u></u>
	807191(1-9)	21	<u> </u>	4/3/13	ES	yes	-		
	807218(1-9)	71	٧٠	4-4-13	BE	x 45			Acidi film
-	80721511-14		- , ,		-		<u> </u>		Metal sample
ĺ	807214 (1-10)	<1	人2	<u> </u>	<u></u>	\	1:42		
}	807 165(16,23)	41	72	414/13	ES	NO	4:00		
-	807188			1					
.]	(07208(10-12)				_ [
}	807722 (1-3)	1 -	74		7	11-01	-V-		
-	807209-4		Z2			y-es			
-	807216								
	80 1211-4	<u> </u>	4			<u> </u>			

- Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
 All Total Recoverable Analytes must be pH adjusted and digested.
 Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

Sample Integrity & Analysis Discrepancy Form

C	lient: <u>F2</u>	Lab # 8 0 7 1 4
D	ate Delivered: 4 / 0/ / 13 Time: 2/.′00 By: □Mail 🗵	Field Service
1.	Was a Chain of Custody received and signed?	Yes ONO ON/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ÆN/A
3.	Are there any special requirements or notes on the COC?	□Yes □No ØN/A
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No ØN/A
5.	Were all requested analyses understood and acceptable?	ØYes □No □N/A
6.	Were samples received in a chilled condition? Temperature (if yes)? $\frac{3}{1}$ °C	∕ÁYes □No □N/A
7 .	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	ØYes □No □N/A
8.	Were sample custody seals intact?	□Yes □No ÓN/A
9.	Does the number of samples received agree with COC?	Jes □No □N/A
10.	Did sample labels correspond with the client ID's?	QYes □No □N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: Truesdail Client	☐Yes ☐No ☐N/A
2	Were samples pH checked? pH = Sel C. O. C.	ØYes □No □N/A
3.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	ØYes □No □N/A
L esestron	Have Project due dates been checked and accepted? Turn Around Time (TAT): □ RUSH 五 Std	Yes DNo DN/A
.	Sample Matrix: DLiquid Drinking Water Ground W	Vater Waste Water
	□Sludge □Soil □Wipe □Paint □Solid □C	Other O
•	Comments:	
•	Sample Check-In completed by Truesdail Log-In/Receiving:	L. Suaberein

Established 1931



14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

April 30, 2013

E2 Consulting Engineers, Inc. Mr. Shawn Duffy 155 Grand Ave., Suite 1000 Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2013-GMP-192-Q2, GROUNDWATER MONITORING

PROJECT, TLI No.: 807486

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-192-Q2 groundwater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody April 16, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

No violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,

TRUESDAIL LABORATORIES, INC.

, Mona Nassimi

Manager, Analytical Services

Allichael It

Michael Ngo

Quality Assurance/Quality Control Officer



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14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Laboratory No.: 807486

Date Received: April 16, 2013

Client: E2 Consulting Engineers, Inc. 155 Grand Ave. Suite 1000

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project Project No.: 423575.MP.07.TS P.O. No.: 423575.MP.07.TS

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807486-001	MW-121-192	E218.6	FLDFLT	4/15/2013	7:10	Chromium, Hexavalent	ND	ug/L	1.0
807486-001	MW-121-192	SW6020	FLDFLT	4/15/2013	7:10	Chromium	ND	ug/L	1.0
807486-002	MW-122-192	E218.6	FLDFLT	4/15/2013	17:15	Chromium, Hexavalent	ND	ug/L	0.20
807486-002	MW-122-192	SW6020	FLDFLT	4/15/2013	17:15	Chromium	ND	ug/L	1.0
807486-003	MW-200-192	E218.6	FLDFLT	4/15/2013	14:40	Chromium, Hexavalent	ND	ug/L	0.20
807486-004	MW-201-192	E218.6	FLDFLT	4/15/2013	16:00	Chromium, Hexavalent	ND	ug/L	0.20
807486-005	MW-27-020-192	E218.6	FLDFLT	4/15/2013	11:20	Chromium, Hexavalent	ND	ug/L	0.20
807486-005	MW-27-020-192	SW6020	FLDFLT	4/15/2013	11:20	Chromium	ND	ug/L	1.0
807486-006	MW-27-060-192	E218.6	FLDFLT	4/15/2013	12:41	Chromium, Hexavalent	ND	ug/L	0.20
807486-006	MW-27-060-192	SW6020	FLDFLT	4/15/2013	12:41	Chromium	ND	ug/L	1.0
807486-007	MW-27-085-192	E218.6	FLDFLT	4/15/2013	13:52	Chromium, Hexavalent	ND	ug/L	1.0
807486-007	MW-27-085-192	SW6020	FLDFLT	4/15/2013	13:52	Chromium	ND	ug/L	1.0
807486-008	MW-30-030-192	E218.6	FLDFLT	4/15/2013	15:27	Chromium, Hexavalent	ND	ug/L	0.20
807486-008	MW-30-030-192	SW6020	FLDFLT	4/15/2013	15:27	Chromium	ND	ug/L	1.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

Note: The following "Significant Figures" rule has been applied to all results:

Results below 0.01ppm will have two (2) significant figures.

Result above or equal to 0.01ppm will have three (3) significant figures.

Quality Control data will always have three (3) significant figures.

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



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Page 1 of 11

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Printed 4/30/2013

Water

Water

Water

Laboratory No. 807486

REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project Project Number: 423575.MP.07.TS P.O. Number: 423575.MP.07.TS

Release Number:

Field ID MW-121-192 MW-122-192 MW-200-192 MW-201-192 MW-27-020-192 MW-27-060-192

MW-27-085-192

MW-30-030-192

Samples Received on 4/16/2013 9:30:00 PM

 	•••		
Lab ID	Collected	Matrix	
807486-001	04/15/2013 07:10	Water	
807486-002	04/15/2013 17:15	Water	
807486-003	04/15/2013 14:40	Water	
807486-004	04/15/2013 16:00	Water	
807486-005	04/15/2013 11:20	Water	

04/15/2013 12:41

04/15/2013 13:52

04/15/2013 15:27

807486-006

807486-007

807486-008

Chrome VI by EPA 218.6		Batch 04CrH13R				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
807486-002 Chromium, Hexavalent	ug/L	04/22/2013 15:28	1.00	0.00920	0.20	ND
807486-003 Chromium, Hexavalent	ug/L	04/22/2013 14:25	1.00	0.00920	0.20	ND
807486-004 Chromium, Hexavalent	ug/L	04/22/2013 14:36	1.00	0.00920	0.20	ND
807486-005 Chromium, Hexavalent	ug/L	04/22/2013 14:46	1.00	0.00920	0.20	ND
807486-006 Chromium, Hexavalent	ug/L	04/22/2013 14:57	1.00	0.00920	0.20	ND
807486-008 Chromium, Hexavalent	ug/L	04/22/2013 16:09	1.00	0.00920	0.20	ND

Method Blank						
Parameter	Unit	DF	Result			
Chromium, Hexavalent	ug/L	1.00	ND			
Duplicate						Lab ID = 807451-006
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.70	5.69	0.200	0 - 20
Low Level Calibration	Verification	r distribution				
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.199	0.200	99.4	70 - 130

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without authorization from Truesdail Laboratories.



Client: E2 Consulting En	gineers, Inc		roject Name: roject Number	PG&E Topock Pro : 423575.MP.07.TS	•	Page 2 of 11 Printed 4/30/2013
Lab Control Sample						
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 4.83	Expected 5.00	Recovery 96.6	Acceptance Range 90 - 110 Lab ID = 807449-003
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 5.93	Expected/Added 6.09(5.00)	Recovery 96.8	Acceptance Range 90 - 110
Matrix Spike Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 8.80	Expected/Added 9.00(5.00)	Recovery 96.1	Lab ID = 807451-001 Acceptance Range 90 - 110 Lab ID = 807451-002
Matrix Spike Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 9.54	Expected/Added 9.64(5.00)	Recovery 98.1	Acceptance Range 90 - 110 Lab ID = 807451-003
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 17.8	Expected/Added 18.1(10.0)	Recovery 96.8	Acceptance Range 90 - 110 Lab ID = 807451-006
Matrix Spike Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 15.5	Expected/Added 15.7(10.0)	Recovery 97.7	Acceptance Range 90 - 110 Lab ID = 807451-009
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.997	Expected/Added 1.00(1.00)	Recovery 99.7	Acceptance Range 90 - 110 Lab ID = 807486-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.992	Expected/Added 1.00(1.00)	Recovery 99.2	Acceptance Range 90 - 110 Lab ID = 807486-002
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.00	Expected/Added 1.02(1.00)	Recovery 98.2	Acceptance Range 90 - 110 Lab ID = 807486-003
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.986	Expected/Added 1.00(1.00)	Recovery 98.6	Acceptance Range 90 - 110 Lab ID = 807486-004
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.986	Expected/Added 1.00(1.00)	Recovery 98.6	Acceptance Range 90 - 110 Lab ID = 807486-005
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.02	Expected/Added 1.00(1.00)	Recovery 102	Acceptance Range 90 - 110

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Client: E2 Consulting Engineers, Inc.			Project Name: PG&E Topock Project Project Number: 423575.MP.07.TS			Page 3 of 11 Printed 4/30/2013
Matrix Spike						Lab ID = 807486-006
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent Matrix Spike	ug/L	1.00	0.986	1.00(1.00)	98.6	90 - 110 Lab ID = 807486-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.972	1.00(1.00)	97.2	90 - 110
Matrix Spike	Tresta.			. ,		Lab ID = 807486-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.02(1.00)	99.6	90 - 110
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.90	5.00	98.0	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.74	10.0	97.4	95 - 105
MRCVS - Primary	• • •					
Parameter Chromium, Hexavalent	Unit	DF 1.00	Result 9.78	Expected 10.0	Recovery 97.8	Acceptance Range 95 - 105
MRCVS - Primary	ug/L	1.00	9.7 0	10.0	97.0	95 - 105
The second of the first of the	e Alderia	DE	pergére de se	 From a set and	D	Association Desires
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 9.89	Expected 10.0	Recovery 98.9	Acceptance Range 95 - 105
MRCVS - Primary	ug/L	1.00	5.05	10.0	50.5	33 - 103
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.93	10.0	99.3	95 - 105
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.78	10.0	97.8	95 - 105



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.07.TS

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Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
807486-001 Chromium, Hex	avalent	ug/L	04/24	/2013 10:54	5.00	0.0460	1.0	ND
807486-007 Chromium, Hex	avalent	ug/L	04/24	/2013 11:04	5.00	0.0460	1.0	ND
Method Blank	Borelog aye							
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result ND					
Duplicate							Lab ID =	807495-013
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 42.7	Expected 42.2		RPD 1.26	Accepta 0 - 20	ance Range
Low Level Calibration	Verification	elija Para						
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.200	Expected 0.200		Recovery 100	Accepta 70 - 130	ance Range)
Lab Control Sample								
Parameter Chromium, Hexavalent	Unit ug/ L	DF 1.00	Result 4.98	Expected 5.00		Recovery 99.7	Accepta 90 - 110	ance Range)
Matrix Spike							Lab ID =	807486-001
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 4.96	Expected/Add 5.00(5.00)	ed	Recovery 99.2	Accepta 90 - 110	ance Range)
Matrix Spike							Lab ID =	807486-007
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 4.96	Expected/Add 5.00(5.00)	ed	Recovery 99.1	Accepta 90 - 110	ince Range)
Matrix Spike							Lab ID =	807495-004
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 14.8	Expected/Add 15.0(10.0)	ed	Recovery 98.1	Accepta 90 - 110	ance Range)
Matrix Spike							Lab ID =	807495-005
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 15.3	Expected/Add 15.6(10.0)	ed	Recovery 97.6	Accepta 90 - 110	ince Range)
Matrix Spike							Lab ID =	807495-006
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 9.05	Expected/Add 9.12(5.00)	ed	Recovery 98.7	Accepta 90 - 110	ince Range)
Matrix Spike							Lab ID =	807495-007
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 15.2	Expected/Add 15.3(10.0)	ed	Recovery 99.1	Accepta 90 - 110	ince Range)



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.07.TS

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Metals by EPA 6020A, D	Dissolved		Batch	042213A				
Parameter		Unit	<u>A</u> na	lyzed	DF	MDL	RL	Result
807486-001 Chromium		ug/L	04/22	2/2013 11:47	2.00	0.184	1.0	ND
807486-002 Chromium		ug/L	04/22	2/2013 12:59	2.00	0.184	1.0	ND
807486-005 Chromium		ug/L	04/22	2/2013 11:53	2.00	0.184	1.0	ND
807486-006 Chromium		ug/L	04/22	2/2013 11:59	2.00	0.184	1.0	ND
807486-007 Chromium		ug/L	04/22	2/2013 11:10	2.00	0.184	1.0	ND
807486-008 Chromium		ug/L	04/22	2/2013 13:05	2.00	0.184	1.0	ND
Method Blank	2 .							
Parameter	Unit	DF	Result					
Arsenic	ug/L	1.00	ND					
Chromium	ug/L	1.00	ND					
Copper	ug/L	1.00	ND					
Manganese	ug/L	1.00	ND					
Duplicate							Lab ID =	807486-007
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	nce Range
Arsenic	ug/L	2.00	1.76	1.58		10.8	0 - 20	
Chromium	ug/L	2.00	ND	0		0	0 - 20	
Copper	ug/L	2.00	ND	0		0	0 - 20	
Manganese	ug/L	2.00	105	102		2.85	0 - 20	
Low Level Calibration	Nerification	ı						
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Arsenic	ug/L	1.00	0.228	0.200		114	70 - 130)
Chromium	ug/L	1.00	0.230	0.200		115	70 - 130)
Copper	ug/L	1.00	1.66	2.00		83.0	70 - 130)
Manganese	ug/L	1.00	0.228	0.200		114	70 - 130)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Arsenic	ug/L	2.00	49.0	50.0		98.0	85 - 115	,
Chromium	ug/L	2.00	49.8	50.0		99.6	85 - 115	;
Copper	ug/L	2.00	49.8	50.0		99.6	85 - 115	i
Manganese	ug/L	2.00	49.3	50.0		98.7	85 - 115	,



Client: E2 Consulting Eng	jineers, Ind		roject Name: roject Number	PG&E Topock Pro: 423575.MP.07.TS	-	Page 8 of 11 Printed 4/30/2013		
Matrix Spike						Lab ID = 807486-007		
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range		
Arsenic	ug/L	2.00	50.9	51.6(50.0)	98.7	75 - 125		
Chromium	ug/L	2.00	48.5	50.0(50.0)	97.0	75 - 125		
Copper	ug/L	2.00	44.1	50.0(50.0)	88.2	75 - 125		
Manganese	ug/L	2.00	152	152(50.0)	99.6	75 - 125		
Matrix Spike Duplicate						Lab ID = 807486-007		
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range		
Arsenic	ug/L	2.00	53.2	51.6(50.0)	103	75 - 125		
Chromium	ug/L	2.00	50.4	50.0(50.0)	101	75 - 125		
Copper	ug/L	2.00	45.6	50.0(50.0)	91.2	75 - 125		
Manganese	ug/L	2.00	156	152(50.0)	109	75 - 125		
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range		
Arsenic	ug/L	1.00	20.0	20.0	100	90 - 110		
Chromium	ug/L	1.00	20.3	20.0	101	90 - 110		
Copper	ug/L	1.00	20.6	20.0	103	90 - 110		
Manganese	ug/L	1.00	20.2	20.0	101	90 - 110		
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range		
Arsenic	ug/L	1.00	19.6	20.0	98.1	90 - 110		
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range		
Arsenic	ug/L	1.00	19.8	20.0	98.8	90 - 110		
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range		
Arsenic	ug/L	1.00	19.5	20.0	97.5	90 - 110		
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range		
Chromium	ug/L	1.00	19.2	20.0	96.1	90 - 110		
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range		
Chromium	ug/L	1.00	19.7	20.0	98.3	90 - 110		



Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 11 of 11

Project Number: 423575.MP.07.TS Printed 4/30/2013

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for Mona Nassimi

Manager, Analytical Services

CH2MHILL

Location Topock

Project Name PG&E Topock

Project Manager Jay Piper

Sample Manager Shawn Duffy

250 ml

Poly

NH4)2S

Ò4/NH4O

H, 4°C

Field

28

Container:

Filtered:

Preservatives:

Holding Time:

2x250

ml Poly

(NH4)2S

04/NH40

H, 4°C

Field

28

500 ml

Poly

HNO3,

4°C

Field

180

2x500

ml Poly

HNO3,

4°C

Field

180

CHAIN OF CUSTODY RECORD



Page 1 OF

			11010	gc.	20	20	100	100			4
	Project Number 4 Task Order Project 2013-GMi Turnaround Time Shipping Date: 4 COC Number: 1	P-192-Q2 10 Days			Cr6 (E218.6) Field Filh	Cr6 (E218.6R) Field Filte	Metals (6020A) Field Chromium	Metals (6020A-R) Field Chromium	ALERT!! LevelIII QC	Number of Cont	
		DATE	TIME	Matrix	Filtered	tered	Filtered	Filtered		ontainers	COMMENTS
	MW-121-192	4/15/2013	7:10	Water		х		Х		4	1
2	MW-122-192	4/15/2013	17:15	Water	Х		х			2	1 ph=2
3	MW-200-192	4/15/2013	14:40	Water	Х					d.	P 25 Cg
4	MW-201-192	4/15/2013	16:00	Water	X					1	
5	MW-27-020-192	4/15/2013	11:20	Water		Х		Х		4	7
6	MW-27-060-192	4/15/2013	12:41	Water		х		х		Ą	PPU=2
7	MW-27-085-192	4/15/2013	13:52	Water		×		ж		4	GOTOA
	MW-27-085-192-EB	4/15/2013	13:15	Water	Х		х			2	
Z	MW-30-030-192	4/15/2013	15:27	Water	Х		X			2	PH=2
•	mw-27-020-192-E MW-27-060-192-E BU	B 415-13	0945	Water	X		×		T OTAL NUMBER OF CONTAINERS	24	26020A
	MW-27-060-192-E	B 445-13	1153	Water	X		X				
	Bu		ı	•	'	1 (l		36	Bec
	·										

Date/Time 4-/6-/3 **≸**ignatures **Shipping Details** Special Instructions: Approved by ATTN: April 15 to May 9, 2013 Method of Shipment: Sampled by On Ice: yes / no Relinquished by Sample Custody 4-16-13 15:3 Airbill No: 4-16-13 21:3 Lab Name: Truesdail Laboratories, Inc. Received by Reimquished by Report Copy to Shawn Duffy Received by Lab Phone: (714) 730-6239 (530) 229-3303

Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date		b Number		Н	Buffer Add	ded (mL)	Fina	al pH	Time	Buffered	ln	itials
04/16/1	80	7449-3	9.5		N	4	NI	4	9:	15	N	Œ
		1 -4				<u> </u>						
		-5										
		-6										
		-7										
		-8 -9										
		- 9					·				·	
		-10										
		- 11										
	80	7450-1										
		-2		_								
	1 1	_ >										
		-4		_								
		-5									\perp	
		-6		_								
				1	-							
	1	-7		4								
	V	-9		_							\perp	
	807	451-1		1								
		- 2		1								
		- 3		\downarrow								
		- 4 - 5		+								
		-5		_								
		-6		+		. -						
		-7		+								
_		-8		+		, 	-	, +		, 	4,	_
V		- 9		+			₩					
4/16/13		155-1	7.0	+	2ml/100 m	n C	9.5		((;)		14	
1 17.13	1		4	+	V	v l		- -	8:		NE	_
	805	48 G-1	7.0	+	2 ml/100. NIA		9.5		8:1		NE	
7/1///	'ניטט	100-1	' /		///		NIA		0 . /	<u> </u>		





Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials	
4117113	807486-2	9.5	N/A	NIA	85.15	NE	
	- 3						_
	- if						
	-5				·		
	-6]
	-7						
	V -8	Y		\vee	$\sqrt{}$	V]
4/17/13	807489-1	9.5	MA	NA	NA	724	
	-2			1			
	-3						
	-4						
	-5	\downarrow	<u> </u>				
4/17/13	807489 6	9.5	WA	NA	NA	M	Ten
4/11/13	807490 X-1	9-5	NA	MA	NA	py	250
	-2						
	-3						
	-4						
4/17/13	807491-1	9.5	MA	MA	MA	m	
	- 2						
	-3						
	-4						
	-5	-					
	- 6			·			
	-7						
	-8						
	-9						
	V-10				V		
4/17/13	807493-1	9.5	NA	NA	NA	Tra	
	-2						
<u> </u>	- 3						
	V -4		<u> </u>	1			



				Turbi	dity/pH C	heck			
	Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
	807428	41	12	4/17/13	ne	gu			
	807431	71	i		1	1			
	807434	41							
	807435	1							
	807436		J.						
	807453	71	>2				11:00		
	807455 112	ય	J				1.	2: _ []	42
	807363 1-4	ì	42			′	- 4/		
	807502		72	V	1	.J	11:00		
	:07412 U-3)	< \	۷٦.	4-18-13	BI	√ 45			
	80745261-67		1						
	807485		72/EE				7:00		
	807486 112,58)	<2 BE						
	807488 (1-41								
	807489				I.				
	807490 (1-4)				<u> </u>				
	80749011-4						-		
	807491 U-810)					1			
	507523	Ĭ		T I	Ĭ	I			
	8075224-2)					J			
	80 749 361-3		1	T.					
	9,07472-(1,34)	21	72	4118/17	ES	ND	10:00	4-19	<7
	(1)7467(1-3)	ì	ì	1	1		1	4-19	42
	807515 (10-12)					1		4-19-13	42
	207494 (1,3-10) 21	L2	4/18/13	ES	Yes			
	807495(1-15)		1	1	1	1			
	807520(1-11)								
	:075274-6	<1	<2	4-19-13	PSI-	xes			
	8075510-4)	7.	J	J	1	J		V	
	80752 1 (1-11)								
807546	407546 BE								
•	807547				J	J		-	
	807943(1-2)	۲ \	72	4-19-13	BL	No	1:30		
	807524(1-8)	41	42	4/22/13	W	ifes			-1,2,7 7 IN TH
	807544	71	42	1	1	î			
í	807562	i	1						
	807542								
	807530								
	807548								
Ì	807464								
	807465								
	507466								
ļ	807467								
f	807468				1	J			
Į.	· · · · · · · · · · · · · · · · · · ·					- 1			

Notes:

- Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
 All Total Recoverable Analytes must be pH adjusted and digested.
 Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

Sample Integrity & Analysis Discrepancy Form

CI	ient: $\underline{E2}$	Lab # <u>80 748</u>
Da	te Delivered: 04 / 16 / 13 Time: <u>仏 ' シ</u> By: □Mail め	Field Service
1.	Was a Chain of Custody received and signed?	ÆYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ÆN/A
<i>3</i> .	Are there any special requirements or notes on the COC?	□Yes □No 12/N/A
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No □NA
5 .	Were all requested analyses understood and acceptable?	ÀÍYes □No □N/A
6 .	Were samples received in a chilled condition? Temperature (if yes)? _3.5°C	ŹiYes □No □N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	ØYes □No □N/A
8.	Were sample custody seals intact?	□Yes □No ŒN/A
9.	Does the number of samples received agree with COC?	J Yes □No □N/A
10.	Did sample labels correspond with the client ID's?	ŻYes □No □N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by:∕∆ Truesdail □Client	ÆYes □No □N/A
12.	Were samples pH checked? pH = <u>Sel</u> C/o. e	ŹaYes □No □N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	ØYes □No □N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): □ RUSH ☑ Std	AYes ONO ON/A
15.	Sample Matrix: □Liquid □Drinking Water □Ground ©□Sludge □Soil □Wipe □Paint □Solid 🖄	
16.	Comments:	
17.	Sample Check-In completed by Truesdail Log-In/Receiving:	Lude



14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

May 6, 2013

E2 Consulting Engineers, Inc. Mr. Shawn Duffy 155 Grand Ave., Suite 1000 Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: REVISED CASE NARRATIVE PG&E TOPOCK 2013-GMP-192-Q2, GROUNDWATER

MONITORING PROJECT, TLI No.: 807604

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-192-Q2 groundwater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody April 23, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Due to the discrepancy between the Total Dissolved Chromium (1.2 ug/L) and Hexavalent Chromium (ND<0.20 ug/L) results for sample MW-42-055-192, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 1.3 ug/L and 1.2 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and yielded a result of 1.2 ug/L. The original results were reported.

No other violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,

TRUESDAIL LABORATORIES, INC.

tor Mona Nassimi

Manager, Analytical Services

Alliliael Ligo

Michael Ngo

Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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Laboratory No.: 807604

Date Received: April 23, 2013

Client: E2 Consulting Engineers, Inc. 155 Grand Ave. Suite 1000

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project Project No.: 423575.MP.07.TS P.O. No.: 423575.MP.07.TS

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807604-001	MW-124-192	E218.6	FLDFLT	4/16/2013	6:50	Chromium, Hexavalent	15.0	ug/L	1.0
807604-001	MW-124-192	SW6020	FLDFLT	4/16/2013	6:50	Chromium	15.5	ug/L	1.0
807604-002	MW-202-192	E218.6	FLDFLT	4/16/2013	15:50	Chromium, Hexavalent	ND	ug/L	0.20
807604-003	MW-203-192	E218.6	FLDFLT	4/16/2013	16:00	Chromium, Hexavalent	ND	ug/L	0.20
807604-004	MW-34-080-192	E218.6	FLDFLT	4/16/2013	10:06	Chromium, Hexavalent	ND	ug/L	0.20
807604-004	MW-34-080-192	SW6020	FLDFLT	4/16/2013	10:06	Chromium	ND	ug/L	1.0
807604-005	MW-34-100-192	E218.6	FLDFLT	4/16/2013	13:27	Chromium, Hexavalent	15.0	ug/L	1.0
807604-005	MW-34-100-192	SW6020	FLDFLT	4/16/2013	13:27	Chromium	15.9	ug/L	1.0
807604-006	MW-42-055-192	E218.6	FLDFLT	4/16/2013	15:28	Chromium, Hexavalent	ND	ug/L	0.20
807604-006	MW-42-055-192	SW6020	FLDFLT	4/16/2013	15:28	Chromium	1.2	ug/L	1.0
807604-007	MW-123-192	E218.6	FLDFLT	4/17/2013	6:25	Chromium, Hexavalent	ND	ug/L	1.0
807604-007	MW-123-192	SW6020	FLDFLT	4/17/2013	6:25	Chromium	ND	ug/L	1.0
807604-008	MW-204-192	E218.6	FLDFLT	4/17/2013	15:05	Chromium, Hexavalent	ND	ug/L	0.20
807604-009	MW-205-192	E218.6	FLDFLT	4/17/2013	15:10	Chromium, Hexavalent	ND	ug/L	0.20
807604-010	MW-32-035-192	E218.6	FLDFLT	4/17/2013	11:05	Chromium, Hexavalent	ND	ug/L	1.0
807604-010	MW-32-035-192	SW6020	FLDFLT	4/17/2013	11:05	Chromium	ND	ug/L	1.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

Note: The following "Significant Figures" rule has been applied to all results:

Results below 0.01ppm will have two (2) significant figures.

Result above or equal to 0.01ppm will have three (3) significant figures.

Quality Control data will always have three (3) significant figures.

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Established 1931

Page 1 of 7

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Printed 5/6/2013

Laboratory No. 807604

REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project
Project Number: 423575.MP.07.TS
P.O. Number: 423575.MP.07.TS

Release Number:

Samples Received on 4/23/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix	
MW-124-192	807604-001	04/16/2013 06:50	Water	
MW-202-192	807604-002	04/16/2013 15:50	Water	
MW-203-192	807604-003	04/16/2013 16:00	Water	
MW-34-080-192	807604-004	04/16/2013 10:06	Water	
MW-34-100-192	807604-005	04/16/2013 13:27	Water	
MW-42-055-192	807604-006	04/16/2013 15:28	Water	
MW-123-192	807604-007	04/17/2013 06:25	Water	
MW-204-192	807604-008	04/17/2013 15:05	Water	
MW-205-192	807604-009	04/17/2013 15:10	Water	
MW-32-035-192	807604-010	04/17/2013 11:05	Water	

Chrome VI by EPA 218.6		Batch 04CrH13Y				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
807604-001 Chromium, Hexavalent	ug/L	04/26/2013 08:46	5.00	0.0460	1.0	15.0
807604-002 Chromium, Hexavalent	ug/L	04/26/2013 03:27	1.00	0.00920	0.20	ND
807604-003 Chromium, Hexavalent	ug/L	04/26/2013 03:38	1.00	0.00920	0.20	ND
807604-004 Chromium, Hexavalent	ug/L	04/26/2013 03:48	1.00	0.00920	0.20	ND
807604-005 Chromium, Hexavalent	ug/L	04/26/2013 08:57	5.00	0.0460	1.0	15.0
807604-006 Chromium, Hexavalent	ug/L	04/26/2013 04:09	1.00	0.00920	0.20	ND
807604-007 Chromium, Hexavalent	ug/L	04/26/2013 04:19	5.00	0.0460	1.0	ND
807604-008 Chromium, Hexavalent	ug/L	04/26/2013 04:30	1.00	0.00920	0.20	ND
807604-009 Chromium, Hexavalent	ug/L	04/26/2013 05:01	1.00	0.00920	0.20	ND
807604-010 Chromium, Hexavalent	ug/L	04/26/2013 05:11	5.00	0.0460	1.0	ND

Method Blank

Parameter Unit DF Result Chromium, Hexavalent ug/L 1.00 ND

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Client: E2 Consulting Engineers, Inc.			Project Name: Project Number:	iject	Page 2 of 7 Printed 5/6/2013					
Duplicate Lab ID = 807605-009										
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result ND	Expected 0	RPD 0	Acceptance Range 0 - 20				
Low Level Calibration	Verification									
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.206	Expected 0.200	Recovery 103	Acceptance Range 70 - 130				
Lab Control Sample										
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 4.96	Expected 5.00	Recovery 99.3	Acceptance Range 90 - 110				
Matrix Spike						Lab ID = 807604-001				
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 40.5	Expected/Added 40.0(25.0)	Recovery 102	Acceptance Range 90 - 110				
Matrix Spike						Lab ID = 807604-002				
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.04	Expected/Added 1.00(1.00)	Recovery 104	Acceptance Range 90 - 110				
Matrix Spike						Lab ID = 807604-003				
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.03	Expected/Added 1.00(1.00)	Recovery 103	Acceptance Range 90 - 110				
Matrix Spike						Lab ID = 807604-004				
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.03	Expected/Added 1.00(1.00)	Recovery 103	Acceptance Range 90 - 110				
Matrix Spike						Lab ID = 807604-004				
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 4.96	Expected/Added 5.00(5.00)	Recovery 99.2	Acceptance Range 90 - 110				
Matrix Spike						Lab ID = 807604-005				
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 40.0	Expected/Added 40.0(25.0)	Recovery 99.8	Acceptance Range 90 - 110				
Matrix Spike						Lab ID = 807604-006				
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.11	Expected/Added 1.06(1.00)	Recovery 104	Acceptance Range 90 - 110				
Matrix Spike						Lab ID = 807604-007				
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.00(1.00)	Recovery 101	Acceptance Range 90 - 110				
Matrix Spike						Lab ID = 807604-007				
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 4.95	Expected/Added 5.00(5.00)	Recovery 99.0	Acceptance Range 90 - 110				

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Client: E2 Consulting En	gineers, Ind		roject Name: roject Numbe	PG&E Topock Pro r: 423575.MP.07.TS	-	Page 3 of 7 Printed 5/6/2013
Matrix Spike						Lab ID = 807604-008
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.02	Expected/Added 1.00(1.00)	Recovery 102	Acceptance Range 90 - 110 Lab ID = 807604-009
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.00(1.00)	Recovery 101	Acceptance Range 90 - 110 Lab ID = 807604-010
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 4.93	Expected/Added 5.00(5.00)	Recovery 98.6	Acceptance Range 90 - 110 Lab ID = 807604-010
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.02	Expected/Added 1.00(1.00)	Recovery 102	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807605-001
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.994	Expected/Added 1.00(1.00)	Recovery 99.4	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807605-001
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 4.93	Expected/Added 5.00(5.00)	Recovery 98.6	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807605-002
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.00	Expected/Added 1.00(1.00)	Recovery 100	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807605-003
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 4.92	Expected/Added 5.00(5.00)	Recovery 98.5	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807605-003
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.986	Expected/Added 1.00(1.00)	Recovery 98.6	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807605-004
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.998	Expected/Added 1.00(1.00)	Recovery 99.8	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807605-004
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 4.90	Expected/Added 5.00(5.00)	Recovery 98.1	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807605-005
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.906	Expected/Added 1.00(1.00)	Recovery 90.6	Acceptance Range 90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.07.TS

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Metals by EPA 6020A, I	Dissolved		Batch	042513A				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
807604-001 Chromium		ug/L	04/25/2013 09:44		2.00	0.184	1.0	15.5
807604-004 Chromium		ug/L	04/25/2013 10:38		2.00	0.184	1.0	ND
807604-005 Chromium		ug/L	04/25	5/2013 10:44	2.00	0.184	1.0	15.9
807604-006 Chromium		ug/L	04/25	5/2013 10:51	2.00	0.184	1.0	1.2
807604-007 Chromium		ug/L	04/25/2013 10:57		2.00	0.184	1.0	ND
807604-010 Chromium		ug/L	04/25	5/2013 11:03	2.00	0.184	1.0	ND
Method Blank								
Parameter	Unit	DF	Result					
Chromium	ug/L	1.00	ND					
Duplicate							Lab ID =	807604-00
Parameter	Unit	DF	Result Expected		RPD		Acceptance Ran	
Chromium	ug/L	2.00	15.0	15.5		2.91	0 - 20	
Low Level Calibration	n Verification							
Parameter	Unit	DF	Result Expected		F	Recovery	Acceptance Range	
Chromium	ug/L	1.00	0.222	0.200		111	70 - 130)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	•	ance Range
Chromium	ug/L	2.00	48.6	50.0		97.3	85 - 118	
Matrix Spike							Lab ID =	807604-00
Parameter	Unit	DF	Result	Expected/Add	ed F	Recovery	-	ance Range
Chromium	ug/L	2.00	64.1	65.5(50.0)		97.3	75 - 128	
Matrix Spike Duplica								807604-00
Parameter	Unit	DF	Result	Expected/Add	ed F	Recovery	Accepta 75 - 128	ance Range
Chromium MRCCS - Secondary	ug/L	2.00	63.4	65.5(50.0)	us stance of being	95.7	75 - 123	
The state of the s								_
Parameter Chromium	Unit ug/L	DF 1.00	Result 20.0	Expected 20.0	ŀ	Recovery 99.8	90 - 110	ance Range
MRCVS - Primary	ug/L Priferal Le					99.0	90 - TI	, Siški Parvot Sindayy
Parameter	Unit	DF	Result	Expected		Recovery	A accept	noo Dona
Chromium	ug/L	1.00	19.9	20.0	r	99.5	90 - 110	ance Range
MRCVS - Primary	- 	elikaan Alikaan					55 110	- X.86655 A.8606
Parameter	Unit	DF	Result	Expected	rugitalyaka P	Recovery	Accents	ance Range
Chromium	ug/L	1.00	18.6	20.0	•	92.9	90 - 110	-

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Client: E2 Consulting Engineers, Inc.	Project Name:	PG&E Topock Project	Page 7 of 7
	Designed Nicosham	. ADDETE MID OF TO	D: 1 5/0/0040

Project Number: 423575.MP.07.TS Printed 5/6/2013

MRCVS - Primary										
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range				
Chromium	ug/L	1.00	19.7	20.0	98.4	90 - 110				
Interference Check Standard A										
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range				
Chromium	ug/L	1.00	ND	0						
Interference Check Standard A										
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range				
Chromium	ug/L	1.00	ND	0						
Interference Check Sta	andard AB									
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range				
Chromium	ug/L	1.00	21.8	20.0	109	80 - 120				
Interference Check Standard AB										
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range				
Chromium	ug/L	1.00	19.8	20.0	99.2	80 - 120				

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

to / Mona Nassimi

Manager, Analytical Services

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.

CH2MHILL Sample Conditions

CHAIN OF CUSTODY RECORD 72013 2:01:55 PM Page 1 OF 3 Project Name PG&E-Topock 2x500 ml Poly Poly ml Poly Location Topock (NH4)2S (NH4)2S HNO3, HNO3, Preservatives: 04/NH40 Ò4/NH4C 4°C Project Manager Jay Piper H. 4°C H, 4°C Sample Manager Shawn Duffy Field Field Field Field **Holding Time:** 28 28 180 180 Project Number 423575.MP.07.TS Metals (6020A-R) Field Filtered Chromium Metals (6020A) Field Filtered Chromium Task Order Cr6 (E218.6) Field Filtered (E218.6R) Field Filtered Project 2013-GMP-192-Q2 Number of Containers Turnaround Time 10 Days Shipping Date: 4/23/2013 COC Number: 4 DATE TIME Matrix COMMENTS MW-124-192 4/16/2013 6:50 2 Water DH=2 X X MW-202-192 15:50 4/16/2013 Water X and a MW-203-192 4/16/2013 16:00 Water 4 X MW-34-080-192 nu=2 4/16/2013 10:06 Water X MW-34-080-192-EB 4/16/2013 8:30 Water 2 X 2 MW-34-100-192 13:27 2 4/16/2013 Water X X MW-42-055-192 4/16/2013 15:28 Water X X MW-42-055-192-EB 2 4/16/2013 14:40 Water X X MW-42-065-192-EB 2 14:45 4/16/2013 Water X X MW-123-192 4/17/2013 6:25 Water X X MW-204-192 4/17/2013 15:05 Water X MW-205-192 15:10 4/17/2013 Water X MW-32-035-192 4/17/2013 11:05 Water X X

Approved by Sampled by

MW-32-035-192-EB

4/17/2013

9:45

Water

Signatures

Remoquished by

Received by

Relinquished by Received by

Shipping Details

Method of Shipment: courier

On Ice: yes / no

X

Davild 4-23-13 15:20 Name: Truesdail Laboratories, Inc. 721 4/23/13 21/3 Lab Phone: (714) 730-6239

ATTN:

Special Instructions:

April 15 to May 9, 2013

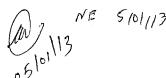
Sample Custody

Report Copy to

Shawn Duffy (530) 229-3303

Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
4/19/13	8075-47	9.5	NIA	NIÀ	MA	Lan
4/19/7	8075611	9.5	NA	NIA	NA	m
	_2					
	-2					
	-4					
Ø€ 04/24/	807603	7.0	2 ml	4.5	13:15	NE
	8076041	9.5	NIA	N/4	MA	NE
	2	ŀ	<u>\</u>			1
	- 3					
	νŸ					
	5					
	-6					
	<i>-</i> -7					
	-8		·			
	_9			F /.		/
1	-10	J	V (4	V	T
04/24/13	307605-1	9.5	~14	NIA	NIA	NZ
	f .					ı
	-2 -3					
	- 4					
	-5					
	-6					
	-7					
	-8		/			
4	_9	V	V	¥	<u> </u>	
04/24/13	307606-1	9.5	MA	NIA	NIA	NE
	- 2					
	3			.		
	- Ý					
	-5					
V	-6	V		4	V L	V_{\perp}







Turbidity/nH Check

	Turbidity/pH Check									
Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Commer		
207561 (1934)	<١	42	1-23-12	35	xes					
807585L1-5)			4-24-13							
-8+7603						BE				
807604 (1-19)		<2					·	-		
807605 LI-4										
80760661-5)										
807572(1-2)	•	STIC	4/24/13	ES	y-es					
807570	21	42	1	1	1					
807571	1	1								
807582								·		
807587	J	V,			T					
807592(1-2)	<u> </u>	72			No	41:00				
807596 (1-3)	V	V		d	1	"J				
407603	21	72	24/24/13	ES	yes	11:00				
507604(1473.16)	<u> </u>	12			1		7 ,			
867605(1-4-7-9)							9 ES 4 24/12			
807606 (1-5))			
805 585 (1-5)	$\overline{}$							-		
517612	71	> 2	4/4/13	n	yes.	16:20				
807613-2	71	12	4/25713	m	ifes					
807614-10-712	٤١	72	1	J	No	11:30				
\$07630	1	42	i	pe	íA.					
807631		1	U	<u>J</u>	J					
407626(1-6)	<\	<2	4-26-(3)	B 2-	xes					
807640L1-6)	7	1	7	1	1					
197666	71	72	4-30-13	81-	Ne.	19:30				
807683(1-3)	۷)	72	5/1/13	m	No	14:30				
807692(1,2)	'	1)	ì	1				
807696(1-3)			- 1		t					
\$07704 (10-12	<1	. 72	5-2-13	BE	NO.	7200				
507662	4	42	5/2/13	n	ifea			***		
807663	1	. 1	1 1 1	1	j					
807699										
507705	71				1					
807716 375-19) <ī	42	5-2-13	BE	yen					
801716/26-30132	-)			1						
801716(26-30,32 801717(1-2)		72				11:30	After Filther	1		
807718	1	1								
80771911-2)		72				11:30				
807719-2		72				11:30	AFTER FILLER			
		₹2		1			-			
80 772061-4	1 1	, ;	-1							
80 772061-4		\ _	*							

- Notes:

 1. Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.

 2. All Total Recoverable Analytes must be pH adjusted and digested.

 3. Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

Sample Integrity & Analysis Discrepancy Form

. (Client: <u>E</u> 2	. Lab # <u>80760</u>
D	ate Delivered: <u>04/23</u> /13 Time: <u>1//30</u> By: DMail ©	Field Service
· 1.	Was a Chain of Custody received and signed?	ØYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ÞM/A
<i>3</i> .	Are there any special requirements or notes on the COC?	□Yes □No dN/A
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No ØN/A
5.	Were all requested analyses understood and acceptable?	Yes ONO ONA
6.	Were samples received in a chilled condition? Temperature (if yes)? <u>3 ਣਿ °C</u>	ŒYes □No □N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	ØYes □No □N/A
8 .	Were sample custody seals intact?	□Yes □No địN/A
9.	Does the number of samples received agree with COC?	ØYes □No □N/A
10.	Did sample labels correspond with the client ID's	Wes ONO ONA
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☑Truesdail □Client	Yes ONO ON/A
12.	Were samples pH checked? pH =	Tes ONO ONA
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	Yes ONO ONA
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): RUSH Std	Yes ONO ONA
<i>15.</i>	Sample Matrix: □Liquid □Drinking Water □Ground W	Vater
16.	Comments:	· .
17	Sample Check-In completed by Truesdail Log-In/Receiving:	dudia -



14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

May 7, 2013

E2 Consulting Engineers, Inc. Mr. Shawn Duffy 155 Grand Ave., Suite 1000 Oakland, California 94612

Dear Mr. Duffy:

SUBJECT:

CASE NARRATIVE PG&E TOPOCK 2013-GMP-192-Q2, GROUNDWATER MONITORING

PROJECT, TLI No.: 807605

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-192-Q2 groundwater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody April 23, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Due to the discrepancy between the Total Dissolved Chromium (5.3 ug/L) and Hexavalent Chromium (ND<1.0 ug/L) results for sample MW-125-192, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 5.5 ug/L and 4.2 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and yielded a result of 5.5 ug/L. The original results were reported.

No other violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services

Allehad The

Michael Ngo

Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Laboratory No.: 807605

Date Received: April 23, 2013

Client: E2 Consulting Engineers, Inc. 155 Grand Ave. Suite 1000

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project Project No.: 423575.MP.07.TS P.O. No.: 423575.MP.07.TS

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807605-001	MW-42-065-192	E218.6	FLDFLT	4/17/2013	9:04	Chromium, Hexavalent	ND	ug/L	0.20
807605-001	MW-42-065-192	SW6020	FLDFLT	4/17/2013	9:04	Chromium	ND	ug/L	1.0
807605-002	MW-43-025-192	E218.6	FLDFLT	4/17/2013	12:59	Chromium, Hexavalent	ND	ug/L	0.20
807605-002	MW-43-025-192	SW6020	FLDFLT	4/17/2013	12:59	Chromium	ND	ug/L	1.0
807605-003	MW-43-090-192	E218.6	FLDFLT	4/17/2013	13:47	Chromium, Hexavalent	ND	ug/L	1.0
807605-003	MW-43-090-192	SW6020	FLDFLT	4/17/2013	13:47	Chromium	ND	ug/L	1.0
807605-004	MW-125-192	E218.6	FLDFLT	4/18/2013	6:25	Chromium, Hexavalent	ND	ug/L	1.0
807605-004	MW-125-192	SW6020	FLDFLT	4/18/2013	6:25	Chromium	5.3	ug/L	1.0
807605-005	MW-206-192	E218.6	FLDFLT	4/18/2013	11:20	Chromium, Hexavalent	ND	ug/L	0.20
807605-006	MW-207-192	E218.6	FLDFLT	4/18/2013	16:50	Chromium, Hexavalent	ND	ug/L	0.20
807605-007	MW-28-025-192	E218.6	FLDFLT	4/18/2013	8:24	Chromium, Hexavalent	ND	ug/L	0.20
807605-007	MW-28-025-192	SW6020	FLDFLT	4/18/2013	8:24	Chromium	ND	ug/L	1.0
807605-008	MW-28-090-192	E218.6	FLDFLT	4/18/2013	9:15	Chromium, Hexavalent	ND	ug/L	0.20
807605-008	MW-28-090-192	SW6020	FLDFLT	4/18/2013	9:15	Chromium	ND	ug/L	1.0
807605-009	MW-29-192	E218.6	FLDFLT	4/18/2013	10:39	Chromium, Hexavalent	ND	ug/L	0.20
807605-009	MW-29-192	SW6020	FLDFLT	4/18/2013	10:39	Chromium	ND	ug/L	1.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

Note: The following "Significant Figures" rule has been applied to all results:

Results below 0.01ppm will have two (2) significant figures.

Result above or equal to 0.01ppm will have three (3) significant figures. Quality Control data will always have three (3) significant figures.

204

TRUESDAIL LABORATORIES, INC.

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Collected

04/17/2013 09:04

Established 1931

14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

Matrix

Water

Laboratory No. 807605

REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Attention:

Project Name: Project Number: 423575.MP.07.TS P.O. Number: 423575.MP.07.TS

Release Number:

Field ID

MW-42-065-192

Samples Received on 4/23/2013 9:30:00 PM

too chama, trondo, cano coo	
Oakland, CA 94612	Page 1 of 6
Shawn Duffy	Printed 5/7/2013
PG&E Topock Project	

Lab ID

807605-001

MW-43-025-192				807605-002	04/17	/2013 12:59	Wat	er
MW-43-090-192				807605-003	04/17	/2013 13:47	Wat	er
MW-125-192				807605-004	04/18	04/18/2013 06:25 Wate		er
MW-206-192				807605-005	04/18	/2013 11:20	Water	
MW-207-192				807605-006		/2013 16:50	Wat	er
MW-28-025-192				807605-007		/2013 08:24	Wat	
MW-28-090-192				807605-008		/2013 09:15	Wat	
MW-29-192				807605-009	04/18	/2013 10:39	Wat	er
Chrome VI by EPA 218.6	•		Batch	04CrH13Y				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
807605-001 Chromium, Hexa	avalent	ug/L	04/26	6/2013 05:22	1.00	0.00920	0.20	ND
807605-002 Chromium, Hexa	avalent	ug/L	04/26	3/2013 05:32	1.00	0.00920	0.20	ND
807605-003 Chromium, Hexa	avalent	ug/L	04/26	3/2013 14:40	5.00	0.0460	1.0	ND
807605-004 Chromium, Hexa	avalent	ug/L	04/26	3/2013 14:50	5.00	0.0460	1.0	ND
807605-005 Chromium, Hexa	avalent	ug/L	04/26	3/2013 06:03	1.00	0.00920	0.20	ND
807605-006 Chromium, Hexa	avalent	ug/L	04/26	6/2013 06:14	1.00	0.00920	0.20	ND
807605-007 Chromium, Hexa	avalent	ug/L	04/26	6/2013 06:24	1.00	0.00920	0.20	ND
807605-008 Chromium, Hexa	avalent	ug/L	04/26	3/2013 06:34	1.00	0.00920	0.20	ND
807605-009 Chromium, Hexa	avalent	ug/L	04/26	3/2013 07:06	1.00	0.00920	0.20	ND
Method Blank								
Parameter	Unit	DF	Result					
Chromium, Hexavalent	ug/L	1.00	ND					
Duplicate							Lab ID =	807605-00
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Rang
Chromium, Hexavalent	ug/L	1.00	ND	0		0	0 - 20	



Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 2 of 6
Project Number: 423575.MP.07.TS Printed 5/7/2013

Low Level Calibration Verification DF Parameter Unit Result Expected Recovery Acceptance Range Chromium, Hexavalent 1.00 0.206 0.200 103 70 - 130 ug/L Lab Control Sample Unit DF Parameter Result Expected Recovery Acceptance Range Chromium, Hexavalent ug/L 1.00 4.96 5.00 99.3 90 - 110 Matrix Spike Lab ID = 807604-001 DF Unit Result Expected/Added Parameter Recovery Acceptance Range Chromium, Hexavalent 5.00 40.5 40.0(25.0) 102 90 - 110 ug/L Lab ID = 807604-002 Matrix Spike DF Result Expected/Added Parameter Unit Recovery Acceptance Range Chromium, Hexavalent ug/L 1.00 1.04 1.00(1.00)104 90 - 110 Lab ID = 807604-003 Matrix Spike Unit DF Parameter Result Expected/Added Recovery Acceptance Range 1.00 1.03 90 - 110 Chromium, Hexavalent ug/L 1.00(1.00) 103 Lab ID = 807604-004 Matrix Spike Parameter Unit DF Result Expected/Added Recovery Acceptance Range 1.03 103 Chromium, Hexavalent ug/L 1.00 1.00(1.00)90 - 110 Lab ID = 807604-004 Matrix Spike Parameter Unit DF Result Expected/Added Recovery Acceptance Range 90 - 110 Chromium, Hexavalent ug/L 5.00 4.96 5.00(5.00) 99.2 Lab ID = 807604-005 Matrix Spike Unit DF Result Expected/Added Parameter Recovery Acceptance Range Chromium, Hexavalent 5.00 40.0 40.0(25.0) 99.8 90 - 110 ug/L Lab ID = 807604-006 Matrix Spike Parameter Unit DF Result Expected/Added Recovery Acceptance Range 1.00 1.11 1.06(1.00) 104 90 - 110 Chromium, Hexavalent ug/L Lab ID = 807604-007 Matrix Spike Parameter Unit DF Expected/Added Result Recovery Acceptance Range Chromium, Hexavalent ug/L 1.00 1.01 1.00(1.00) 101 90 - 110 Matrix Spike Lab ID = 807604-007 Acceptance Range Parameter Unit DF Result Expected/Added Recovery 4.95 99.0 Chromium, Hexavalent ug/L 5.00 5.00(5.00) 90 - 110 Matrix Spike Lab ID = 807604-008DF Parameter Unit Result Expected/Added Recovery Acceptance Range 1.00(1.00) Chromium, Hexavalent ug/L 1.00 1.02 102 90 - 110



Client: E2 Consulting En	gineers, Inc.		Project Name: Project Number:	PG&E Topock Pro 423575.MP.07.TS	-	Page 3 of 6 Printed 5/7/2013
Matrix Spike						Lab ID = 807604-009
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.00(1.00)	Recovery 101	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807604-010
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 4.93	Expected/Added 5.00(5.00)	Recovery 98.6	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807604-010
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.02	Expected/Added 1.00(1.00)	Recovery 102	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807605-001
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.994	Expected/Added 1.00(1.00)	Recovery 99.4	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807605-001
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 4.93	Expected/Added 5.00(5.00)	Recovery 98.6	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807605-002
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.00	Expected/Added 1.00(1.00)	Recovery 100	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807605-003
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 4.92	Expected/Added 5.00(5.00)	Recovery 98.5	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807605-003
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.986	Expected/Added 1.00(1.00)	Recovery 98.6	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807605-004
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.998	Expected/Added 1.00(1.00)	Recovery 99.8	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807605-004
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 4.90	Expected/Added 5.00(5.00)	Recovery 98.1	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807605-005
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.906	Expected/Added 1.00(1.00)	Recovery 90.6	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807605-006
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.00	Expected/Added 1.00(1.00)	Recovery 100.	Acceptance Range 90 - 110



Client: E2 Consulting Eng		oject Name: oject Numbe	nject	Page 4 of 6 Printed 5/7/2013		
Matrix Spike						Lab ID = 807605-007
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.04	Expected/Added 1.00(1.00)	Recovery 104	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807605-008
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 4.78	Expected/Added 5.00(5.00)	Recovery 95.6	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807605-008
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.989	Expected/Added 1.00(1.00)	Recovery 98.9	Acceptance Range 90 - 110
Matrix Spike	Hiddakoo.					Lab ID = 807605-009
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.00(1.00)	Recovery 101	Acceptance Range 90 - 110
MRCCS - Secondary						
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 4.94	Expected 5.00	Recovery 98.9	Acceptance Range 90 - 110
MRCVS - Primary						
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 9.78	Expected 10.0	Recovery 97.8	Acceptance Range 95 - 105
MRCVS - Primary						
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 9.64	Expected 10.0	Recovery 96.4	Acceptance Range 95 - 105
MRCVS - Primary						
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.92	Expected 10.0	Recovery 99.2	Acceptance Range 95 - 105
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101	95 - 105
MRCVS - Primary	la de la como de la co La como de la como de l				_	_
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 10.2	Expected 10.0	Recovery 102	Acceptance Range 95 - 105
MRCVS - Primary						
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 10.0	Expected 10.0	Recovery 100	Acceptance Range 95 - 105



Client: F2 Consulting Engineers Inc. Project Name: PG&F Topock Project

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Project Number: 423575.MP.07.TS Printed 5/7/2013	Onent. LE Consulting Lingmeers, inc.	Project Name. PodL Popock Project	1 age 3 01 0
•		Project Number: 423575.MP.07.TS	Printed 5/7/2013

Metals by EPA 6020A, I	Dissolved		Batch	042513A				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
807605-001 Chromium		ug/L	04/25	5/2013 11:09	2.00	0.184	1.0	ND
807605-002 Chromium		ug/L	04/25	5/2013 11:15	2.00	0.184	1.0	ND
807605-003 Chromium		ug/L	04/25/2013 11:21		2.00	0.184	1.0	ND
807605-004 Chromium		ug/L	04/25	5/2013 11:27	2.00	0.184	1.0	5.3
807605-007 Chromium		ug/L	04/25/2013 11:33		2.00	0.184	1.0	ND
807605-008 Chromium		ug/L	04/25/2013 11:51		2.00	0.184	1.0	ND
807605-009 Chromium		ug/L	04/25	/2013 11:57	2.00	0.184	1.0	ND
Method Blank								
Parameter	Unit	DF	Result					
Chromium	ug/L	1.00	ND					
Duplicate							Lab ID =	807604-001
Parameter	Unit	DF	Result	Result Expected		RPD	Accepta	ance Range
Chromium	ug/L	2.00	15.0	15.5 2.91		2.91	0 - 20	
Low Level Calibratio	n Verification	rijih ke di						
Parameter	Unit	DF	Result	Expected	F	Recovery	very Acceptan	
Chromium	ug/L	1.00	0.222	0.200		111	70 - 130)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Acceptance Range	
Chromium	ug/L	2.00	48.6	50.0		97.3	85 - 115	
Matrix Spike							Lab ID =	807604-001
Parameter	Unit	DF	Result	Expected/Add	led F	Recovery	-	ance Range
Chromium	ug/L	2.00	64.1	65.5(50.0)		97.3	75 - 125	5
Matrix Spike Duplica	ite						Lab ID =	807604-001
Parameter	Unit	DF	Result	Expected/Add	led F	Recovery	-	ance Range
Chromium	ug/L	2.00	63.4	65.5(50.0)		95.7	75 - 125	5
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected	F	Recovery		ance Range
Chromium	ug/L	1.00	20.0	20.0		99.8	90 - 110)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	-	ance Range
Chromium	ug/L	1.00	19.9	20.0		99.5	90 - 110)



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.07.TS

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MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.6	20.0	92.9	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.7	20.0	98.4	90 - 110
Interference Check Sta	indard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		
Interference Check Sta	indard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		
Interference Check Sta	indard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.8	20.0	109	80 - 120
Interference Check Sta	indard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	99.2	80 - 120

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

 $\int_{\mathbb{R}^{n}}$

Mona Nassimi

Manager, Analytical Services

For Sample Conditions See Form Attached

CH2MHILL **CHAIN OF CUSTODY RECORD** 4/23/2013 2:01:56 PM Page 2 OF 3 500 ml 2x500 250 ml 2x250 Project Name PG&E Topock Container Poly ml Poly Poly ml Poly Location Topock (NH4)2S (NH4)2S HNO3, HNO3. Preservatives: 04/NH40 Ò4/NH4O 4°C 4°C Project Manager Jay Piper H, 4°C Sample Manager Shawn Duffy Field Field Field Field **Holding Time** 28 180 180 Project Number 423575,MP.07.TS Metals Metals Cr6 Cr6 Task Order (E218.6A) Field Filtered Project 2013-GMP-192-Q2 (E218.6) Field Filtered (6020A-R) Field Chromium Number of Containers (6020A) Field Filtered Chromium Turnaround Time 10 Days Shipping Date: 4/23/2013 COC Number: 4 Filtered DATE TIME Matrix COMMENTS MW-42-065-192 4/17/2013 9:04 Water 4 X X MW-43-025-192 Mar 4/17/2013 12.59 Wate X X MW-43-025-192-EB 4/17/2013 12:22 Water X X 2 MW-43-090-192 4/17/2013 13:47 Water X X 4 12422 MW-43-090-192-EB 12:20 2 4/17/2013 Water X X MW-125-192 4 Bic of 4/18/2013 6:25 Water X X MW-206-192 4/18/2013 11:20 Water 1 X MW-207-192 4 4/18/2013 16:50 Water X MW-28-025-192 4/18/2013 8:24 Water 4 M-2 X X MW-28-025-192-EB 2 4/18/2013 7:25 Water X X MW-28-090-192 4/18/2013 9:15 4 Water X. X m-2 MW-28-090-192-EB 4/18/2013 8:35 2 Water X X MW-29-192 4 10:39 M-2 4/18/2013 Water X X

Approved by

MW-29-192-EB

Sampled by Refinquished by

Reived by

Received by

Relinquished by

4/18/2013

10:00

Water

Signatures

Pate/Time 4-23-/8

Shipping Details

Method of Shipment:

On Ice: yes / no

X

4-23-13 21: 3Lab Name: Truesdail Laboratories, Inc.

Lab Phone: (714) 730-6239

ATTN:

Special Instructions: April 15 to May 9, 2013 2

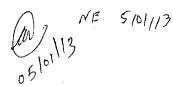
Sample Custody

Report Copy to

Shawn Duffy (530) 229-3303

Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
4/19/13	8075-47	9,5	NIA	NII	MA	Jun
4/19/13	8075611	9.5	NA	NA	NA	m
	_2					
	-3					
	-4					
Ø5 04/24/	807603	7.0	2 ml	4.5	13:15	NE
	8076041	9.5	NIA	N/4	MA	NE
			<u> </u>			
	~ 3					
	~ Y				·	
	- 5					
	-6					
	<i>←</i> 7					
	-8					
	_9			1/		
	-10	<u> </u>	Ψ.	Y	Y	<u> </u>
04,2413	307605-1	9.5	~14	NIA	NIA	NZ
	-2	<u> </u>				
	-2		·			
	- 4					
	-5					
	_6					
	<u>-7</u>					
	-8					
4	-9	W.	<u> </u>	Y	4.	
64/24/13	307606-	9.5	NA	NIA	NIA	NE
	- 2					P
	-3			·		
	- 4 - 7					_
	-5			1, 1		
N/	-6	\bigvee		4	K	V





Turbidity/pH Check

Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
E97561 (1934)	<١	くて	1-23-12	35	xes			
807585L1-51			4-24-13					
8:7603						<u>BE</u>		
207604(1-19)		K Z						
807605 LI-9								
8076661-5)			L					
807572(1-2)		STIC	4/24/13	ES	y-es	-		
807570	<u> </u>	LZ_			1			
W7571	<u> </u>							
807582								
807587	<u> </u>	<u> </u>		_	<u> </u>			
507592(1-2)	<u>_1</u>	72			No	11:00		
807596 (1-3)	1	<u> </u>		<u>d</u>	\J			
407603	21	72	24/24/13	ES	yes	11:00		
607604(147,16)							7-11-11-1	
867605(1-479)							(ES 4/24/12)	
807606 (1-5))	
805 585 (1-€)			Ψ.	- レ	_ <u> </u>			
517612	71	> 2.	4/4/13	n	Jes	16:20		
807613-2	17	12	4/25713	m	ijes	Na a		
807614-10-712	<u> </u>	72	ì	<u>i</u>	No	11:30		
<07630		42	<u> </u>	pi	yes I	 -		,
807631	1		<i>V</i>	BZ-				· · · · · · · · · · · · · · · · · · ·
207626(1-6)	<1	<2 1	4-26-(3)		xes	4		
80.7640 LI-6)	<u> </u>	j	7	4	<u> </u>			
19766	17	72	4-30-13	82-	NC.	19.730		
807683(1-3)	۷)	72	5/1/13	n	No	14:30		
807692(1,2)			<u> </u>					
807696(1-3)	<u> </u>	<u> </u>	- V		NO	7.48		
507704 L10-12	<u> </u>	. 72	5-2-13	BE	Yea	7200		
507662	د ا	42	5/2/13	n	J.			
807643								
807699	<u> </u>							
807705	71) <1		√ 5-2-13	\	yes			
807716 375-15	/ ~!	<2	7-2-13	BE	,,,			
OM16(26-3°132	7	72		1.		11130	After filte	
807717(1-2)						1119	MILE TITTE	·
801118		<u>₹2</u>				11.72		
807719-2		72				11:30	A THAT I'M	
80 777061-4		72		++		11:30	AFTERFITTE	
80 1/2001-4		₹2		<u> </u>	<u> </u>			

- Notes:

 1. Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.

 2. All Total Recoverable Analytes must be pH adjusted and digested.

 3. Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

Sample Integrity & Analysis Discrepancy Form

C	lient: <u>E2</u>	Lab # _ \$076
D	ate Delivered: 04/23/13 Time: 1130 By: 🗆 Mail 🔯	Field Service □Clie
1.	Was a Chain of Custody received and signed?	ØYes □No □N//
2.	Does Customer require an acknowledgement of the COC?	☐Yes ☐No ÆN/A
3.	Are there any special requirements or notes on the COC?	☐Yes ☐No ☐N/A
4.	If a letter was sent with the COC, does it match the COC?	☐Yes ☐No ☑N/A
5 .	Were all requested analyses understood and acceptable?	
6.	Were samples received in a chilled condition? Temperature (if yes)? <u>3. 8 ° C</u>	Д Yes □No □N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	ØYes □No □N/A
8 .	Were sample custody seals intact?	□Yes □No ØN/A
9.	Does the number of samples received agree with COC?	Yes ONO ONA
10.	Did sample labels correspond with the client ID's?	DYES DNo DN/A
11. Haya	Did sample labels indicate proper preservation? Preserved (if yes) by: DaTruesdail	Yes Mo DN/A
12.	Were samples pH checked? pH = $\frac{Sel\ C}{C}$. $O \cdot C$.	AYes DNO DNA
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	dYes □No □N/A
4	Have Project due dates been checked and accepted? Turn Around Time (TAT): RUSH Australy	dayes ONO ON/A
<i>5.</i>	Sample Matrix: DLiquid Drinking Water DGround W	117
	□Sludge □Soil □Wipe □Paint □Solid 🖾 O	ther Water
i.	Comments:	



14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

May 7, 2013

E2 Consulting Engineers, Inc. Mr. Shawn Duffy 155 Grand Ave., Suite 1000 Oakland, California 94612

Dear Mr. Duffy:

SUBJECT:

CASE NARRATIVE PG&E TOPOCK 2013-GMP-192-Q2, GROUNDWATER MONITORING PROJECT, TLI NO.: 807606

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-192-Q2 groundwater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody April 23, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Due to the discrepancy between the Total Dissolved Chromium (5.3 ug/L) and Hexavalent Chromium (ND<1.0 ug/L) results for sample MW-44-125-192, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 5.3 ug/L and 5.0 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and yielded a result of 5.4 ug/L. The original results were reported.

No other violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services

Alideral The

Michael Ngo

Quality Assurance/Quality Control Officer



Established 1931

14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Laboratory No.: 807606

Date Received: April 23, 2013

Client: E2 Consulting Engineers, Inc. 155 Grand Ave. Suite 1000

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project Project No.: 423575.MP.07.TS P.O. No.: 423575.MP.07.TS

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807606-001	MW-44-125-192	E218.6	FLDFLT	4/18/2013	16:10	Chromium, Hexavalent	ND	ug/L	1.0
807606-001	MW-44-125-192	SW6020	FLDFLT	4/18/2013	16:10	Chromium	5.3	ug/L	1.0
807606-002	MW-33-040-192	E218.6	FLDFLT	4/22/2013	11:07	Chromium, Hexavalent	ND	ug/L	0.20
807606-002	MW-33-040-192	SW6020	FLDFLT	4/22/2013	11:07	Chromium	ND	ug/L	1.0
807606-003	MW-33-090-192	E218.6	FLDFLT	4/22/2013	13:37	Chromium, Hexavalent	15.4	ug/L	1.0
807606-003	MW-33-090-192	SW6020	FLDFLT	4/22/2013	13:37	Chromium	15.7	ug/L	1.0
807606-004	MW-33-150-192	E218.6	FLDFLT	4/22/2013	15:03	Chromium, Hexavalent	11.2	ug/L	1.0
807606-004	MW-33-150-192	SW6020	FLDFLT	4/22/2013	15:03	Chromium	11.8	ug/L	1.0
807606-005	MW-44-070-192	E218.6	FLDFLT	4/22/2013	9:33	Chromium, Hexavalent	ND	ug/L	0.20
807606-005	MW-44-070-192	SW6020	FLDFLT	4/22/2013	9:33	Chromium	ND	ug/L	1.0
807606-006	MW-208-192	E218.6	FLDFLT	4/23/2013	7:55	Chromium, Hexavalent	ND	ug/L	0.20
807606-007	MW-209-192	E218.6	FLDFLT	4/23/2013	8:00	Chromium, Hexavalent	ND	ug/L	0.20

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

Note: The following "Significant Figures" rule has been applied to all results:

Results below 0.01ppm will have two (2) significant figures.

Result above or equal to 0.01ppm will have three (3) significant figures.

Quality Control data will always have three (3) significant figures.

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

Page 1 of 6

14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

Printed 5/7/2013

Laboratory No. 807606

REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project
Project Number: 423575.MP.07.TS
P.O. Number: 423575.MP.07.TS

Release Number:

Samples Received on 4/23/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-44-125-192	807606-001	04/18/2013 16:10	Water
MW-33-040-192	807606-002	04/22/2013 11:07	Water
MW-33-090-192	807606-003	04/22/2013 13:37	Water
MW-33-150-192	807606-004	04/22/2013 15:03	Water
MW-44-070-192	807606-005	04/22/2013 09:33	Water
MW-208-192	807606-006	04/23/2013 07:55	Water
MW-209-192	807606-007	04/23/2013 08:00	Water

Chrome VI by EPA 218.6		Batch 04CrH13W				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
807606-001 Chromium, Hexavalent	ug/L	04/25/2013 14:28	5.00	0.0460	1.0	ND
807606-002 Chromium, Hexavalent	ug/L	04/25/2013 08:02	1.00	0.00920	0.20	ND
807606-003 Chromium, Hexavalent	ug/L	04/25/2013 09:36	5.00	0.0460	1.0	15.4
807606-004 Chromium, Hexavalent	ug/L	04/25/2013 09:46	5.00	0.0460	1.0	11.2
807606-005 Chromium, Hexavalent	ug/L	04/25/2013 08:33	1.00	0.00920	0.20	ND
807606-006 Chromium, Hexavalent	ug/L	04/25/2013 09:04	1.00	0.00920	0.20	ND
807606-007 Chromium, Hexavalent	ug/L	04/25/2013 09:15	1.00	0.00920	0.20	ND

Method Blank		Tomalismon etaliste more mai Silvi suota militari materialessa mai	e la segue de proposició de la capacita de la calcular de la calcu	en falle fra tre tre en en en en falle fra falle en falle en falle fra falle fra falle fra falle fra falle fra La sett en grett fra en en entre en falle fra falle en en en falle fra falle en en en en falle fra falle fra f	kan palatan kan palatan kan penggalah kan penggalah kan penggalah kan penggalah kan penggalah kan penggalah k Bana penggalah kan penggal	ustigannen 1974 eta 1970 eta 1980 eta La martikalarria eta 1980 eta
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result N D			
Duplicate						Lab ID = 807520-001
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 2.29	Expected 2.35	RPD 2.67	Acceptance Range 0 - 20
Low Level Calibrat	ion Verificatio	n Hijo ya				
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.194	Expected 0.200	Recovery 96.8	Acceptance Range 70 - 130



Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 2 of 6

Project Number: 423575.MP.07.TS Printed 5/7/2013

Lab Control Sample						
Parameter	Unit	DF	Result	Expected 5.00	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.95		99.0	90 - 110
Matrix Spike	Dvy 1475 astry					Lab ID = 807520-001
Parameter	Unit	DF	Result	Expected/Added 7.35(5.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.21		97.2	90 - 110
Matrix Spike						Lab ID = 807520-002
Parameter	Unit	DF	Result	Expected/Added 1.33(1.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.33		99.7	90 - 110
Matrix Spike						Lab ID = 807520-003
Parameter	Unit	DF	Result	Expected/Added 1.06(1.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05		98.8	90 - 110
Matrix Spike						Lab ID = 807520-004
Parameter	Unit	DF	Result	Expected/Added 1.50(1.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.46		96.0	90 - 110
Matrix Spike						Lab ID = 807520-005
Parameter	Unit	DF	Result	Expected/Added 6.40(5.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.19		95.8	90 - 110
Matrix Spike						Lab ID = 807520-006
Parameter	Unit	DF	Result	Expected/Added 7.11(5.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.88		95.4	90 - 110
Matrix Spike						Lab ID = 807520-007
Parameter	Unit	DF	Result	Expected/Added 7.12(5.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.87		95.0	90 - 110
Matrix Spike						Lab ID = 807520-008
Parameter	Unit	DF	Result	Expected/Added 8.08(5.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.74		93.2	90 - 110
Matrix Spike	Managaman karangan			er 1990 i ser egile er etter er egile er framstattatt. Medita er greger er for en egiletetigt gegeter egil		Lab ID = 807520-009
Parameter	Unit	DF	Result	Expected/Added 8.04(5.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.73		93.8	90 - 110
Matrix Spike						Lab ID = 807520-010
Parameter	Unit	DF	Result	Expected/Added 1.00(1.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.985		98.5	90 - 110
Matrix Spike	ere jugo Kitiga eta keralasak					Lab ID = 807520-011
Parameter	Unit	DF	Result	Expected/Added 1.00(1.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.973		97.3	90 - 110



Client: E2 Consulting Engineers, Inc.			oject Name: oject Numbe	ject	Page 3 of 6 Printed 5/7/2013	
Matrix Spike						Lab ID = 807520-012
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.993	Expected/Added 1.00(1.00)	Recovery 99.3	Acceptance Range 90 - 110 Lab ID = 807603-001
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.11	Expected/Added 1.13(1.00)	Recovery 98.2	Acceptance Range 90 - 110
Matrix Spike Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 4.91	Expected/Added 5.17(5.00)	Recovery 94.9	Lab ID = 807603-001 Acceptance Range 90 - 110 Lab ID = 807606-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.937	Expected/Added 1.00(1.00)	Recovery 93.7	Acceptance Range 90 - 110 Lab ID = 807606-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 4.79	Expected/Added 5.00(5.00)	Recovery 95.8	Acceptance Range 90 - 110 Lab ID = 807606-002
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.03(1.00)	Recovery 98.3	Acceptance Range 90 - 110 Lab ID = 807606-003
Matrix Spike Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 37.9	Expected/Added 40.4(25.0)	Recovery 90.2	Acceptance Range 90 - 110
Matrix Spike Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 34.4	Expected/Added 36.2(25.0)	Recovery 92.8	Acceptance Range 90 - 110 Lab ID = 807606-005
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.943	Expected/Added 1.00(1.00)	Recovery 94.3	Acceptance Range 90 - 110
Matrix Spike Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.00	Expected/Added 1.01(1.00)	Recovery 98.9	Acceptance Range 90 - 110
Matrix Spike Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.958	Expected/Added 1.01(1.00)	Recovery 94.7	Lab ID = 807606-007 Acceptance Range 90 - 110
MRCCS - Secondary Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 4.95	Expected 5.00	Recovery 99.0	Acceptance Range 90 - 110



Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 5 of 6

Project Number: 423575.MP.07.TS

Printed 5/7/2013

Metals by EPA 6020A, [Dissolved		Batch	042513A				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
807606-001 Chromium		ug/L	04/25	5/2013 12:03	.00	0.184	1.0	5.3
807606-002 Chromium		ug/L	04/25	5/2013 12:09	.00	0.184	1.0	ND
807606-003 Chromium		ug/L	04/25/2013 12:15		.00	0.184	1.0	15.7
807606-004 Chromium		ug/L	04/25/2013 12:21		.00	0.184	1.0	11.8
807606-005 Chromium		ug/L	04/25	5/2013 12:27 2	.00	0.184	1.0	ND
Method Blank								
Parameter Chromium	Unit ug/L	DF 1.00	Result ND					
Duplicate	igge Sections	nie.	11 0 2010:00-740				Lab ID =	807604-001
Parameter Chromium	Unit ug/L	DF 2.00	Result Expected 15.0 15.5			RPD 2.91	Accepta	ance Range
Low Level Calibration	n Verification							
Parameter Chromium	Unit ug/L	DF 1.00	Result 0.222	Expected 0.200	ı	Recovery 111	Acceptance Range	
Lab Control Sample	Pilotavada a							
Parameter Chromium	Unit ug/L	DF 2.00	Result 48.6	Expected 50.0	F	Recovery 97.3	Accepta 85 - 118	ance Range
Matrix Spike	er audzīguadī						Lab ID =	807604-001
Parameter Chromium	Unit ug/L	DF 2.00	Result 64.1	Expected/Adde 65.5(50.0)	d I	Recovery 97.3	Acceptance Range	
Matrix Spike Duplica							Lab ID =	807604-001
Parameter Chromium	Unit ug/L	DF 2.00	Result 63.4	Expected/Adde 65.5(50.0)	d I	Recovery 95.7	Accepta 75 - 125	ance Range
MRCCS - Secondary								
Parameter Chromium	Unit ug/L	DF 1.00	Result 20.0	Expected 20.0	. 1	Recovery 99.8	Accepta 90 - 110	ance Range)
MRCVS - Primary								
Parameter Chromium	Unit ug/L	DF 1.00	Result 19.9	Expected 20.0	I	Recovery 99.5	Accepta 90 - 110	ance Range)
MRCVS - Primary								
Parameter Chromium	Unit ug/L	DF 1.00	Result 18.6	Expected 20.0	i	Recovery 92.9	Accepta 90 - 110	ance Range)



Client: E2 Consulting Engineers, Inc.	Project Name:	PG&E Topock Project	Page 6 of 6
	Project Number:	423575.MP.07.TS	Printed 5/7/2013

MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.7	20.0	98.4	90 - 110
Interference Check Sta	ndard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		
Interference Check Sta	ndard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		
Interference Check Sta	ndard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.8	20.0	109	80 - 120
Interference Check Sta	ndard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	99.2	80 - 120

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

fo/

Mona Nassimi

Manager, Analytical Services

For Sample Conditions See Form Attached

CHAIN OF CUSTODY RECORD

CH2MHILL 4/23/2013 2:01:56 PM Page 3 OF 2x250 500 ml 2x500 Project Name PG&E Topock Container Poly ml Poly Poly ml Poly Location Topock (NH4)2S (NH4)2S HNO3, HNO3. Preservatives 04/NH40 04/NH40 4°C 4°C Project Manager Jay Piper H, 4°C H, 4°C Sample Manager Shawn Duffy Filtered: Field Field Field Field **Holding Time** 28 28 180 180 Project Number 423575.MP.07.TS Metals Cr6 Cr6 (E218.6) Field Filtered Task Order Project 2013-GMP-192-Q2 (6020A-R) Field Filtered Chromium Number of Containers (6020A) Field Filtered Chromium Turnaround Time 10 Days Shipping Date: 4/23/2013 COC Number: 4 COMMENTS DATE TIME Matrix MW-44-125-192 4/18/2013 16:10 Water X X MW-33-040-192 4/22/2013 11:07 Water X X MW-33-040-192-EB 2 4/22/2013 10:18 Water X X 2 MW-33-090-192 4/22/2013 13:37 Water X X m22 MW-33-150-192 2 15:03 4/22/2013 Water X A MW-44-070-192 4 4/22/2013 9:33 Water X X MW-44-070-192-EB 2 4/22/2013 8:55 Water X X MW-208-192 Approx. 4/23/2013 7:55 Water X MW-209-192 4/23/2013 8:00 Water A. X MW-44-125-192-EB 4-22-13 1140 X Water TOTAL NUMBER OF CONTAINERS

Approved by

Signatures

Date/Time

1-23-/3

Method of Shipment: courier

On Ice: yes / no

Received by

Relinquished by

Relinquished by

Received by

Special Instructions:

April 15 to May 9, 2013

Sample Custody

ATTN:

Report Copy to

Shawn Duffy (530) 229-3303

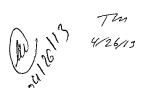
Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
4/19/13	8075-47	9,5	NA	NIA	MA	Jun
4/19/73	8075611	9.5	NA	NIA	MA	m
	-2					
	-3					
	-4				:	
9 0 04/24/	807603	7.0	2 ml	4.5	13:15	NE
, ,	8076041	9.5	NIA	N/4	MA	NE
	2	ŀ	\			1
	- 3					
	_Y					
	_ 5	-				
	-6					
	~ 7					
	-8					
	-9			1		
	- 10	<i>J</i>	<u> </u>	Ψ	V	
04/24/13	807605-1	9.5	N14	NIA	NIA	NE
	-2		·			
	- 4					
	-5					
	-6					
	-7					
	-8		<u> </u>		<u></u>	
7	-9	V.	V	¥	1	
64/24/13	807606-1	9.5	NA	NIA	NIA	NE
	_ 2					
	_ 3					
	- 4					
	-5					
	-6		$\overline{}$	V	K	V



Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Numbe	er Initial pH	Buffer Added (mL)	Final pH	Time Buffered	d Initials	
04/24/17	807606-	7 4.5	MIA	NIA	N14	NE	
4/25/13	807637 - 1	7.0	\$ 50 ml /250ml	9.5	17:00	Ter	
	-2						
	-2						
	~4						
	5						
	- 6						
	-7						
	-8						
$\sqrt{}$	J -10		<u> </u>				
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	and the second s	······································	<u> 18 maria - Mary Maria da Espain de E</u>	rraga dagu sadaa			
			·				





Turbidity/pH Check

Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
297561(1434)	<١	42	1-23-12	BE	Xes			
807585L1-5)			4-24-13					
8:1603			 			BE		
80760461-19)		<2					·	
807605 LI-7								
80760861-5)			1					
807572(1-2)		STIC	4/24/13	ES	y-es	-		
807570	L 1	42	i	1		-		
807571	Ì							
807582								,
807587	J	V			\mathcal{L}			
507592(1-2)	L 1	72			No	41:00		
807596(1-3)	V	V		d	1	1		
407603	21	72	24/24/13	ES	yes	11:00		
807604(147.16)	۷١	12	1				·) , .	
607604(147410) 607605(14779)							(ES 4/24/12)	
807606 (1-5)						COCCUCATION)	
905 585 (1-\$)	$\overline{}$			1	-			-
517612	71	> 2	4/4/13	n	yes.	16:20		
807613-2	71	42	4/25/13	m	ifes			
807614-10-712	٤١	72	ì	J	No	11:30		
\$07630	1	42	1	pu	yes			
807631		1		.v	yes J			
Q07626(1-6)	<\	<2	4-26-(3)	B Z-	xez			
807640 (1-6)	1		7	7	1			
:07666	71	72	4-30-13	BE-	No	10:30		
807683(1-3)	(4)	72	5/1/13	m	No	14:30		
807692(1,2)	1	1	1	1	1	ì		
807696(1-3)			- 1		t			
507704 L10-12	<\	. 72	5-2-13	BE	NO	7200		
507662	4	42	5/2/13	n	ifea			
807663	1	1		1	0 ₁			
807699								
807705	71		,		1			
807716/375-15) <1	42	5-2-13	BZ	yen			
07716(26-30,32	-)							
801717 (1-2)		72		1.		11:30	After Filtter	
807718		٧ 2						-
80771911-2)		72	1			11:30		
807719-2	- 	72				11:30	AFTA Filter	
80 772061-4		1 2		1				
	•		Y	**				-
						+		
			I			1	1	

Notes:

- Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
 All Total Recoverable Analytes must be pH adjusted and digested.
 Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

Sample Integrity & Analysis Discrepancy Form

_ (Client: <u>E 2</u>	_ Lab # 80760
<u> </u>	Date Delivered: 4 1 23 / 13 Time: 2/130 By: □Mail 🗵	iField Service
1.	Was a Chain of Custody received and signed?	AYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ≜N/A
<i>3</i> .	Are there any special requirements or notes on the COC?	□Yes □No ₺N/A
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No ÞN/A
5. :	Were all requested analyses understood and acceptable?	ÆYes □No □N/A
6.	Were samples received in a chilled condition? Temperature (if yes)? $3.8 ^{\circ}$ C	☐Yes ☐No ☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	ØYes □No □N/A
8.	Were sample custody seals intact?	□Yes □No ĐÑ/A
9.	Does the number of samples received agree with COC?	⊈Yes □No □N/A
10.	Did sample labels correspond with the client ID's?	Yes ONO ON/A
1 1.	Did sample labels indicate proper preservation? Preserved (if yes) by: ②Truesdail □Client	ØYes □No □N/A
12.	Were samples pH checked? pH = Sele C. O.C.	ÆYes □No □N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☐Yes □No □N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): RUSH All Std	ØYes □No □N/A
15.	Sample Matrix: DLiquid Drinking Water DGround	Vater DWaste Water
	□Sludge □Soil □Wipe □Paint □Solid □	other Water
16.	Comments:	20/
<i>17.</i>	Sample Check-In completed by Truesdail Log-In/Receiving:	Ludla

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

June 3, 2013

E2 Consulting Engineers, Inc. Mr. Shawn Duffy 155 Grand Ave., Suite 1000 Oakland, California 94612

Dear Mr. Duffy:

SUBJECT:

REVISED CASE NARRATIVE PG&E TOPOCK 2013-GMP-192-Q2, GROUNDWATER MONITORING PROJECT, TLI NO.: 807716

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-192-Q2 groundwater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody May 1, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Due to the discrepancy between the Total Dissolved Chromium (8.9 ug/L) and Hexavalent Chromium (10.6 ug/L) results for sample MW-16-192, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 10.4 ug/L and 10.1 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and yielded a result of 9.8 ug/L. The result from the re-digested Total Dissolved Chromium sample was reported as it more closely matched the results from the Hexavalent Chromium sample container.

Due to the discrepancy between the Total Dissolved Chromium (2.5 ug/L) and Hexavalent Chromium (1.3 ug/L) results for sample MW-63-065-192, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 1.5 ug/L and 1.3 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and yielded a result of 2.3 ug/L. The result from the re-digested Total Dissolved Chromium sample was reported as it more closely matched the results from the Hexavalent Chromium sample container.

The Analytical Results Summary (pg. 6) and final report page (pg. 18) were revised for sample MW-71-035-192 to report the straight run result of 0.44 ug/L for Hexavalent Chromium rather than the result of ND<1.0 ug/L from the 5x dilution at the request of Ms. Erlene Contreras of CH2M Hill. Because the straight run for the sample was just outside the retention time window and the peak was slightly wide, no matrix spike was analyzed. Instead, a 5x and 5x matrix spike were analyzed and both were within acceptable limits.

No other violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,

TRUESDAIL LABORATORIES, INC.

Michael Ngo Mu Must Quality Assurance/Quality Control Officer

Mona Nassimi

Manager, Analytical Services

TRUESDAIL LABORATORIES, INC.

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Laboratory No.: 807716

Date Received: May 1, 2013

Client: E2 Consulting Engineers, Inc. 155 Grand Ave. Suite 1000

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project Project No.: 423575.MP.07.TS P.O. No.: 423575.MP.07.TS

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807716-001	MW-210-192	E218.6	FLDFLT	4/23/2013	14:00	Chromium, Hexavalent	ND	ug/L	0.20
807716-002	MW-211-192	E218.6	FLDFLT	4/23/2013	15:55	Chromium, Hexavalent	ND	ug/L	0.20
807716-004	MW-212-192	E218.6	FLDFLT	4/23/2013	15:58	Chromium, Hexavalent	ND	ug/L	0.20
807716-005	MW-23-060-192	E218.6	FLDFLT	4/23/2013	11:13	Chromium, Hexavalent	34.3	ug/L	1.0
807716-005	MW-23-060-192	SW6020	FLDFLT	4/23/2013	11:13	Chromium	38.3	ug/L	1.0
807716-006	MW-23-080-192	E218.6	FLDFLT	4/23/2013	13:08	Chromium, Hexavalent	14.0	ug/L	1.0
807716-006	MW-23-080-192	SW6020	FLDFLT	4/23/2013	13:08	Chromium	15.0	ug/L	1.0
807716-007	MW-33-210-192	E218.6	FLDFLT	4/23/2013	9:24	Chromium, Hexavalent	10.2	ug/L	1.0
807716-007	MW-33-210-192	SW6020	FLDFLT	4/23/2013	9:24	Chromium	10.6	ug/L	1.0
807716-008	MW-35-060-192	E218.6	FLDFLT	4/23/2013	14:15	Chromium, Hexavalent	25.4	ug/L	1.0
807716-008	MW-35-060-192	SW6020	FLDFLT	4/23/2013	14:15	Chromium	24.4	ug/L	1.0
807716-009	MW-35-135-192	E218.6	FLDFLT	4/23/2013	15:24	Chromium, Hexavalent	27.4	ug/L	1.0
807716-009	MW-35-135-192	SW6020	FLDFLT	4/23/2013	15:24	Chromium	28.9	ug/L	1.0
807716-010	MW-41D-192	E218.6	FLDFLT	4/23/2013	11:52	Chromium, Hexavalent	2.9	ug/L	1.0
807716-010	MW-41D-192	SW6020	FLDFLT	4/23/2013	11:52	Chromium	3.0	ug/L	1.0
807716-011	MW-57-185-192	E218.6	FLDFLT	4/23/2013	15:26	Chromium, Hexavalent	10.2	ug/L	1.0
807716-011	MW-57-185-192	SW6020	FLDFLT	4/23/2013	15:26	Chromium	9.8	ug/L	1.0
807716-012	MW-126-192	E218.6	FLDFLT	4/24/2013	8:57	Chromium, Hexavalent	13.4	ug/L	0.20
807716-012	MW-126-192	SW6020	FLDFLT	4/24/2013	8:57	Chromium	12.3	ug/L	1.0
807716-013	MW-16-192	E218.6	FLDFLT	4/24/2013	11:00	Chromium, Hexavalent	10.6	ug/L	0.20
807716-013	MW-16-192	SW6020	FLDFLT	4/24/2013	11:00	Chromium	10.4	ug/L	1.0
807716-014	MW-17-192	E218.6	FLDFLT	4/24/2013	12:20	Chromium, Hexavalent	12.9	ug/L	0.20
807716-014	MW-17-192	SW6020	FLDFLT	4/24/2013	12:20	Chromium	11.8	ug/L	1.0
807716-015	MW-21-192	E218.6	FLDFLT	4/24/2013	9:55	Chromium, Hexavalent	1.5	ug/L	1.0
807716-015	MW-21-192	SW6020	FLDFLT	4/24/2013	9:55	Chromium	1.9	ug/L	1.0

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Lab Sa	ample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807710	6-016	MW-213-192	E218.6	FLDFLT	4/24/2013	16:35	Chromium, Hexavalent	ND	ug/L	0.20
807710		MW-36-100-192	E218.6	FLDFLT	4/24/2013	15:20	Chromium, Hexavalent	56.5	ug/L	1.0
807710	6-017	MW-36-100-192	SW6020	FLDFLT	4/24/2013	15:20	Chromium	52.6	ug/L	1.0
807710	6-018	MW-44-115-192	E218.6	FLDFLT	4/24/2013	13:50	Chromium, Hexavalent	64.5	ug/L	1.0
807710	6-018	MW-44-115-192	SW6020	FLDFLT	4/24/2013	13:50	Chromium	65.4	ug/L	1.0
80771		MW-46-175-192	E218.6	FLDFLT	4/24/2013	11:08	Chromium, Hexavalent	26.4	ug/L	1.0
80771	6-019	MW-46-175-192	SW6020	FLDFLT	4/24/2013	11:08	Chromium	26.3	ug/L	1.0
807710	6-020	MW-46-205-192	E218.6	FLDFLT	4/24/2013	9:08	Chromium, Hexavalent	5.6	ug/L	1.0
807710	6-020	MW-46-205-192	SW6020	FLDFLT	4/24/2013	9:08	Chromium	5.4	ug/L	1.0
807710	6-021	MW-47-055-192	E218.6	FLDFLT	4/24/2013	15:13	Chromium, Hexavalent	16.4	ug/L	0.20
80771	6-021	MW-47-055-192	SW6020	FLDFLT	4/24/2013	15:13	Chromium	14.3	ug/L	1.0
80771	6-022	MW-47-115-192	E218.6	FLDFLT	4/24/2013	14:37	Chromium, Hexavalent	23.7	ug/L	1.0
80771	6-022	MW-47-115-192	SW6020	FLDFLT	4/24/2013	14:37	Chromium	21.1	ug/L	1.0
80771	6-023	MW-50-095-192	E218.6	FLDFLT	4/24/2013	8:55	Chromium, Hexavalent	13.6	ug/L	0.20
80771	6-023	MW-50-095-192	SW6020	FLDFLT	4/24/2013	8:55	Chromium	12.4	ug/L	1.0
80771	6-024	MW-214-192	E218.6	FLDFLT	4/25/2013	8:05	Chromium, Hexavalent	ND	ug/L	0.20
80771	6-025	MW-215-192	E218.6	FLDFLT	4/25/2013	15:25	Chromium, Hexavalent	ND	ug/L	0.20
80771	6-026	MW-48-192	E218.6	FLDFLT	4/25/2013	8:20	Chromium, Hexavalent	ND	ug/L	1.0
80771	6-026	MW-48-192	SW6020	FLDFLT	4/25/2013	8:20	Chromium	ND	ug/L	1.0
80771	6-027	MW-62-065-192	E218.6	FLDFLT	4/25/2013	15:10	Chromium, Hexavalent	589	ug/L	5.0
80771	6-027	MW-62-065-192	SW6020	FLDFLT	4/25/2013	15:10	Chromium	607	ug/L	2.0
80771	6-028	MW-63-065-192	E218.6	FLDFLT	4/25/2013	9:40	Chromium, Hexavalent	1.3	ug/L	1.0
80771	6-028	MW-63-065-192	SW6020	FLDFLT	4/25/2013	9:40	Chromium	1.5	ug/L	1.0
80771	6-029	MW-70-105-192	E218.6	FLDFLT	4/25/2013	11:45	Chromium, Hexavalent	198	ug/L	2.0
80771	6-029	MW-70-105-192	SW6020	FLDFLT	4/25/2013	11:45	Chromium	201	ug/L	1.0
80771	6-030	MW-72-080-192	E218.6	FLDFLT	4/25/2013	13:29	Chromium, Hexavalent	116	ug/L	1.0
80771	6-030	MW-72-080-192	SW6020	FLDFLT	4/25/2013	13:29	Chromium	124	ug/L	2.0
80771	6-031	MW-217-192	E218.6	FLDFLT	4/29/2013	15:05	Chromium, Hexavalent	ND	ug/L	0.20
80771	6-032	MW-72BR-200-192	E218.6	FLDFLT	4/29/2013	14:09	Chromium, Hexavalent	4.9	ug/L	1.0
80771	6-032	MW-72BR-200-192	SW6020	FLDFLT	4/29/2013	14:09	Chromium	5.7	ug/L	1.0
80771	6-033	MW-218-192	E218.6	FLDFLT	4/30/2013	15:20	Chromium, Hexavalent	ND	ug/L	0.20
80771	6-034	MW-219-192	E218.6	FLDFLT	4/30/2013	19:20	Chromium, Hexavalent	ND	ug/L	0.20
80771	6-035	MW-37D-192	E218.6	FLDFLT	4/30/2013	13:57	Chromium, Hexavalent	108	ug/L	1.0
80771	6-035	MW-37D-192	SW6020	FLDFLT	4/30/2013	13:57	Chromium	120	ug/L	1.0
80771		MW-58BR-192	E218.6	FLDFLT	4/30/2013	11:53	Chromium, Hexavalent	ND	ug/L	1.0
80771	6-036	MW-58BR-192	SW6020	FLDFLT	4/30/2013	11:53	Chromium	ND	ug/L	1.0

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Revision 1; June 3, 2013

Lab Sample II	D Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807716-037	MW-71-035-192	E218.6	FLDFLT	4/30/2013	7:32	Chromium, Hexavalent	0.44	ug/L	0.20
807716-037	MW-71-035-192	SW6020	FLDFLT	4/30/2013	7:32	Chromium	ND	ug/L	1.0
807716-038	GMP-AB1-192	E218.6	FLDFLT	4/23/2013	11:13	Chromium, Hexavalent	ND	ug/L	0.20
807716-039	GMP-AB2-192	E218.6	FLDFLT	4/23/2013	11:52	Chromium, Hexavalent	ND	ug/L	0.20

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

Note: The following "Significant Figures" rule has been applied to all results:

Results below 0.01ppm will have two (2) significant figures.

Result above or equal to 0.01ppm will have three (3) significant figures.

Quality Control data will always have three (3) significant figures.

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Page 1 of 16

14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

Printed 5/29/2013

Laboratory No. 807716

REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project
Project Number: 423575.MP.07.TS
P.O. Number: 423575.MP.07.TS

Release Number:

Samples Received on 5/1/2013 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-210-192	807716-001	04/23/2013 14:00	Water
MW-211-192	807716-002	04/23/2013 15:55	Water
MW-21-192-EB (On F	807716-003	04/23/2013 09:33	Water
MW-212-192	807716-004	04/23/2013 15:58	Water
MW-23-060-192	807716-005	04/23/2013 11:13	Water
MW-23-080-192	807716-006	04/23/2013 13:08	Water
MW-33-210-192	807716-007	04/23/2013 09:24	Water
MW-35-060-192	807716-008	04/23/2013 14:15	Water
MW-35-135-192	807716-009	04/23/2013 15:24	Water
MW-41D-192	807716-010	04/23/2013 11:52	Water
MW-57-185-192	807716-011	04/23/2013 15:26	Water
MW-126-192	807716-012	04/24/2013 08:57	Water
MW-16-192	807716-013	04/24/2013 11:00	Water
MW-17-192	807716-014	04/24/2013 12:20	Water
MW-21-192	807716-015	04/24/2013 09:55	Water
MW-213-192	807716-016	04/24/2013 16:35	Water
MW-36-100-192	807716-017	04/24/2013 15:20	Water
MW-44-115-192	807716-018	04/24/2013 13:50	Water
MW-46-175-192	807716-019	04/24/2013 11:08	Water
MW-46-205-192	807716-020	04/24/2013 09:08	Water
MW-47-055-192	807716-021	04/24/2013 15:13	Water
MW-47-115-192	807716-022	04/24/2013 14:37	Water
MW-50-095-192	807716-023	04/24/2013 08:55	Water
MW-214-192	807716-024	04/25/2013 08:05	Water
MW-215-192	807716-025	04/25/2013 15:25	Water
MW-48-192	807716-026	04/25/2013 08:20	Water
MW-62-065-192	807716-027	04/25/2013 15:10	Water
MW-63-065-192	807716-028	04/25/2013 09:40	Water
MW-70-105-192	807716-029	04/25/2013 11:45	Water
MW-72-080-192	807716-030	04/25/2013 13:29	Water
MW-217-192	807716-031	04/29/2013 15:05	Water



MW-72BR-200-192	807716-032	04/29/2013 14:09	Water
MW-218-192	807716-033	04/30/2013 15:20	Water
MW-219-192	807716-034	04/30/2013 19:20	Water
MW-37D-192	807716-035	04/30/2013 13:57	Water
MW-58BR-192	807716-036	04/30/2013 11:53	Water
MW-71-035-192	807716-037	04/30/2013 07:32	Water
GMP-AB1-192	807716-038	04/23/2013 11:13	Water
GMP-AB2-192	807716-039	04/23/2013 11:52	Water

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.07.TS

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Batch 05CrH13A Chrome VI by EPA 218.6 DF Parameter Unit Analyzed MDL RL Result 807716-001 Chromium, Hexavalent ug/L 05/02/2013 13:40 1.00 0.00920 0.20 ND 05/02/2013 13:50 1.00 0.00920 0.20 ND 807716-002 Chromium, Hexavalent ug/L 807716-004 Chromium, Hexavalent ug/L 05/02/2013 14:01 1.00 0.00920 0.20 ND 05/02/2013 14:21 5.00 0.0460 1.0 34.3 807716-005 Chromium, Hexavalent ug/L 05/02/2013 15:56 5.00 0.0460 1.0 14.0 807716-006 Chromium, Hexavalent ug/L 807716-007 Chromium, Hexavalent 05/02/2013 17:18 5.00 0.0460 1.0 10.2 ug/L 807716-008 Chromium, Hexavalent 05/02/2013 17:29 5.00 0.0460 1.0 25.4 ug/L 807716-009 Chromium, Hexavalent ug/L 05/02/2013 17:39 5.00 0.0460 1.0 27.4 807716-010 Chromium, Hexavalent 05/02/2013 17:49 5.00 0.0460 1.0 2.9 ug/L Method Blank Unit DF Result Parameter Chromium, Hexavalent ug/L 1.00 ND Lab ID = 807716-008 Duplicate Parameter Unit DF Result Expected **RPD** Acceptance Range 25.3 25.4 0.521 0 - 20 Chromium, Hexavalent ug/L 1.00 Low Level Calibration Verification DF Result Expected Recovery Acceptance Range Parameter Unit

0.199

Result

4.88

Result

0.957

0.200

5.00

Expected

1.00(1.00)

Expected/Added

99.6

Recovery

97.5

Recovery

95.7

70 - 130

90 - 110

90 - 110

Acceptance Range

Lab ID = 807716-001

Acceptance Range

1.00

DF

1.00

DF

1.00

ug/L

Unit

Unit

ug/L

ug/L

Chromium, Hexavalent

Chromium, Hexavalent

Matrix Spike

Chromium, Hexavalent

Parameter

Parameter

Lab Control Sample



Client: E2 Consulting En	gineers, Inc		roject Name: roject Number	PG&E Topock Pro: 423575.MP.07.TS	~	Page 3 of 16 Printed 5/29/2013
Matrix Spike						Lab ID = 807716-002
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.943	Expected/Added 1.00(1.00)	Recovery 94.3	Acceptance Range 90 - 110 Lab ID = 807716-004
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.961	Expected/Added 1.00(1.00)	Recovery 96.1	Acceptance Range 90 - 110
Matrix Spike Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 81.6	Expected/Added 84.3(50.0)	Recovery 94.6	Lab ID = 807716-005 Acceptance Range 90 - 110 Lab ID = 807716-006
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 38.1	Expected/Added 39.0(25.0)	Recovery 96.4	Acceptance Range 90 - 110 Lab ID = 807716-007
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 33.7	Expected/Added 35.2(25.0)	Recovery 94.1	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807716-008
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 74.3	Expected/Added 75.4(50.0)	Recovery 97.8	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807716-009
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 76.0	Expected/Added 77.4(50.0)	Recovery 97.3	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807716-010
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 7.86	Expected/Added 7.90(5.00)	Recovery 99.2	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807717-001
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 14.4	Expected/Added 15.0(10.0)	Recovery 93.8	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807718-001
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 29.0	Expected/Added 31.0(25.0)	Recovery 92.1	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807719-001
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.06	Expected/Added 1.09(1.00)	Recovery 97.0	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807719-001
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 4.90	Expected/Added 5.10(5.00)	Recovery 95.9	Acceptance Range 90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Chrome VI by EPA 218.6	6		Batch	05CrH13B				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
807716-011 Chromium, Hex	avalent	ug/L	05/03	/2013 14:21	5.00	0.0460	1.0	10.2
807716-012 Chromium, Hex	avalent	ug/L	05/03	/2013 11:30	1.00	0.00920	0.20	13.4
807716-013 Chromium, Hex	avalent	ug/L	05/03/2013 11:41		1.00	0.00920	0.20	10.6
807716-014 Chromium, Hex	avalent	ug/L	05/03	/2013 12:58	1.00	0.00920	0.20	12.9
807716-015 Chromium, Hex	avalent	ug/L	05/03	/2013 14:32	5.00	0.0460	1.0	1.5
807716-016 Chromium, Hex	avalent	ug/L	05/03	/2013 13:19	1.00	0.00920	0.20	ND
807716-017 Chromium, Hex	avalent	ug/L	05/03	/2013 13:29	5.00	0.0460	1.0	56.5
807716-018 Chromium, Hex	avalent	ug/L	05/03	/2013 13:40	5.00	0.0460	1.0	64.5
807716-019 Chromium, Hex	avalent	ug/L	05/03	/2013 13:50	5.00	0.0460	1.0	26.4
807716-020 Chromium, Hex	avalent	ug/L	05/03	/2013 15:03	5.00	0.0460	1.0	5.6
807716-021 Chromium, Hex	avalent	ug/L	05/03	/2013 10:19	1.00	0.00920	0.20	16.4
807716-022 Chromium, Hex	7716-022 Chromium, Hexavalent ug/L		05/03	/2013 15:13	5.00	0.0460	1.0	23.7
807716-023 Chromium, Hexavalent ug/L		05/03/2013 10:40 1.0		1.00	0.00920	0.20	13.6	
807716-024 Chromium, Hexavalent ug/l		ug/L	05/03/2013 10:59 1.0		1.00	0.00920	0.20	ND
807716-025 Chromium, Hexavalent		ug/L	05/03	/2013 11:09	1.00	0.00920	0.20	ND
Method Blank								
Parameter	Unit	DF	Result					
	Unit ug/L	DF 1.00	Result ND					
Parameter							Lab ID =	807716-021
Parameter Chromium, Hexavalent				Expected	F	RPD		
Parameter Chromium, Hexavalent Duplicate	ug/L	1.00	ND	Expected 16.4	F	RPD 1.76		
Parameter Chromium, Hexavalent Duplicate Parameter	ug/L Unit ug/L	1.00 DF 1.00	ND Result	-	F		Accepta	
Parameter Chromium, Hexavalent Duplicate Parameter Chromium, Hexavalent	ug/L Unit ug/L	1.00 DF 1.00	ND Result	-			Accepta 0 - 20	ance Range
Parameter Chromium, Hexavalent Duplicate Parameter Chromium, Hexavalent Low Level Calibration	ug/L Unit ug/L verification	1.00 DF 1.00	ND Result 16.1	16.4		1.76	Accepta 0 - 20	ance Range ance Range
Parameter Chromium, Hexavalent Duplicate Parameter Chromium, Hexavalent Low Level Calibration Parameter	ug/L Unit ug/L n Verification Unit	1.00 DF 1.00	ND Result 16.1 Result	16.4 Expected		1.76 Recovery	Accepta 0 - 20 Accepta	ance Range ance Range
Parameter Chromium, Hexavalent Duplicate Parameter Chromium, Hexavalent Low Level Calibration Parameter Chromium, Hexavalent	ug/L Unit ug/L n Verification Unit	1.00 DF 1.00	ND Result 16.1 Result	16.4 Expected	F	1.76 Recovery	Accepta 0 - 20 Accepta 70 - 130	ance Range ance Range)
Parameter Chromium, Hexavalent Duplicate Parameter Chromium, Hexavalent Low Level Calibration Parameter Chromium, Hexavalent Lab Control Sample	ug/L Unit ug/L Verification Unit ug/L	1.00 DF 1.00 DF 1.00	ND Result 16.1 Result 0.207	16.4 Expected 0.200	F	1.76 Recovery 104	Accepta 0 - 20 Accepta 70 - 130	ance Range ance Range) ance Range
Parameter Chromium, Hexavalent Duplicate Parameter Chromium, Hexavalent Low Level Calibration Parameter Chromium, Hexavalent Lab Control Sample Parameter	ug/L Unit ug/L Verification Unit ug/L Unit	1.00 DF 1.00 DF 1.00	ND Result 16.1 Result 0.207	16.4 Expected 0.200 Expected	F	1.76 Recovery 104 Recovery	Accepta 70 - 130 Accepta 70 - 130 Accepta 90 - 110	ance Range ance Range) ance Range
Parameter Chromium, Hexavalent Duplicate Parameter Chromium, Hexavalent Low Level Calibration Parameter Chromium, Hexavalent Lab Control Sample Parameter Chromium, Hexavalent	ug/L Unit ug/L Verification Unit ug/L Unit	1.00 DF 1.00 DF 1.00	ND Result 16.1 Result 0.207	16.4 Expected 0.200 Expected	F F	1.76 Recovery 104 Recovery	Accepta 70 - 130 Accepta 70 - 110 Accepta 90 - 110 Lab ID =	ance Range ance Range ance Range 3 807716-011
Parameter Chromium, Hexavalent Duplicate Parameter Chromium, Hexavalent Low Level Calibration Parameter Chromium, Hexavalent Lab Control Sample Parameter Chromium, Hexavalent Matrix Spike	ug/L Unit ug/L Unit ug/L Unit ug/L Unit ug/L	1.00 DF 1.00 DF 1.00 DF 1.00	Result 16.1 Result 0.207 Result 5.13	Expected 0.200 Expected 5.00	F F	1.76 Recovery 104 Recovery 103	Accepta 70 - 130 Accepta 70 - 110 Accepta 90 - 110 Lab ID =	ance Range ance Range ance Range) 807716-011
Parameter Chromium, Hexavalent Duplicate Parameter Chromium, Hexavalent Low Level Calibration Parameter Chromium, Hexavalent Lab Control Sample Parameter Chromium, Hexavalent Matrix Spike Parameter	ug/L Unit ug/L Verification Unit ug/L Unit ug/L Unit	1.00 DF 1.00 DF 1.00 DF 1.00	ND Result 16.1 Result 0.207 Result 5.13	Expected 0.200 Expected 5.00 Expected/Add	F F	1.76 Recovery 104 Recovery 103	Accepta 70 - 130 Accepta 90 - 110 Lab ID = Accepta 90 - 110	ance Range ance Range ance Range) 807716-011
Parameter Chromium, Hexavalent Duplicate Parameter Chromium, Hexavalent Low Level Calibration Parameter Chromium, Hexavalent Lab Control Sample Parameter Chromium, Hexavalent Matrix Spike Parameter Chromium, Hexavalent	ug/L Unit ug/L Verification Unit ug/L Unit ug/L Unit	1.00 DF 1.00 DF 1.00 DF 1.00	ND Result 16.1 Result 0.207 Result 5.13	Expected 0.200 Expected 5.00 Expected/Add	F F led F	1.76 Recovery 104 Recovery 103	Accepta 70 - 130 Accepta 90 - 110 Lab ID = Accepta 90 - 110 Lab ID =	ance Range ance Range ance Range 807716-011 ance Range



Client: E2 Consulting Engineers, Inc.			Project Name: Project Number:	PG&E Topock Pro 423575.MP.07.TS	ject	Page 6 of 16 Printed 5/29/2013
Matrix Spike						Lab ID = 807716-013
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.03	Result 25.9	Expected/Added 25.6(15.0)	Recovery 102	Acceptance Range 90 - 110 Lab ID = 807716-014
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.03	Result 28.4	Expected/Added 27.9(15.0)	Recovery 103	Acceptance Range 90 - 110 Lab ID = 807716-015
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 6.56	Expected/Added 6.48(5.00)	Recovery 102	Acceptance Range 90 - 110 Lab ID = 807716-016
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.00(1.00)	Recovery 101	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807716-017
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 132	Expected/Added 132(75.0)	Recovery 101	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807716-018
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 137	Expected/Added 140(75.0)	Recovery 97.2	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807716-019
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 79.3	Expected/Added 76.4(50.0)	Recovery 106	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807716-020
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 30.8	Expected/Added 30.6(25.0)	Recovery 101	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807716-021
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.02	Result 37.1	Expected/Added 36.4(20.0)	Recovery 104	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807716-022
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 49.0	Expected/Added 48.7(25.0)	Recovery 101	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807716-023
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.03	Result 29.2	Expected/Added 28.6(15.0)	Recovery 104	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807716-024
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.03	Expected/Added 1.00(1.00)	Recovery 103	Acceptance Range 90 - 110



Client: E2 Consulting Engineers, Inc.			Project Name: Project Number:	PG&E Topock Pro 423575.MP.07.TS	•	Page 7 of 16 Printed 5/29/2013	
Matrix Spike						Lab ID = 807716-025	
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 1.00.	Result 1.03	Expected/Added 1.00(1.00)	Recovery 103	Acceptance Range 90 - 110	
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 4.91	Expected 5.00	Recovery 98.3	Acceptance Range 90 - 110	
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.73	Expected 10.0	Recovery 97.3	Acceptance Range 95 - 105	
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.69	Expected 10.0	Recovery 96.9	Acceptance Range 95 - 105	
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.5	Expected 10.0	Recovery 105	Acceptance Range 95 - 105	
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.3	Expected 10.0	Recovery 103	Acceptance Range 95 - 105	
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 10.4	Expected 10.0	Recovery 104	Acceptance Range 95 - 105	



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Chrome VI by EPA 218.0	8		Batch 05CrH13C					
Parameter		Unit	Anal	yzed	DF	MDL	RL	Result
807716-026 Chromium, Hex	avalent	ug/L	05/07/	/2013 09:16	5.00	0.0460	1.0	ND
807716-027 Chromium, Hex	avalent	ug/L	05/07/2013 09:27		25.0	0.230	5.0	589
807716-028 Chromium, Hex	avalent	ug/L	05/07/2013 11:00		5.00	0.0460	1.0	1.3
807716-029 Chromium, Hex	avalent	ug/L	05/07/	/ 2013 09:37 1	0.0	0.0920	2.0	198
807716-030 Chromium, Hex	avalent	ug/L	05/07/	/2013 10:08	5.00	0.0460	1.0	116
807716-031 Chromium, Hex	avalent	ug/L	05/07/2013 07:22		.00	0.00920	0.20	ND
807716-032 Chromium, Hex	avalent	ug/L	05/07/2013 10:19		5.00	0.0460	1.0	4.9
807716-033 Chromium, Hex	avalent	ug/L	05/07/2013 08:03		.00	0.00920	0.20	ND
807716-034 Chromium, Hex	avalent	ug/L	05/07/	/2013 08:14	.00	0.00920	0.20	ND
807716-035 Chromium, Hex	avalent	ug/L	05/07/	/2013 10:29	5.00	0.0460	1.0	108
807716-036 Chromium, Hex	avalent	ug/L	05/07/	/2013 10:39	5.00	0.0460	1.0	ND
7716-037 Chromium, Hexavalent ug/L		ug/L	05/07/	/2013 08:45	.00	0.00920	0.20	0.44
807716-038 Chromium, Hexavalent		ug/L	05/07/2013 08:55		.00	0.00920	0.20	ND
807716-039 Chromium, Hexavalent		ug/L	05/07/	/2013 09:06	.00	0.00920	0.20	ND
Method Blank								
Parameter	Unit	DF	Result					
Chromium, Hexavalent	ug/L	1.00	ND					
Duplicate							Lab ID =	807716-03
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	nce Range
Chromium, Hexavalent	ug/L	1.00	0.0610	0.0606		0.658	0 - 20	
Low Level Calibration	Verification	refficient						
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Chromium, Hexavalent	ug/L	1.00	0.199	0.200		99.6	70 - 130)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Rang
Chromium, Hexavalent	ug/L	1.00	4.93	5.00		98.6	90 - 110)
Matrix Spike							Lab ID =	807716-02
	Unit	DF	Result	Expected/Adde	ed F	Recovery	Accepta	ance Rang
Parameter			5.04			96.3	90 - 110	`
Parameter Chromium, Hexavalent	ug/L	5.00	5.01	5.20(5.00)		00.0	30 - 110	,
	ug/L	5.00	5.01	5.20(5.00)				, 807716-02
Chromium, Hexavalent	ug/L Unit	5.00 DF	5.01 Result	5.20(5.00) Expected/Adde	ed F	Recovery	Lab ID =	



Client: E2 Consulting Engineers, Inc.			Project Name: Project Number:	ject	Page 9 of 16 Printed 5/29/2013		
Matrix Spike						Lab ID = 807716-028	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 6.06	Expected/Added 6.27(5.00)	Recovery 95.9	Acceptance Range 90 - 110 Lab ID = 807716-028	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 6.21	Expected/Added 6.32(5.00)	Recovery 97.8	Acceptance Range 90 - 110 Lab ID = 807716-029	
Parameter Chromium, Hexavalent	Unit ug/L	DF 10.0	Result 385	Expected/Added 398(200)	Recovery 93.4	Acceptance Range 90 - 110	
Matrix Spike Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 236	Expected/Added 241(125)	Recovery 95.6	Lab ID = 807716-030 Acceptance Range 90 - 110	
Matrix Spike						Lab ID = 807716-031	
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.06(1.00)	Recovery 94.9	Acceptance Range 90 - 110	
Matrix Spike						Lab ID = 807716-032	
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 9.63	Expected/Added 9.86(5.00)	Recovery 95.4	Acceptance Range 90 - 110	
Matrix Spike						Lab ID = 807716-033	
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.921	Expected/Added 1.00(1.00)	Recovery 92.1	Acceptance Range 90 - 110	
Matrix Spike						Lab ID = 807716-034	
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.950	Expected/Added 1.00(1.00)	Recovery 95.0	Acceptance Range 90 - 110	
Matrix Spike						Lab ID = 807716-035	
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 221	Expected/Added 233(125)	Recovery 90.6	Acceptance Range 90 - 110	
Matrix Spike						Lab ID = 807716-036	
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 4.66	Expected/Added 5.00(5.00)	Recovery 93.1	Acceptance Range 90 - 110	
Matrix Spike						Lab ID = 807716-036	
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.908	Expected/Added 1.00(1.00)	Recovery 90.8	Acceptance Range 90 - 110	
Matrix Spike						Lab ID = 807716-037	
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 5.29	Expected/Added 5.46(5.00)	Recovery 96.6	Acceptance Range 90 - 110	



Client: E2 Consulting Engineers, Inc.			roject Name: roject Numbe	PG&E Topock Prom: 423575.MP.07.TS	Page 10 of 16 Printed 5/29/2013	
Matrix Spike						Lab ID = 807716-038
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.946	Expected/Added 1.00(1.00)	Recovery 94.6	Acceptance Range 90 - 110 Lab ID = 807716-039
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 1.00	Result 0.954	Expected/Added 1.00(1.00)	Recovery 95.4	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit	DF	Result	Expected	Recovery	Acceptance Range
	ug/L	1.00	4.94	5.00	98.9	90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit	DF	Result	Expected	Recovery	Acceptance Range
	ug/L	1.00	10.0	10.0	100.	95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit	DF	Result	Expected	Recovery	Acceptance Range
	ug/L	1.00	9.95	10.0	99.5	95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit	DF	Result	Expected	Recovery	Acceptance Range
	ug/L	1.00	10.1	10.0	101	95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.2	Expected 10.0	Recovery 102	Acceptance Range 95 - 105
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.2	10.0	102	95 - 105



Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 11 of 16

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Metals by EPA 6020A, I	Batch 050313A-ICPMS-1							
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
807716-005 Chromium		ug/L	05/03	/2013 14:08	2.00	0.184	1.0	38.3
307716-006 Chromium ug/L		05/03	05/03/2013 14:44 2		0.184	1.0	15.0	
807716-007 Chromium		ug/L	05/03	/2013 14:52	2.00	0.184	1.0	10.6
807716-008 Chromium		ug/L	05/03	/2013 15:00	2.00	0.184	1.0	24.4
307716-009 Chromium		ug/L	05/03	/2013 15:07	2.00	0.184	1.0	28.9
807716-010 Chromium		ug/L	05/03	/2013 15:54	2.00	0.184	1.0	3.0
307716-011 Chromium		ug/L	05/03	/2013 16:01	2.00	0.184	1.0	9.8
307716-012 Chromium		ug/L	05/03	/2013 16:08	2.00	0.184	1.0	12.3
307716-014 Chromium		ug/L	05/03/2013 16:32		2.00	0.184	1.0	11.8
807716-015 Chromium		ug/L	05/03/2013 16:39		2.00	0.184	1.0	1.9
807716-017 Chromium		ug/L	05/03/2013 17:18		2.00	0.184	1.0	52.6
307716-018 Chromium		ug/L	05/03/2013 17:32		2.00	0.184	1.0	65.4
307716-019 Chromium		ug/L	05/03/2013 17:47		2.00	0.184	1.0	26.3
307716-020 Chromium		ug/L	05/03/2013 17:54		2.00	0.184	1.0	5.4
307716-021 Chromium		ug/L	05/03	/2013 18:01	2.00	0.184	1.0	14.3
307716-022 Chromium		ug/L	05/03/2013 18:08		2.00	0.184	1.0	21.1
307716-023 Chromium		ug/L	05/03/2013 18:16		2.00	0.184	1.0	12.4
307716-026 Chromium		ug/L	05/03	/2013 18:23	2.00	0.184	1.0	ND
Method Blank								
Parameter	Unit	DF	Result					
Chromium	ug/L	1.00	ND					
Duplicate							Lab ID =	807716-00
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Rang
Chromium	ug/L	2.00	ND	0		0	0 - 20	
Low Level Calibration	n Verification		g til 1900 i Statistick og til	ga katil oleh katil katil di filolohika yang menjungan penemben pengungan 1985 ang mili melalah di		elektristering angesteramentika is belokt		
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Ran
Chromium	ug/L	1.00	0.191	0.200		95.4	70 - 130)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Ran
Chromium	ug/L	2.00	48.3	50.0		96.6	85 - 11	5
Matrix Spike							Lab ID =	807716-0
Parameter	Unit	DF	Result	Expected/Add	led F	Recovery	Accepta	ance Rang
i arameter								



Client: E2 Consulting Engineers, Inc.Project Name:PG&E Topock ProjectPage 12 of 16Project Number:423575.MP.07.TSPrinted 5/29/2013

Matrix Spike Du	plicate					Lab ID = 807716-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	50.2	50.0(50.0)	100	75 - 125
MRCCS - Secon	ndary					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.7	20.0	98.4	90 - 110
MRCVS - Prima	ry					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.7	20.0	93.5	90 - 110
MRCVS - Prima	ry					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.3	20.0	91.3	90 - 110
MRCVS - Prima	ry					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.2	20.0	95.8	90 - 110
MRCVS - Prima	ry					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	95.2	90 - 110
Interference Che	eck Standard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		
Interference Che	eck Standard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		
Interference Che	eck Standard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	17.9	20.0	89.6	80 - 120
Interference Che	eck Standard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.6	80 - 120
Serial Dilution						Lab ID = 807716-018
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	10.0	68.3	65.4	4.31	0 - 10



Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 13 of 16

Project Number: 423575.MP.07.TS Printed 5/29/2013

Metals by EPA 6020A, I	Dissolved		Batch 050613A-ICPMS-1							
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result		
807716-027 Chromium		ug/L	05/06	5/2013 16:37	10.0	0.920	2.0	607		
807716-029 Chromium		ug/L	05/06	3/2013 16:44	5.00	0.460	1.0	201		
807716-030 Chromium		ug/L	05/06	3/2013 16:59	10.0	0.920	2.0	124		
807716-032 Chromium		ug/L	05/06/2013 18:18		5.00	0.460	1.0	5.7		
807716-035 Chromium		ug/L	05/06/2013 18:25		5.00	0.460	1.0	120		
807716-036 Chromium		ug/L	05/06	5/2013 18:32	5.00	0.460	1.0	ND		
807716-037 Chromium		ug/L	05/06	6/2013 17:56	5.00	0.460	1.0	ND		
Method Blank										
Parameter	Unit	DF	Result							
Chromium	ug/L	1.00	ND							
Duplicate							Lab ID =	807716-028		
Parameter	Unit	DF	Result Expected		RPD		Acceptance Rang			
Chromium	ug/L	2.00	2.97 2.47			18.5	0 - 20			
Low Level Calibratio	n Verification									
Parameter	Unit	DF	Result Expected		F	Recovery	•	ance Range		
Chromium	ug/L	1.00	0.218	0.200		109	70 - 130			
Lab Control Sample										
Parameter	Unit	DF	Result	Expected	F	Recovery		ance Range		
Chromium	ug/L	2.00	51.8	50.0		104	85 - 11	5		
Matrix Spike							Lab ID =	807716-028		
Parameter	Unit	DF	Result	Expected/Add	led F	Recovery	Accepta	ance Range		
Chromium	ug/L	2.00	56.4	52.5(50.0)		108	75 - 12	5		
MRCCS - Secondary										
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range		
Chromium	ug/L	1.00	19.9	20.0		99.7	90 - 110	כ		
MRCVS - Primary										
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range		
Chromium	ug/L	1.00	20.7	20.0		104	90 - 110)		
MRCVS - Primary										
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range		
Chromium	ug/L	1.00	20.0	20.0		100	90 - 110)		



Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 14 of 16

Project Number: 423575.MP.07.TS Printed 5/29/2013

MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.8	20.0	104	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.5	20.0	102	90 - 110
Interference Chec	k Standard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		
Interference Chec	k Standard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		
Interference Chec	k Standard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	98.8	80 - 120
Interference Chec	k Standard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	98.8	80 - 120
Serial Dilution						Lab ID = 807716-030
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	122	124	1.87	0 - 10



Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 15 of 16

Project Number: 423575.MP.07.TS Printed 5/29/2013

Metals by EPA 6020A, I	Dissolved		Batch	052813A-ICPMS-1				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
807716-013 Chromium		ug/L	05/28	/2013 13:48 2	.00	0.184	1.0	10.4
807716-028 Chromium		ug/L	05/28	/2013 14:54 2	.00	0.184	1.0	1.5
Method Blank								
Parameter	Unit	DF	Result					
Chromium	ug/L	1.00	ND					
Duplicate							Lab ID =	807716-013
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range
Chromium	ug/L	2.00	9.68	10.4		7.15	0 - 20	
Low Level Calibration	n Verification							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	0.190	0.200		95.2	70 - 13	0
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Chromium	ug/L	2.00	51.1 50.0			102	85 - 115	
Matrix Spike							Lab ID =	807716-013
Parameter	Unit	DF	Result	Expected/Adde	d F	Recovery	Accepta	ance Range
Chromium	ug/L	2.00	56.3	60.4(50.0)		91.9	75 - 12	5
Matrix Spike Duplica	te						Lab ID =	807716-013
Parameter	Unit	DF	Result	Expected/Adde	d l	Recovery	Accepta	ance Range
Chromium	ug/L	2.00	54.6	60.4(50.0)		88.5	75 - 12	5
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected	ı	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	20.5	20.0		102	90 - 11	0
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	ı	Recovery	Accept	ance Range
Chromium	ug/L	1.00	20.5	20.0		102	90 - 11	0
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	ı	Recovery	Accept	ance Range
Chromium	ug/L	1.00	19.8	20.0		99.2	90 - 11	0
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	ı	Recovery	Accept	ance Range
Chromium	ug/L	1.00	20.1	20.0		100	90 - 11	0



Client: E2 Consulting Engineers, Inc.	Project Name:	PG&E Topock Project	Page 16 of 16

Project Number: 423575.MP.07.TS Printed 5/29/2013

Interference Check S	Standard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		
Interference Check S	Standard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		
Interference Check S	Standard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.1	20.0	105	80 - 120
Interference Check S	Standard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.7	20.0	108	80 - 120

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services

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CHAIN OF CUSTODY RECORD

5/1/2013 11:42:21 AM

OF 3

_									3/1/2013 11.42.21 AW Page	. 🕠	<u> </u>
- 1	Project Name PG Location Topock Project Manager S Sample Manager S Project Number 4 Task Order Project 2013-GMI Turnaround Time Shipping Date: 4 COC Number: 9	&E Topoc Jay Piper Shawn Du 423575.MP P-192-Q2 10 Days /30/2013	Pres Hold 2.07.TS	Filtered: ling Time:	H, 4°C Field	2x250 ml Poly (NH4)2\$ (04/NH40 H, 4°C Field 28	500 ml Poly HN03, 4°C leld 180 letals (6020A) Field Filtered Chromium	2x500 ml Poly HN03, 4°C Field 180 Metals (6020A-R) Field Filtered Chromium	Rec'd 5/1/13 S 807716 ALERT!! Level III QC	Number of Containers	
, [\$ መልና ሳላይ ላይ ሳ	DATE	·	Matrix				д		C/S	COMMENTS
L	MW-210-192	4/23/2013	14:00	 	X						
ŀ	MW-211-192	4/23/2013	15:55	ļ	Х					1	
	MW-21-192-EB	4/23/2013	9:33	Water	X		X		For Sample Conditions	2	PW-2
Ч	MW-212-192	4/23/2013	15:58	ļ	X				Soo Forms Add.		6000
-1	MW-23-060-192	4/23/2013	11:13	Water	Х		Х		See Form Attached	2	! -(
~[MW-23-080-192	4/23/2013	13:08	Water	Х		X			2	<u> </u>
	MW-33-210-192	4/23/2013	9:24	Water	Х		X			2	
	MW-35-060-192	4/23/2013	14:15	Water	X		х			2	1/0H-2
`L	MW-35-135-192	4/23/2013	15:24	Water	Х		Х	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		2	6020
L	MW-410-192	4/23/2013	11:52	Water	Х		Х			2	
L	MW-57-185-192	4/23/2013	15:26	Water	X		×			2	
12	MW-126-192	4/24/2013	8:57	Water	х		×			2	
-1	MW-16-192	4/24/2013	11:00	Water	Х		Х			2	
14	MW-17-192	4/24/2013	12:20	Water	×		Х			2	

Approved by

npled by inquished by

Received by

Relinquished by Received by

Signatures

Date/Time 5-/-/3 /530

Shipping Details

Method of Shipment: courier

On Ice: yes / no

Airbill No:
3 22 5 Lab Name: Truesdail Laboratories, Inc.
27:30 Lab Phone: (714) 730-6239

ATTN:

Special Instructions: April 15 to May 9, 2013

Sample Custody

Report Copy to

Shawn Duffy (530) 229-3303

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CHAIN OF CUSTODY RECORD

5/1/2013 11:42:22 AM

Page

								3.120.0 //.222.111		
Project Name	PG&E Topoc	k	Container:	250 ml Poly	2x250 ml Poly	500 ml Poly	2x500 ml Poly			
Location Topo	ock			(NH4)2S	(NH4)2S	HNO3,	HNO3,			
Project Manage	r Jay Piper	Pres	servatives:	O4/NH4O H, 4°C	O4/NH4O H, 4°C	4°C	4°C			
Sample Manage	er Shawn Du	ffy	Filtered:	Field	Field	Field	Field			
		Hol	ding Time:	28	28	180	180			
Project Number Task Order Project 2013-G Turnaround Tim Shipping Date: COC Number:	iMP-192-Q2 ne 10 Day 4/30/2013	s	Matrix	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Metals (6020A) Field Filtered Chromium	Metals (6020A-R) Field Filtered Chromium	ALERT!! Level III QC	Number of Containers	COMMENTS
MW-21-192	4/24/2013	9:55	Water		x		X		4	sH-2
MW-213-192	4/24/2013	16:35	Water	Х				3974	4	6020
MW-36-100-192	4/24/2013	15:20	Water	Х		X		or Sample Conditions	2	
MW-44-115-192	4/24/2013	13:50	Water	х		X		Caa Campaididis	2	
MW-46-175-192	4/24/2013	11:08	Water	х		Х		See Form Attached	2	
MW-46-205-192	4/24/2013	9:08	Water	Х		X			2	H-2
MW-47-055-192	4/24/2013	15:13	Water	Х		×			2	6030!
MW-47-115-192	4/24/2013	14:37	Water	Х		Х			2	and the same of th
MW-50-095-192	4/24/2013	8:55	Water	Х		Х			2	
MW-214-192	4/25/2013	8:05	Water	Ж					1	T
			 	1646		-			- A	
MW-215-192	4/25/2013	15:25	Water	X					_	-!
MW-215-192	4/25/2013 4/25/2013	15:25 8:20	 	X		X			2	
		 	Water			X.				1/

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Received by

Relinquished by Received by

∕Signatures

Date/Time

Shipping Details

Method of Shipment: courier

On Ice: yes / no

Airbill No: 3 2 Jab Name: Truesdail Laboratories, Inc. 22:5

Special Instructions:

April 15 to May 9, 2013

Sample Custody

ATTN:

Report Copy to

Shawn Duffy (530) 229-3303



CH2MHILL

CHAIN OF CUSTODY RECORD

5/1/2013 2:51:00 PM

Project Name PG&	E Topoc	K	Container	Poly	2x250 ml Poly	500 ml Poly HNO3,	2x500 ml Poly			
Project Manager	ıy Piper	Pres	servatives	(NH4)2S O4/NH4O H, 4°C		4°C	HNO3, 4°C			
Sample Manager St	nawn Duf	ffy	Filtered	Field	Field	Field	Field			
		Hole	ding Time	: 28	28	180	180			
Project Number 42 Task Order Project 2013-GMP- Turnaround Time Shipping Date: 4/3 COC Number: 9	-192-Q2 10 Days			Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filterec	Metals (6020A) Field Filtered Chromium	Metals (6020A-R) Field Filtere	Level III QC	Number of Containers	-
	DATE	TIME	Matrix				ed	For Sample Conditions	S	COMMENT
MW-70-105-192	4/25/2013	11:45	Water	×		Х		See Form Attached	2	7.N-2
MW-72-080-192	4/25/2013	13:29	Water	X		X		SCC I VIIII Attavilou	2	Gera
MW-217-192	4/29/2013	15:05	Water	Х					1	
MW-72BR-200-192	4/29/2013	14:09	Water	х		х			2	pH-2
MW-218-192	4/30/2013	15:20	Water	Х					dimen	GUZ
1	4/30/2013	19:20	Water	х		<u> </u>			1	
MW-37D-192	4/30/2013	13:57	Water	х		х			2	П
	4/30/2013	11:53	Water	Х		X			2	tpU-Z
	4/30/2013	7:32	Water	×		x			2	6020
	4-23-13	 	 	<u> </u>				TOTAL NUMBER OF CONTAINERS	ST	1
	1-23-13			1					Bec	1
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Received by

/Signatures

5-1-13 1530

Shipping Details

Method of Shipment:

On Ice: yes / no

Airbill No: Lab Name: Truesdail Laboratories, Inc.

Zo Lab Phone: (714) 730-6239

ATTN:

Special Instructions:

April 15 to May 9, 2013

Sample Custody

Report Copy to

Shawn Duffy (530) 229-3303

Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
04/24/13	807606-7	9. 5	NIA	NIA	NA	NE
	807637-1	7.0	50 al / 250 ml	9.5	17:00	Thy
1	_ 2	3				<u>t</u>
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V	10	√	<u> </u>	↓	V	₩
5,2,13	807716-1	9.5	NIA	MIA	N/4	NÊ
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	-3					
	4					
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	-18					
	-19		<u>/</u>			1, 1
14	1-20	\checkmark	4	V	\checkmark	V

NE 5/7/1

05/08/13

Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	La	ıb Numbe	r Initi	al pH	Buffer Ad	ided (mL	.) Fina	i pH	Time B	uffered	Ini	tials
5/2/13	80	77/6-21	9	٠5	NIA		NI	A	n	18	/	ave
A		-22	f	1						-		1
		_23										
		-24										
		-25	1									
		-26										
		- 27						1				
	- 2											
		-29										
	-30 -31											
		-32										
		-33 -34										
		-34										
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		-36										
		-37 -38										
		-38		.								
		-39	\checkmark	/		V	V.		1	/	V	
	807	7/7-1	7.0)	2 ml/	100 nl	9.5	5	9:31	0	NE	
	1	, -2	J						<u> </u>		1	
		718	4.5		NIA		MIA		MA		NE	
		719-1	7.0		2 ml/10	so me	9.5		9:3	0	1_	
V	1	-2					1		<u> </u>	a jesti os lieta	V	
5/6/13	807	753	7.0		40m L /2	25046	9.5		14:36		Try	
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											•	

NIE 5/8/13





Turbidity/pH Check

	Turbidity/pH Check												
	Sample Number	Turbidity	pН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments				
	297561(1934)	<١	42	1-23-12	BE	xes							
	807585L1-5)	1		4-24-13	1								
	-807603						BE		-				
	807604(1-19)		<2										
	807605 (1-7						-						
	80762661-5)												
	807572(1-2)		STIC	#124/13	ES	y-es							
	807570	Zi.	42	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	1							
	807571	1											
	807582								• •				
	807587												
	507592(1-2)	<u> </u>	72			No	41:00						
	80 7 596 (1-3)	V	V			J	1/1		1				
	407603	21	72	24/24/13	ES	yes	11:00						
	807604(147,16)	Zi	12	71007117	ر ت	- 9 03	71.00	.~g .					
	867605(14,79))						FFS 4/24/12					
	807606 (1-5)							1					
	805 585 (1-\$)		\pm			1,	AND THE PERSON NAMED IN COLUMN 1		-				
	507612	71	<u> </u>	पाजाउ	n	Jes	16:20						
. 4	807613-2	71	12	4/25713	m	iles							
	807614-10-712	ċ١	72	1	i	No	11:30						
	\$07630		42	ì	pe								
	807631		1		J.	yes I	ATTERNATION OF		··-· ··- · · · · · · · · · · · · · · ·				
807627/	143:17626(1-6)	<\	₹ 2	4-26-(3)	BZ-	xez							
BE	807640 LI-6)	7		7	7	1							
	507666	71	72	1-30-13	Bi	No	19.30						
	807683(1-3)	41	72	5/1/13	m	No	14:30						
	807692(1,2)	1	1	1	1	ì	ì						
	807696(1-3)			- 1		l							
Ì	307704 L10-12	<١	. 72	5-2-13	BE	NO	7200						
	307662	4	42	5/2/13	w	ijea							
ĺ	807663	1			1	v _j							
	807699												
	507705	71	J	1		J							
	807716/345-15		42	5-2-13	BE	yen							
	801116(26-3°13	-)		1	1			-					
	807717 (1-2)		72		1		il :30	After Filtte	1				
	807718	1	12				-						
7	80771911-2)		72				11:30						
מ	807719-2		72				11:30	AFTA FILLER					
	80 772061-4		〈 2	1	1	1							
Ì	şc7753	<u> </u>	72	5-7-13	B1-	NO	Ulian	1-2-13	<2 :				
ļ	807759-24,17	1											
ļ	807769-8	1	./,	J	J	V	1						
					 								

- Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
 All Total Recoverable Analytes must be pH adjusted and digested.
 Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

Sample Integrity & Analysis Discrepancy Form

. (Client: <u>E2</u>	_ Lab # 8077
E	Date Delivered: 057 0/ / 13 Time: 82:80 By:	AField Service
1.	Was a Chain of Custody received and signed?	ÆYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ØN/A
<i>3</i> .	Are there any special requirements or notes on the COC?	□Yes □No DN/A
4.	If a letter was sent with the COC, does it match the COC?	☐Yes ☐No ØN/A
5 .	Were all requested analyses understood and acceptable?	☐Yes □No □N/A
6.	Were samples received in a chilled condition? Temperature (if yes)? <u>°C</u>	ØYes □No □N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	ÆYes □No □N/A
8.	Were sample custody seals intact?	□Yes □No ØN/A
9.	Does the number of samples received agree with COC?	ØYes □No □N/A
10.	Did sample labels correspond with the client ID's?	∰Yes □No □N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☑Truesdail □Client	ÆYes □No □N/A
12.	Were samples pH checked? pH = Sel (. 0. e	Pres ONO ONA
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	ØYes □No □N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): RUSH Std	ØYes □No □N/A
15 .	Sample Matrix:	· · · · · · · · · · · · · · · · · · ·
16.	Comments:	
17.	Sample Check-In completed by Truesdail Log-In/Receiving	duda
	Level III	QC

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14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462

May 23, 2013

E2 Consulting Engineers, Inc. Mr. Shawn Duffy 155 Grand Ave., Suite 1000 Oakland, California 94612

Dear Mr. Duffy:

CASE NARRATIVE PG&E TOPOCK IM3PLANT-EW-265, GROUNDWATER MONITORING SUBJECT:

PROJECT, TLI NO.: 807717

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-EW-206 groundwatermonitoring project for Total Dissolved and Hexavalent Chromium, Total Dissolved Solids, pH, and Specific Conductivity. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, wet chemistry raw data, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody on May 1, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Samples for Total Dissolved Chromium were analyzed by method EPA 200.8 with the approval of Mr. Shawn Duffy.

Samples for pH analysis by SM 4500-H B were received past the method specified holding time. Mr. Duffy approved the analysis of the samples.

No other violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,

TRUESDAIL LABORATORIES, INC.

لام / Mona Nassimi

Manager, Analytical Services

Michael Ngo

Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

Client: E2 Consulting Engineers, Inc. 155 Grand Ave. Suite 1000 Oakland, CA 94612

Attention: Shawn Duffy

Sample: Two (2) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 456827.01.DM

Laboratory No.: 807717

Date: May 23, 2013 Collected: May 1, 2013 Received: May 1, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 4500-H B	рН	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
EPA 200.8	Metals by ICP/MS	Bita Emami
EPA 218.6	Hexavalent Chromium	Tom Martinez
SM 3500-CrB	Hexavalent Chromium	Jenny Tankunakorn



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Client: E2 Consulting Engineers, Inc.

155 Grand Ave. Suite 1000

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

Project No.: 456827.01.DM P.O. No.: 456827.01.DM Laboratory No.: 807717
Date Received: May 1, 2013

Analytical Results Summary

		Analysis	Extraction		Sample				
Lab Sample II	O Field ID	Method	Method	Sample Date	Time	Parameter	Result	Units	RL
807717-001	PE-01-206	E120.1	NONE	5/1/2013	14:07	EC	4540	umhos/cm	2.00
807717-001	PE-01-206	E200.8	LABFLT	5/1/2013	14:07	Chromium	5.8	ug/L	1.0
807717-001	PE-01-206	E218.6	LABFLT	5/1/2013	14:07	Chromium, Hexavalent	5.0	ug/L	0.20
807717-001	PE-01-206	SM2540C	NONE	5/1/2013	14:07	Total Dissolved Solids	2760	mg/L	125
807717-001	PE-01-206	SM4500HB	NONE	5/1/2013	14:07	PH	7.43 J	рН	4.00
807717-002	TW-03D-206	E120.1	NONE	5/1/2013	13:59	EC	8040	umhos/cm	2.00
807717-002	TW-03D-206	E200.8	LABFLT	5/1/2013	13:59	Chromium	881	ug/L	5.0
807717-002	TW-03D-206	SM2540C	NONE	5/1/2013	13:59	Total Dissolved Solids	4990	mg/L	250
807717-002	TW-03D-206	SM3500-CrB	LABFLT	5/1/2013	13:59	Chromium, Hexavalent	746	ug/L	250
807717-002	TW-03D-206	SM4500HB	NONE	5/1/2013	13:59	PH	7.18 J	рН	4.00

ND: Non Detected (below reporting limit)

Note: The following "Significant Figures" rule has been applied to all results: Results below 0.01 will have two (2) significant figures. Result above or equal to 0.01 will have three (3) significant figures.

Quality Control data will always have three (3) significant figures.

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Laboratory No. 807717

REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

Project Number: 456827.01.DM P.O. Number: 456827.01.DM

Release Number:

Samples Received on 5/1/2013 10:30:00 PM

Field ID	Field ID			Lab ID	Collected		Matri	x
PE-01-206				807717-001		/2013 14:07	Wate	
TW-03D-206				807717-002	05/01	/2013 13:59	Wate	er
Specific Conductivity -	EPA 120.1		Batch	05EC13A				
Parameter		Unit	Ana	ılyzed	DF	MDL	RL	Result
807717-001 Specific Conduc	ctivity	umhos/cm 05/02/2013		1.00	0.116	2.00	4540	
807717-002 Specific Conduc	ctivity	umhos/ci	m 05/02	2/2013	1.00	0.116	2.00	8040
Method Blank								
Parameter	Unit	DF	Result					
Specific Conductivity	umhos	1.00	ND					
Duplicate							Lab ID = 8	807719-002
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	nce Range
Specific Conductivity	umhos	1.00	7330	7330		0	0 - 10	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Specific Conductivity	umhos	1.00	690	706		97.7	90 - 110	
Lab Control Sample I	Duplicate							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Specific Conductivity	umhos	1.00	695	706		98.4	90 - 110	
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Specific Conductivity	umhos	1.00	696	706		98.6	90 - 110	
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Specific Conductivity	umhos	1.00	940	998		94.2	90 - 110	



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

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Chrome VI by EPA 218.6			Batch	05CrH13A				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
807717-001 Chromium, Hexa	valent	ug/L	05/02	2/2013 16:05 1	1.00	0.00920	0.20	5.0
Method Blank								
Parameter Chromium, Hexavalent Duplicate	Unit ug/L	DF 1.00	Result ND				ab D = :	807716-008
Parameter Chromium, Hexavalent Low Level Calibration	Unit ug/L Verification	DF 1.00	Result 25.3	Expected 25.4		RPD 0.521		nce Range
Parameter Chromium, Hexavalent Lab Control Sample	Unit ug/L	DF 1.00	Result 0.199	Expected 0.200	I	Recovery 99.6	Accepta 70 - 130	nce Range
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 4.88	Expected 5.00		Recovery 97.5	90 - 110	nce Range 807716-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.957	Expected/Adde 1.00(1.00)	ed l	Recovery 95.7	90 - 110	nce Range 807716-002
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.943	Expected/Adde 1.00(1.00)	ed l	Recovery 94.3	90 - 110	nce Range 807716-004
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.961	Expected/Adde 1.00(1.00)	ed	Recovery 96.1	90 - 110	nce Range 807716-005
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 81.6	Expected/Adde 84.3(50.0)	ed∣	Recovery 94.6	90 - 110	nce Range 807716-006
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 38.1	Expected/Adde 39.0(25.0)	ed	Recovery 96.4	90 - 110	nce Range 807716-007
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 33.7	Expected/Adde 35.2(25.0)	ed	Recovery 94.1	Accepta 90 - 110	nce Range

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.

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Client: E2 Consulting Eng	Client: E2 Consulting Engineers, Inc			PG&E Topock Pro :: 456827.01.DM	iject	Page 4 of 8 Printed 5/23/2013
Matrix Spike						Lab ID = 807716-008
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 74.3	Expected/Added 75.4(50.0)	Recovery 97.8	Acceptance Range 90 - 110 Lab ID = 807716-009
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 76.0	Expected/Added 77.4(50.0)	Recovery 97.3	Acceptance Range 90 - 110 Lab ID = 807716-010
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 7.86	Expected/Added 7.90(5.00)	Recovery 99.2	Acceptance Range 90 - 110 Lab ID = 807717-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 14.4	Expected/Added 15.0(10.0)	Recovery 93.8	Acceptance Range 90 - 110 Lab ID = 807718-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 29.0	Expected/Added 31.0(25.0)	Recovery 92.1	Acceptance Range 90 - 110 Lab ID = 807719-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.06	Expected/Added 1.09(1.00)	Recovery 97.0	Acceptance Range 90 - 110 Lab ID = 807719-001
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 5.00	Result 4.90	Expected/Added 5.10(5.00)	Recovery 95.9	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 4.91	Expected 5.00	Recovery 98.3	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.2	Expected 10.0	Recovery 102	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.73	Expected 10.0	Recovery 97.3	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 9.89	Expected 10.0	Recovery 98.9	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 9.96	Expected 10.0	Recovery 99.6	Acceptance Range 95 - 105



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

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Parameter		Unit	Ana	lyzed D	F	MDL	RL	Result
807717-002 Chromium, Hexa	valent	ug/L	05/02	/2013 15:28 25	5.0	110	250	746
Method Blank								
Parameter	Unit	DF	Result					
Chromium, Hexavalent	ug/L	1.00	ND					
Duplicate							Lab ID =	807717-002
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range
Chromium, Hexavalent	ug/L	25.0	776	746		3.96	0 - 20	_
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	95.4	100		95.4	90 - 110)
Matrix Spike							Lab ID =	807717-002
Parameter	Unit	DF	Result	Expected/Added	d F	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	25.0	3280	3250(2500)		101	85 - 115	5
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	95.4	100		95.4	90 - 110)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	54.9	60.0		91.5	90 - 110)

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

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pH by SM 4500-H B			Batch	05pH13B				
Parameter	•	Unit	Ana	lyzed	DF	MDL	RL	Result
807717-001 pH		рН	05/02	/2013 14:45	1.00	0.0784	4.00	7.43
807717-002 pH		pН	05/02	//2013 14:47	1.00	0.0784	4.00	7.18
Duplicate							Lab ID =	807717-002
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range
рН	рН	1.00	7.19	7.18		0.139	0 - 20	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
pН	рН	1.00	7.02	7.00		100	90 - 110)
Lab Control Sample	Duplicate							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
рН	рН	1.00	7.03	7.00		100	90 - 110)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
pН	рН	1.00	7.04	7.00	•	100	90 - 110)
					나 있다는 본 분강이다.	nado i destilo di Gregore		A Statistica e y para compagnio
Total Dissolved Solids								
	DY 51VI 254			05TDS13A	DE	MADI	Di	Desult
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
Parameter 807717-001 Total Dissolved	Solids	Unit mg/L	Ana 05/02	lyzed 2/2013	1.00	1.76	125	2760
Parameter	Solids	Unit	Ana 05/02	lyzed			····	
Parameter 807717-001 Total Dissolved	Solids	Unit mg/L	Ana 05/02	lyzed 2/2013	1.00	1.76	125	2760
Parameter 807717-001 Total Dissolved 807717-002 Total Dissolved	Solids	Unit mg/L mg/L DF	Ana 05/02	lyzed 2/2013	1.00	1.76	125	2760
Parameter 807717-001 Total Dissolved 807717-002 Total Dissolved Method Blank Parameter Total Dissolved Solids	Solids Solids	Unit mg/L mg/L	Ana 05/02 05/02	lyzed 2/2013	1.00	1.76	125 250	2760 4990
Parameter 807717-001 Total Dissolved 807717-002 Total Dissolved Method Blank Parameter	Solids Solids Unit	Unit mg/L mg/L DF	Ana 05/02 05/02 Result	lyzed 2/2013	1.00	1.76	125 250	2760
Parameter 807717-001 Total Dissolved 807717-002 Total Dissolved Method Blank Parameter Total Dissolved Solids	Solids Solids Unit	Unit mg/L mg/L DF 1.00	Ana 05/02 05/02 Result	lyzed 2/2013	1.00	1.76	125 250 Lab ID =	2760 4990
Parameter 807717-001 Total Dissolved 807717-002 Total Dissolved Method Blank Parameter Total Dissolved Solids Duplicate	Solids Solids Unit mg/L	Unit mg/L mg/L DF 1.00	Ana 05/02 05/02 Result ND	lyzed :/2013 :/2013	1.00	1.76 1.76	125 250 Lab ID =	2760 4990 807719-002
Parameter 807717-001 Total Dissolved 807717-002 Total Dissolved Method Blank Parameter Total Dissolved Solids Duplicate Parameter	Solids Solids Unit mg/L Unit	Unit mg/L mg/L DF 1.00	Ana 05/02 05/02 Result ND Result	lyzed 2/2013 2/2013 Expected	1.00	1.76 1.76	125 250 Lab ID =	2760 4990 807719-002
Parameter 807717-001 Total Dissolved 807717-002 Total Dissolved Method Blank Parameter Total Dissolved Solids Duplicate Parameter Total Dissolved Solids	Solids Solids Unit mg/L Unit	Unit mg/L mg/L DF 1.00	Ana 05/02 05/02 Result ND Result	lyzed 2/2013 2/2013 Expected	1.00 1.00	1.76 1.76	125 250 Lab ID = Accepta 0 - 10	2760 4990 807719-002

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

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Metals by EPA 200.8, Dis	solved		Batch	050313A				
Parameter		Unit	Anal	yzed l	DF	MDL	RL	Result
807717-001 Chromium		ug/L	05/03	/2013 12:59 2	.00	0.184	1.0	5.8
807717-002 Chromium		ug/L	05/03/	/2013 13:41 1	0.0	0.920	5.0	881
Method Blank								
Parameter	Unit	DF	Result					
Chromium	ug/L	1.00	ND					
Low Level Calibration \	/erification							
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range
Chromium	ug/L	1.00	0.523	0.500		105	70 - 130)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range
Chromium	ug/L	2.00	49.1	50.0		98.2	85 - 118	5
Matrix Spike							Lab ID =	807716-028
Parameter	Unit	DF	Result	Expected/Adde	ed	Recovery	Accepta	ance Range
Chromium	ug/L	2.00	52.4	52.2(50.0)		100	75 - 12	5
Matrix Spike Duplicate							Lab ID =	807716-028
Parameter	Unit	DF	Result	Expected/Adde	ed	Recovery	Accepta	ance Range
Chromium	ug/L	2.00	51.7	52.2(50.0)		98.9	75 - 12	5
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range
Chromium	ug/L	1.00	20.2	20.0		101	90 - 110)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range
Chromium	ug/L	1.00	20.2	20.0		101	90 - 110)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range
Chromium	ug/L	1.00	20.5	20.0		102	90 - 110)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range
Chromium	ug/L	1.00	21.4	20.0		107	90 - 110)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range
Chromium	ug/L	1.00	20.0	20.0		100	90 - 110)



Client: E2 Consulting Eng	Client: E2 Consulting Engineers, Inc.		Project Name: PG&E Topock Pro Project Number: 456827.01.DM		roject	Page 8 of 8 Printed 5/23/2013
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.0	20.0	100	90 - 110
Interference Check Sta	andard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		
Interference Check Sta	andard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		
Interference Check Sta	andard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.6	20.0	103	80 - 120
Interference Check Sta	andard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.3	20.0	102	80 - 120
Serial Dilution						Lab ID = 807716-029
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	25.0	208	206	0.977	0 - 10

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services



Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 05TDS13A Date Analyzed: 5/2/13

Laboratory Number	Sample volume, ml	Initial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL,	Reported Value, ppm	DF
Blank	100	73.1756	73.1759	73.1759	0.0000	No	0.0003	3.0	25.0	ND	1
807683-1	800	158.8953	158.8994	158.8994	0.0000	No	0.0041	5.1	3.1	5.1	1
807683-2	1000	174.8043	174.8105	174.8105	0.0000	No	0.0062	6.2	2.5	6.2	11
807683-3	765	173.2384	173.2416	173.2416	0.0000	No	0.0032	4.2	3,3	4.2	1
807701-1	100	78.3931	78.4194	78.4192	0.0002	No	0.0261	261.0	25.0	261.0	1
807717-1	20	47.8481	47.9034	47.9033	0.0001	No	0.0552	2760.0	125.0	2760.0	1
807717-2	10	49.1798	49.2298	49.2297	0.0001	No	0.0499	4990.0	250.0	4990.0	1
807719-1	10	50.5797	50.6217	50.6214	0.0003	No	0.0417	4170.0	250.0	4170.0	1
807719-2	10	51.2491	51.296	51.296	0.0000	No	0.0469	4690.0	250.0	4690.0	11
QC1512+156	100	77.9903	78.0173	78.0172	0.0001	No	0.0269	269.0	25.0	269.0	1
QC1512+156	100	74.6017	74.6295	74.6295	0.0000	No	0.0278	278.0	25.0	278.0	1
907701-1D	100	66.7026	66.7288	66.7288	0.0000	No	0.0262	262.0	25.0	262.0	1
LCS	100	75.7573	75.807	75.8068	0.0002	No	0.0495	495.0	25.0	495.0	11
PE1512+1569	100	76.2771	76.3009	76.3009	0.0000	No	0.0238	238.0	25.0	238.0	1
PE1512+1569	100	73.4399	73.4644	73.4644	0.0000	No	0.0245	245.0	25.0	245.0	1
807719-2D	10	50.7476	50.7948	50.7945	0.0003	No	0.0469	4690.0	250.0	4690.0	1
-											

Calculation as follows:

Filterable residue (TDS), mg/L =

 $\left(\frac{A-B}{C}\right) x \ 1 \ 0^6$

Where:

A = weight of dish + residue in grams. B = weight of dish in grams. C = mL of sample filtered.

RL= reporting limit.
ND = not detected (below the reporting limit)

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	495	500	99.0%	90-110%	Yes
LCSD					

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
807701-1	0,0261	0.0262	0.2%	≤5%	Yes
807719-2	0,0469	0.0469	0.0%	5%	Yes

LCS Recovery

$$P = \left(\frac{LC}{LT}\right) \times 10$$

P = Percent recovery.

LC= Measured LCS value (ppm).

LT = Theoretical LCS value (ppm).

Duplicate Determination Difference

% Difference =
$$\frac{\left|\begin{array}{ccc} A & \text{or } B = C \end{array}\right|}{C} \times 100$$

A = Weght of the first sample in (g).

B = Weght of the second sample in (g).

C = Average weight in (g).

Maksim G.

Reviewer Printed Name

Jenny T.

Analyst Printed Name

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 05TDS13A Date Analyzed: 5/2/13

Laboratory Number	EC	TDS/EC Ratio: 0.559	Calculated TDS (EC*0.65)	Measured TDS / Caic TDS <1.3
807683-1	7,53	0.68	4.8945	1.05
807683-2	8.26	0.75	5.369	1.15
807683-3	7.32	0.57	4.758	0.88
807701-1	418	0.62	271.7	0.96
807717-1	4540	0.61	2951	0.94
807717-2	8040	0.62	5226	0.95
807719-1	6820	0.61	4433	0.94
807719-2	7330	0.64	4764.5	0.98
QC1512+1569				
QC1512+1569				
907701-1D	418	0.63	271.7	0.96
LCS				
PE1512+1569				
PE1512+1569				
807719-2D	7330	0.64	4764.5	0.98
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		



807717



TRUESDAIL LABORATORIES, INC. 14201 Franklin Avenue, Tustin, CA 92780-7008 (714)730-6239 FAX: (714) 730-6462 www.truesdail.com

CHAIN OF CUSTODY RECORD

[IM3Plant-EW-206]

TURNAI	ROUND TIME	10	Day	'S		
DATE	5/01/13		GE		OF	1

1 4																							**********
COMPANY	CH2M HILL /E2		Stabilitating in gap gar of the forest and any of the above	Elmin (Artiste mall) de heige field de trive henry af die finden en gegen bled de name aangebeken een			$\overline{}$	$\overline{}$	7	$\overline{}$	7	7	7	7	7	7	7	7	7	7	7	**************************************	etterraj littera errogas, jo littera erra ga.
PROJECT NAME	PG&E Topock I	M3Plant-E\	٨		#### OFFE																	COM	MENTS
PHONE 530-229-3303 FAX 530-339-3303				/	/tered	/ ,	/ /	/ /	/ ,	/ ,	/ _	,	,	1	1	,	,	/ /_					
ADDRESS						ab III								5/		, ,	F%	/	WERS				
	Oakland, CA 94	1 612				12			$\frac{2}{3}$		/	/		, C	U	11	1	l		हि			
P.O. NUMBER	456827.01.DM				1	\200		(C/2)	/ /		/ ,	/ ,	/ ,	Ι,	/ ,	Ι,	/ /	/ ,	/ /	POFCONTAINERS			
SAMPLERS (SIGNA	ATURE		Systematics and substitute and support of the substitute of the su		Soh.	D DO 11	DH (15.00 Cr B) Lab fillered	705 (120 ;	Cr(V) (2)	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\									NUMBE	SER OF			
SAMPLE I.D.		DATE	TIME	DESCRIPTION	\\a	/동	/ F	/ Ř	\\rightarrow{\forall}{\begin{subarray}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\	_	_	_	_		_	_		_	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\				
PE-01-206	3	5/01/13	14:07	Ground water	Х		Х	х	Х										4	4	h21=	7/2	200.7
TW-03D-2	06	5/01/13	1359	Ground water	Х	Х	Х	Х											4		1911	7	
	or Sam	nlo C	hnd	Hinne				- Branco		-	manufacture.		Strategy Decrease									Annual Control of Control	- Control Description of the Control
		P	1							A	LE			Constant p									
	See Fo	rm A	ttac	ned						9V	e	T	T	0	7	2.40					(PPANIES SALES SAL		
Particular Province and particular a								Deseators			negative cobsens	43									NAMES AND THE STATE OF THE STAT		
an procurement with the last of think his stable by the last stable by the country to the country to the stable by the country to						or all the second	**************************************	#*************************************		And on A Control of A Control				AND THE REAL PROPERTY.		and a second		-D-1	\mathcal{B}	TOTAL	NUMBE	R OF CON	TAINERS

CHAIN OF CUSTOD	SAMPLE CONDITIONS				
Signature (Relinquished) Printed Name Ryan P	Acles Company/ CHZM HILL	Date/ 5-1-13 Time /6:30	received cool warm 1 4°		
Signature (Received) Afail Day Mame Kafa	Company/ T. A. I	Date/ 5-/-/3 Time /6:37	CUSTODY SEALED YES NO TO		
(Relinquished) Paker Printed Printed Rafaer Printed Prin	Company/ T.L. I	Date/ S-/-/3 Time 2733	SPECIAL REQUIREMENTS:		
Signature (Received) Printed Name AL2	Company/ TLi	Date/ 5-1-13 Time 22:30			
Signature Printed (Relinquished) Name	Company/ Agency	Date/ Time			
Signature Printed (Received) Name	Company/ Agency	Date/ Time			

Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number		Initia	al pH	Buffer Ac	ided (mL)	Final	рН	Time B	Initials		
5/2/13	80	77/6-21	9.	5	NIA	NI	NIA		NIA		NE	
A		-22		·				1		1		1
		_23										
		-24										
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		-32										
		ーララ										
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		- 35										
		-36										
		-37										
		-38										
		-39	\bigvee		V		V		1	/	V	
	807.717-1		7.0		2 ml/	9.5		9:30		NE		
	1-2		-2 1		<u> </u>			<u> </u>				
		807718			NIA	MIA		MA		NE		
	807	807 719-1			2 ml/10	onl	9.5		9:30			
<u> </u>	1 -2				<u> </u>			<u> </u>		V		
\$16/13	807753		7.0		40m L /2	9.5		14:36		Try		
		<u>.</u>										
								_				
												_
								_	•			\dashv
								_				\dashv

ME 5/8/13

05/08/13



Turbidity/pH Check

		Turbidity/pH Check								
	Sample Number	Turbidity	Нq	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments	
	207561 (1934)	<١	۷ ٦	1-23-12	BE	xes				
	807585L1-51			11-24-13					· · · · · · · · · · · · · · · · · · ·	
	807603						BE			
	507604(1-14)		12							
	807605 (1-7		— <u> </u>		1					
	80760661-5)									
	807572(1-2)		STIC	4/24/13	<u></u>	J				
	807570	Zi	42	4124113	ES	y-es				
	807571		1	1 1						
	807582									
				 						
	807587 807592(12)	21	<u> </u>		1	No	#15100			
			72				11:00			
	807596(1-3)	1	<u> </u>	#110111 to	<u>U</u>	<u> </u>				
	807603	<i>L</i> 1	72	21/24/13	ES	y-es ,	11:00			
	607604(1473,16)				_			7 - 1 21110		
	867605(1477)							(ES 4/24/12)		
	807606(1-5))		
	905 585 (1-5)	Į.	Ų.		V				-	
	507612	>1	> 2	4 4 3	n	Jes	16:20			
	807613-2	17	12	4/29713	m	yes	No.			
	807614-10-712	ذ/	72	d	<u> </u>	No	11:30			
	\$07630	1	42	1.	pe	yes				
	807631	<u>.</u>	<u> </u>	<i>V</i>	BZ-	<u>'</u> '				
807627	(16) 7626(1-6)	<\ \ \	<2	4-26-(3)		xez				
BE	807640L1-6)	<u> </u>	7_	J.	7					
	197666	17	72	1-30-13	BI.	No.	10,30			
	807683(1-3)	41	72	5/1/13	m	No	14:30			
	807692(1,2)								,	
	807696(1-3)	<u> </u>		- J	U	U	<u> </u>			
	\$07704 L10-12	<\	72	5-2-13	BE	NO	7:00			
	307662	4	42	5/2/13	w	ifea				
	807663	1								
	807699	<u> </u>								
	COTTO	71		T		J.				
	80 103 80 77 16 (345-15)) <1	<2	5-2-13	BE	yen				
	80716(26-3°132									
	507717 (1-2)		72				il:30	After Filtter		
	807718		12							
7	80771911-2)		72				11:30			
מ	807719-2		72			٠.	11:30	After Filter		
	80 772061-4		〈 2		1	1				
	807753	۷١	72	5-7-13	B2-	NO	Ulian	1-2-13	<2:	
İ	807759-24,17									
	807169-8	1	1	V	J	7	V			
_										

- Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
 All Total Recoverable Analytes must be pH adjusted and digested.
 Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

Sample Integrity & Analysis Discrepancy Form

C	lient: <u>E 2</u>	Lab # <u>\$07 7/7</u>
D	ate Delivered: 05/04/13 Time: 12/80 By: DMail	©Field Service □Client
· 1 .	Was a Chain of Custody received and signed?	⊠ Yes □No □N/A
2.	Does Customer require an acknowledgement of the COC	? DYes DNo ANA
3.	Are there any special requirements or notes on the COC?	□Yes □No ÞN/A
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No pln/A
5.	Were all requested analyses understood and acceptable?	Yes DNo DNA
6.	Were samples received in a chilled condition? Temperature (if yes)? <u>Y°C</u>	ÆYes □No □N/A
7. -	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	daYes □No □N/A
8. ·	Were sample custody seals intact?	□Yes □No ἀN/A
9 .	Does the number of samples received agree with COC?	ØYes □No □N/A
10.	Did sample labels correspond with the client ID's?	ØYes □No □N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: □Truesdail □Client	☐Yes ☐No ÆN/A
12.	Were samples pH checked? pH =	✓Yes □No □N/A
3.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	Yes ONO ON/A
4.	Have Project due dates been checked and accepted? Turn Around Time (TAT): RUSH Std	Yes DNO DN/A
5.	Sample Matrix: DLiquid Drinking Water DGround	d Water Dwaste Water
	□Sludge □Soil □Wipe □Paint □Solid	□Other
).	Comments:	
	Sample Check-In completed by Truesdail Log-In/Receiving:	L. Charley 40

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14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

May 23, 2013

E2 Consulting Engineers, Inc. Mr. Shawn Duffy 155 Grand Ave., Suite 1000 Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2013-GMP-192-Q2, GROUNDWATER MONITORING

PROJECT, TLI No.: 807819

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-192-Q2 groundwater-monitoring project for Hexavalent and Total Dissolved Chromium. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody May 7, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

No violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services

Millsel ty

Michael Ngo

Quality Assurance/Quality Control Officer



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> Laboratory No.: 807819 Date Received: May 7, 2013

Client: E2 Consulting Engineers, Inc. 155 Grand Ave. Suite 1000

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project Project No.: 423575.MP.07.TS P.O. No.: 423575.MP.07.TS

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807819-001	MW-74-240-192	E218.6	FLDFLT	5/2/2013	8:21	Chromium, Hexavalent	ND	ug/L	0.20
807819-001	MW-74-240-192	SW6020	FLDFLT	5/2/2013	8:21	Chromium	ND	ug/L	1.0
807819-002	MW-226-192	E218.6	FLDFLT	5/6/2013	13:55	Chromium, Hexavalent	ND	ug/L	0.20
807819-003	MW-227-192	E218.6	FLDFLT	5/6/2013	15:25	Chromium, Hexavalent	ND	ug/L	0.20
807819-004	MW-57-070-192	E218.6	FLDFLT	5/6/2013	13:39	Chromium, Hexavalent	611	ug/L	10.0
807819-004	MW-57-070-192	SW6020	FLDFLT	5/6/2013	13:39	Chromium	696	ug/L	10.0
807819-005	MW-60-125-192	E218.6	FLDFLT	5/6/2013	11:30	Chromium, Hexavalent	988	ug/L	10.0
807819-005	MW-60-125-192	SW6020	FLDFLT	5/6/2013	11:30	Chromium	959	ug/L	4.0
807819-006	MW-69-195-192	E218.6	FLDFLT	5/6/2013	14:50	Chromium, Hexavalent	919	ug/L	10.0
807819-006	MW-69-195-192	SW6020	FLDFLT	5/6/2013	14:50	Chromium	868	ug/L	4.0
807819-007	MW-229-192	E218.6	FLDFLT	5/7/2013	14:35	Chromium, Hexavalent	ND	ug/L	0.20
807819-008	MW-24BR-192	E218.6	FLDFLT	5/7/2013	9:32	Chromium, Hexavalent	ND	ug/L	1.0
807819-008	MW-24BR-192	SW6020	FLDFLT	5/7/2013	9:32	Chromium	ND	ug/L	1.0
807819-009	MW-26-192	SM3500-CrB	FLDFLT	5/7/2013	10:57	Chromium, Hexavalent	1790	ug/L	250
807819-009	MW-26-192	SW6020	FLDFLT	5/7/2013	10:57	Chromium	1870	ug/L	10.0
807819-010	MW-60BR-245-192	E218.6	FLDFLT	5/7/2013	8:38	Chromium, Hexavalent	46.6	ug/L	1.0
807819-010	MW-60BR-245-192	SW6020	FLDFLT	5/7/2013	8:38	Chromium	49.7	ug/L	1.0
807819-011	MW-70BR-225-192	E218.6	FLDFLT	5/7/2013	13:55	Chromium, Hexavalent	2000	ug/L	20.0
807819-011	MW-70BR-225-192	SW6020	FLDFLT	5/7/2013	13:55	Chromium	2070	ug/L	10.0
807819-012	GMP-AB3-192	E218.6	FLDFLT	5/1/2013	15:22	Chromium, Hexavalent	ND	ug/L	0.20



Lab Sample ID) Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807819-013	GMP-AB4-192	E218.6	FLDFLT	5/2/2013	11:14	Chromium, Hexavalent	ND	ug/L	0.20

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

Note: The following "Significant Figures" rule has been applied to all results:

Results below 0.01ppm will have two (2) significant figures.

Result above or equal to 0.01ppm will have three (3) significant figures.

Quality Control data will always have three (3) significant figures.

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Page 1 of 9

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Printed 5/23/2013

Water

Laboratory No. 807819

REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project Project Number: 423575.MP.07.TS

P.O. Number: 423575.MP.07.TS

Release Number:

GMP-AB4-192

Samples Received on 5/7/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-74-240-192	807819-001	05/02/2013 08:21	Water
MW-226-192	807819-002	05/06/2013 13:55	Water
MW-227-192	807819-003	05/06/2013 15:25	Water
MW-57-070-192	807819-004	05/06/2013 13:39	Water
MW-60-125-192	807819-005	05/06/2013 11:30	Water
MW-69-195-192	807819-006	05/06/2013 14:50	Water
MW-229-192	807819-007	05/07/2013 14:35	Water
MW-24BR-192	807819-008	05/07/2013 09:32	Water
MW-26-192	807819-009	05/07/2013 10:57	Water
MW-60BR-245-192	807819-010	05/07/2013 08:38	Water
MW-70BR-225-192	807819-011	05/07/2013 13:55	Water
GMP-AB3-192	807819-012	05/01/2013 15:22	Water

807819-013

05/02/2013 11:14

Chrome VI by EPA 218.6		Batch 05CrH13F				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
807819-001 Chromium, Hexavalent	ug/L	05/09/2013 12:39	1.00	0.00920	0.20	ND
807819-002 Chromium, Hexavalent	ug/L	05/09/2013 12:49	1.00	0.00920	0.20	ND
807819-003 Chromium, Hexavalent	ug/L	05/09/2013 13:00	1.00	0.00920	0.20	ND
807819-004 Chromium, Hexavalent	ug/L	05/09/2013 13:52	50.0	0.460	10.0	611
807819-005 Chromium, Hexavalent	ug/L	05/09/2013 14:02	50.0	0.460	10.0	988
807819-006 Chromium, Hexavalent	ug/L	05/09/2013 14:34	50.0	0.460	10.0	919
807819-007 Chromium, Hexavalent	ug/L	05/09/2013 14:23	1.00	0.00920	0.20	ND
807819-008 Chromium, Hexavalent	ug/L	05/09/2013 15:15	5.00	0.0460	1.0	ND
807819-010 Chromium, Hexavalent	ug/L	05/09/2013 15:26	5.00	0.0460	1.0	46.6
807819-011 Chromium, Hexavalent	ug/L	05/09/2013 15:57	100	0.920	20.0	2000
807819-012 Chromium, Hexavalent	ug/L	05/09/2013 16:07	1.00	0.00920	0.20	ND
807819-013 Chromium, Hexavalent	ug/L	05/09/2013 16:18	1.00	0.00920	0.20	ND

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.



Client: E2 Consulting Engineers, Inc.

PG&E Topock Project Project Name:

Project Number: 423575.MP.07.TS

Page 2 of 9 Printed 5/23/2013

Method Blank						
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result ND			
Duplicate						Lab ID = 807819-007
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.0759	Expected 0.0767	RPD 1.05	Acceptance Range 0 - 20
Low Level Calibration	Verification					
Parameter Chromium, Hexavalent Lab Control Sample	Unit ug/L	DF 1.00	Result 0.199	Expected 0.200	Recovery 99.6	Acceptance Range 70 - 130
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 4.88	Expected 5.00	Recovery 97.6	Acceptance Range 90 - 110 Lab ID = 807716-026
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.20	Expected/Added 1.00(1.00)	Recovery 120	Acceptance Range 90 - 110 Lab ID = 807817-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 4.88	Expected/Added 5.16(5.00)	Recovery 94.4	Acceptance Range 90 - 110 Lab ID = 807817-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.08	Expected/Added 1.13(1.00)	Recovery 94.5	Acceptance Range 90 - 110 Lab ID = 807817-002
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 50.0	Result 1380	Expected/Added 1410(750)	Recovery 95.9	Acceptance Range 90 - 110 Lab ID = 807819-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.969	Expected/Added 1.03(1.00)	Recovery 93.4	Acceptance Range 90 - 110 Lab ID = 807819-001
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 4.75	Expected/Added 5.00(5.00)	Recovery 94.9	Acceptance Range 90 - 110 Lab ID = 807819-002
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.940	Expected/Added 1.00(1.00)	Recovery 94.0	Acceptance Range 90 - 110 Lab ID = 807819-003
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.958	Expected/Added 1.01(1.00)	Recovery 94.6	Acceptance Range 90 - 110

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Client: E2 Consulting Eng		oject Name: oject Numbel	ject	Page 3 of 9 Printed 5/23/2013		
Matrix Spike						Lab ID = 807819-004
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 50.0	Result 1360	Expected/Added 1360(750)	Recovery 100	Acceptance Range 90 - 110 Lab ID = 807819-005
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 50.0	Result 1970	Expected/Added 1990(1000)	Recovery 98.2	Acceptance Range 90 - 110 Lab ID = 807819-006
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 50.0	Result 1870	Expected/Added 1920(1000)	Recovery 95.3	Acceptance Range 90 - 110 Lab ID = 807819-007
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.05	Expected/Added 1.08(1.00)	Recovery 97.5	Acceptance Range 90 - 110 Lab ID = 807819-008
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 4.80	Expected/Added 5.00(5.00)	Recovery 95.9	Acceptance Range 90 - 110 Lab ID = 807819-008
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.978	Expected/Added 1.00(1.00)	Recovery 97.8	Acceptance Range 90 - 110 Lab ID = 807819-010
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 95.8	Expected/Added 96.6(50.0)	Recovery 98.4	Acceptance Range 90 - 110 Lab ID = 807819-011
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 100	Result 4580	Expected/Added 4500(2500)	Recovery 103	Acceptance Range 90 - 110 Lab ID = 807819-012
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.968	Expected/Added 1.00(1.00)	Recovery 96.8	Acceptance Range 90 - 110 Lab ID = 807819-013
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 1.00	Result 0.916	Expected/Added 1.00(1.00)	Recovery 91.6	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 4.91	Expected 5.00	Recovery 98.2	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project

Project Number: 423575.MP.07.TS

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Metals by EPA 6020A, Dis	solved		Batch	051013B-ICMPS-	-1			
Parameter		Unit	Analy	zed	DF	MDL	RL	Result
807819-001 Chromium		ug/L	05/11/2	2013 01:03	2.00	0.184	1.0	ND
807819-004 Chromium		ug/L	05/11/2	2013 01:17	50.0	4.60	10.0	696
807819-005 Chromium		ug/L	05/11/2	2013 01:25	20.0	1.84	4.0	959
807819-006 Chromium		ug/L	05/11/2013 01:32		20.0	1.84	4.0	868
807819-008 Chromium		ug/L	05/11/2	2013 01:39	2.00	0.184	1.0	ND
807819-010 Chromium		ug/L	05/11/2	2013 01:53	2.00	0.184	1.0	49.7
807819-011 Chromium		ug/L_	05/11/2	2013 14:00	50.0	4.60	10.0	2070
Method Blank								
Parameter	Unit	DF	Result					
Chromium	ug/L	1.00	ND					
Duplicate							Lab ID =	807818-003
Parameter	Unit	DF	Result	Expected		RPD	•	nce Range
Chromium	ug/L	5.00	137	137		0.0730	0 - 20	
Low Level Calibration \	erification/							
Parameter	Unit	DF	Result	Expected		Recovery	-	nce Range
Chromium	ug/L	1.00	0.204	0.200		102	70 - 130	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected		Recovery		nce Range
Chromium	ug/L	2.00	48.2	50.0		96.5	85 - 115	
Matrix Spike							Lab ID =	807818-003
Parameter	Unit	DF	Result	Expected/Add	ded	Recovery	-	nce Range
Chromium	ug/L	5.00	388	387(250)		100	75 - 125	
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected		Recovery	•	nce Range
Chromium	ug/L	1.00	19.6	20.0		97.9	90 - 110	
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected		Recovery		nce Range
Chromium	ug/L	1.00	19.1	20.0		95.7	90 - 110	l
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected		Recovery		nce Range
Chromium	ug/L	1.00	19.6	20.0		97.8	90 - 110	l



Client: E2 Consulting Engineers, Inc.

PG&E Topock Project Project Name:

Project Number: 423575.MP.07.TS

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Metals by EPA 6020A, Dis	ssolved		Batch	051313A-ICMPS-1			
Parameter		Unit	Analy	zed DF	: MDL	RL	Result
807819-009 Chromium		ug/L	05/13/	2013 14:45 50.	0 4.60	10.0	1870
Method Blank							
Parameter Chromium	Unit ug/L	DF 1.00	Result ND				
Duplicate	Ü					Lab ID =	807818-003
Parameter	Unit	DF	Result	Expected	RPD	Accepta	nce Range
Chromium	ug/L	5.00	138	136	1.17	0 - 20	
Low Level Calibration \	Verification						
Parameter	Unit	DF	Result	Expected	Recovery	-	nce Range
Chromium	ug/L	1.00	0.198	0.200	98.8	70 - 130	
Lab Control Sample							
Parameter	Unit	DF	Result	Expected	Recovery	•	nce Range
Chromium	ug/L	2.00	47.0	50.0	94.0	85 - 115	
Matrix Spike						Lab ID = 8	807818-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	-	nce Range
Chromium	ug/L	5.00	387	386(250)	100	75 - 125	
MRCCS - Secondary							
Parameter	Unit	DF	Result	Expected	Recovery	•	nce Range
Chromium	ug/L	1.00	19.5	20.0	97.4	90 - 110	
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	-	nce Range
Chromium	ug/L	1.00	19.5	20.0	97.4	90 - 110	
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	nce Range
Chromium	ug/L	1.00	20.0	20.0	100	90 - 110	
Interference Check Sta	andard A						
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	nce Range
Chromium	ug/L	1.00	ND	0			
Interference Check Sta							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	nce Range
Chromium	ug/L	1.00	ND	0			

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Client: E2 Consulting Engineers, Inc.			oject Name: oject Numbe	Page 8 of 9 Printed 5/23/2013		
Interference Check St	andard AB					
Parameter Chromium Interference Check St	Unit ug/L andard AB	DF 1.00	Result 20.4	Expected 20.0	Recovery 102	Acceptance Range 80 - 120
Parameter Chromium Serial Dilution	Unit ug/L	DF 1.00	Result 19.2	Expected 20.0	Recovery 96.2	Acceptance Range 80 - 120 Lab ID = 807818-003
Parameter Chromium	Unit ug/L	DF 25.0	Result 135	Expected 136	RPD 0.664	Acceptance Range 0 - 10
Chromium, Hexavalent b	y SM 350	0-Cr B Unit		05CrH13B yzed DF	MDL	RL Result
807819-009 Chromium, Hexa	valent	ug/L	05/14	/2013 16:50 25.0	110	250 1790
Method Blank						
Parameter Chromium, Hexavalent Duplicate	Unit ug/L	DF 1.00	Result ND			Lab ID = 807819-009
Parameter Chromium, Hexavalent Lab Control Sample	Unit ug/L	DF 25.0	Result 1700	Expected 1790	RPD 5.19	Acceptance Range 0 - 20
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 95.4	Expected 100	Recovery 95.4	Acceptance Range 90 - 110 Lab ID = 807819-009
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 25.0	Result 4500	Expected/Added 4290(2500)	Recovery 108	Acceptance Range 85 - 115
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 95.4	Expected 100	Recovery 95.4	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent	Unit ug/L	D F 1.00	Result 65.6	Expected 60.0	Recovery 109	Acceptance Range 90 - 110



Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 9 of 9

Project Number: 423575.MP.07.TS Printed 5/23/2013

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for Mona Nassimi

Manager, Analytical Services

CHAIN OF CUSTODY RECORD CH2MHILL 5/7/2013 3:03:00 PM Page 2 OF 2 250 ml 250 ml 500 ml Project Name PG&E Topock Container Poly Poly Poly Location Topock (NH4)2S (NH4)2S НИОЗ, Preservatives: Ò4/NH4O 04/NH40 4°C Project Manager Jay Piper H, 4°C H, 4°C Sample Manager Shawn Duffy Filtered: Field Field Field **Holding Time** 28 28 180 QC For Sample Conditions Project Number 423575.MP.07.TS Cr6 Task Order (SM3500B) Field Project 2013-GMP-192-Q2 (E218.6) Field Filtered Number of Containers s (6020A) Field Chromium See Form Attached Turnaround Time 10 Days Shipping Date: 5/7/2013 COC Number: 16 DATE TIME Matrix MW-74-240-192 5/2/2013 8:21 Water 1 X X DU-2 MW-226-192 5/6/2013 13:55 Water X MW-227-192 15:25 5/6/2013 Water X Specific MW-57-070-192 5/6/2013 13:39 Water 2 X X MW-60-125-192 2 5/6/2013 11:30 Water Det:1 X X MW-69-195-192 2 5/6/2013 14:50 Water X X MW-229-192 5/7/2013 14:35 Water Page 1 X MW-24BR-192 9:32 2 5/7/2013 Wate: X X MW-26-192 2 5/7/2013 10:57 Water X X MUZZ MW-60BR-245-192 2 5/7/2013 8:38 Water X X MW-70BR-225-192 5/7/2013 13:55 Water 2 X X 6MP-AB3-199 5-1-13 1522 water TOTAL NUMBER OF CONTAINERS GM2-AB4-192 15-2-13 **Signatures** Date/Time **Shipping Details** Special Instructions:

Approved by Sampled by inquished by

Received by Relinquished by Received by

5-7-13

Method of Shipment: courier

On Ice: yes / no

5-7-/3/5:10 Airbill No:

5-7-/3 2/1 Lab Name: Truesdail Laboratories, Inc.

ATTN:

April 15 to May 9, 2013

Sample Custody

Report Copy to

Shawn Duffy (530) 229-3303 COMMENTS

Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
5/8/13	807819-1	9.5	NA	NA	NA	727
	-2		1		1	
	-3					
	-4					
	-5					
	-6					
	-7					
	-8		·			
	-9					
	-10					
	-11			-		
	-/2					
4	_13	Į.				
5/9/13	807946	9.5	MA	MA	NA	Try
			·			
						·
		· · · · · · · · · · · · · · · · · · ·				
						
					·	
	ermants, a			11 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1		
				2.244		
						
	· ·		**************************************			





Turbidity/pH Check

			Turbi	dity/pH C	heck			
Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
307748	41	22	5/8/13	pe	Yes			•
807749	1	1	1	1	- 0			
807750								
807755					-			
807756				†				
807732-4	71	 - - 				· · · · · · · · · · · · · · · · · · ·		
801788-174		<u> </u>						
807765-112	$-\boldsymbol{\iota}$		-					
807766	<1		 . 	d				• •
80 7817 (1-2)	٠.	72	5-8-13	BE	Yes	\$4:00	(2	
8078176-2)	- 1		328.13		-1-	14:00		Acidified after
8 1825 (1-3)		1				14.90	7.2	1-101112 W
80781461-51		12						
8 678 MC(-3)			 	-			+	
g = 78 (6 (1-2)								
807813(1-10)								
					·			
807812 807811								
	\		-	'n	<u> </u>			
807801-1,2	<u> </u>	72		110	No	15:30		
807833415,6	۷۱		· ·					
807836-11-13								
807837-177	<u> </u>							
207574	71	V_	<u> </u>	<u> </u>	x de			
807846	<1	<2	5 7-13	BE	Xello			
801849(1-5)	-4	\ \		-				
5,078191194-6,5-11)		<u> </u>						
801818 (3-9, 12-14)		- J	<u> </u>					
807828 61-2	71	<2			yes			
80777								
807772								
801773								
8 - 7774								
8 - 7775								
801778(1-3)								
8-1779								
80 7780(1-4)								
80778211-2)								
807791								
801847	4	6	<u> </u>					•
807855		J	V	4	4			
30786761-31	<1	X 2-82	- 5-10-13	BE	NO	14:00		
507857	77	42.	5/13/13	ES	4-13			
67863	1	1	1	1	-,-			
807872								

- Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
 All Total Recoverable Analytes must be pH adjusted and digested.
 Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

Sample Integrity & Analysis Discrepancy Form

. (Client: <u>EL</u>	Lab # 8078
D	ate Delivered: 05/01/13 Time: 0/30 By: □Mail Ø	Field Service
1.	Was a Chain of Custody received and signed?	ØYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ⊠N/A
<i>3</i> .	Are there any special requirements or notes on the COC?	□Yes □No ØN/A
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No ŒN/A
5.	Were all requested analyses understood and acceptable?	GYes □No □N/A
6.	Were samples received in a chilled condition? Temperature (if yes)? $\frac{Y \cdot / \circ C}{}$	ØYes □No □N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	ØYes □No □N/A
8.	Were sample custody seals intact?	□Yes □No ₽N/A
9 .	Does the number of samples received agree with COC?	DYes □No □N/A
10.	Did sample labels correspond with the client ID's?	ØYes □No □N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☑ Truesdail □ Client	ÆYes □No □N/A
12.	Were samples pH checked? pH = Seco. e.	AYes DNo DNA
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	ØYes □No □N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): RUSH Std	Maryes □No □N/A
15 .	Sample Matrix:	7
16.	Comments:	
17.	Sample Check-In completed by Truesdail Log-In/Receiving:	Luda



June 4, 2013

14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

E2 Consulting Engineers, Inc. Mr. Shawn Duffy 155 Grand Ave., Suite 1000 Oakland, California 94612

Dear Mr. Duffy:

SUBJECT:

CASE NARRATIVE PG&E TOPOCK 2013-GMP-192-Q2, GROUNDWATER MONITORING PROJECT, TLI NO.: 807949

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-192-Q2 groundwater-monitoring project for Hexavalent and Total Dissolved Chromium. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody May 14, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Due to the discrepancy between the Total Dissolved Chromium (5050 ug/L) and Hexavalent Chromium (4110 ug/L) results for sample MW-59-100-192, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 4150 ug/L and 3920 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and yielded a result of 4180 ug/L. The result from the re-digested Total Dissolved Chromium sample was reported as it more closely matched the results from the Total Dissolved Chromium re-analysis and Hexavalent Chromium sample container.

No other violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services

Allerhad the

Michael Ngo

Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



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14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Laboratory No.: 807949 Date Received: May 14, 2013

Client: E2 Consulting Engineers, Inc. 155 Grand Ave. Suite 1000

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project Project No.: 423575.MP.07.TS P.O. No.: 423575.MP.07.TS

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807949-001	MW-31-060-192	SM3500-CrB	FLDFLT	5/7/2013	15:36	Chromium, Hexavalent	275	ug/L	10.0
807949-001	MW-31-060-192	SW6020	FLDFLT	5/7/2013	15:36	Chromium	271	ug/L	1.0
807949-002	MW-230-192	E218.6	FLDFLT	5/8/2013	13:45	Chromium, Hexavalent	ND	ug/L	0.20
807949-003	MW-62-110-192	E218.6	FLDFLT	5/8/2013	14:39	Chromium, Hexavalent	733	ug/L	10.0
807949-003	MW-62-110-192	SW6020	FLDFLT	5/8/2013	14:39	Chromium	782	ug/L	2.0
807949-004	MW-62-190-192	E218.6	FLDFLT	5/8/2013	14:52	Chromium, Hexavalent	ND	ug/L	1.0
807949-004	MW-62-190-192	SW6020	FLDFLT	5/8/2013	14:52	Chromium	ND	ug/L	1.0
807949-005	MW-68-240-192	E218.6	FLDFLT	5/8/2013	11:46	Chromium, Hexavalent	2050	ug/L	20.0
807949-005	MW-68-240-192	SW6020	FLDFLT	5/8/2013	11:46	Chromium	2160	ug/L	5.0
807949-006	MW-68BR-280-192	E218.6	FLDFLT	5/8/2013	10:28	Chromium, Hexavalent	ND	ug/L	1.0
807949-006	MW-68BR-280-192	SW6020	FLDFLT	5/8/2013	10:28	Chromium	ND	ug/L	1.0
807949-007	MW-12-192	SM3500-CrB	FLDFLT	5/9/2013	11:22	Chromium, Hexavalent	2440	ug/L	250
807949-007	MW-12-192	SW6020	FLDFLT	5/9/2013	11:22	Chromium	2620	ug/L	10.0
807949-008	MW-128-192	E218.6	FLDFLT	5/9/2013	6:42	Chromium, Hexavalent	2140	ug/L	20.0
807949-008	MW-128-192	SW6020	FLDFLT	5/9/2013	6:42	Chromium	2250	ug/L	5.0
807949-009	MW-20-070-192	SM3500-CrB	FLDFLT	5/9/2013	13:08	Chromium, Hexavalent	2800	ug/L	250
807949-009	MW-20-070-192	SW6020	FLDFLT	5/9/2013	13:08	Chromium	3040	ug/L	10.0
807949-010	MW-20-100-192	SM3500-CrB	FLDFLT	5/9/2013	14:23	Chromium, Hexavalent	3340	ug/L	250
807949-010	MW-20-100-192	SW6020	FLDFLT	5/9/2013	14:23	Chromium	3780	ug/L	10.0
807949-011	MW-231-192	E218.6	FLDFLT	5/9/2013	14:20	Chromium, Hexavalent	ND	ug/L	0.20
807949-012	MW-232-192	E218.6	FLDFLT	5/9/2013	14:45	Chromium, Hexavalent	ND	ug/L	0.20
807949-013	MW-67-185-192	E218.6	FLDFLT	5/9/2013	10:08	Chromium, Hexavalent	2400	ug/L	50.0
807949-013	MW-67-185-192	SW6020	FLDFLT	5/9/2013	10:08	Chromium	2550	ug/L	10.0
5								3	



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807949-014	MW-67-225-192	E218.6	FLDFLT	5/9/2013	9:11	Chromium, Hexavalent	3140	ug/L	50.0
807949-014	MW-67-225-192	SW6020	FLDFLT	5/9/2013	9:11	Chromium	3280	ug/L	10.0
807949-015	MW-67-260-192	E218.6	FLDFLT	5/9/2013	8:23	Chromium, Hexavalent	2120	ug/L	20.0
807949-015	MW-67-260-192	SW6020	FLDFLT	5/9/2013	8:23	Chromium	2220	ug/L	5.0
807949-016	MW-233-192	E218.6	FLDFLT	5/13/2013	15:25	Chromium, Hexavalent	ND	ug/L	0.20
807949-017	MW-51-192	SM3500-CrB	FLDFLT	5/13/2013	15:05	Chromium, Hexavalent	4170	ug/L	250
807949-017	MW-51-192	SW6020	FLDFLT	5/13/2013	15:05	Chromium	4950	ug/L	20.0
807949-018	MW-59-100-192	E218.6	FLDFLT	5/13/2013	12:52	Chromium, Hexavalent	4110	ug/L	50.0
807949-018	MW-59-100-192	SW6020	FLDFLT	5/13/2013	12:52	Chromium	4150	ug/L	10.0
807949-019	MW-66-230-192	E218.6	FLDFLT	5/13/2013	9:05	Chromium, Hexavalent	6520	ug/L	100
807949-019	MW-66-230-192	SW6020	FLDFLT	5/13/2013	9:05	Chromium	7280	ug/L	20.0
807949-020	MW-68-180-192	E218.6	FLDFLT	5/13/2013	10:56	Chromium, Hexavalent	5010	ug/L	50.0
807949-020	MW-68-180-192	SW6020	FLDFLT	5/13/2013	10:56	Chromium	5590	ug/L	20.0
807949-021	MW-10-192	SM3500-CrB	FLDFLT	5/14/2013	11:11	Chromium, Hexavalent	267	ug/L	10.0
807949-021	MW-10-192	SW6020	FLDFLT	5/14/2013	11:11	Chromium	269	ug/L	1.0
807949-022	MW-20-130-192	SM3500-CrB	FLDFLT	5/14/2013	8:20	Chromium, Hexavalent	9120	ug/L	500
807949-022	MW-20-130-192	SW6020	FLDFLT	5/14/2013	8:20	Chromium	10500	ug/L	40.0
807949-023	MW-234-192	E218.6	FLDFLT	5/14/2013	15:25	Chromium, Hexavalent	0.64	ug/L	0.20
807949-024	MW-50-200-192	SM3500-CrB	FLDFLT	5/14/2013	15:11	Chromium, Hexavalent	7630	ug/L	500
807949-024	MW-50-200-192	SW6020	FLDFLT	5/14/2013	15:11	Chromium	8670	ug/L	20.0
807949-025	TW-01-192	SM3500-CrB	FLDFLT	5/14/2013	13:52	Chromium, Hexavalent	2830	ug/L	250
807949-025	TW-01-192	SW6020	FLDFLT	5/14/2013	13:52	Chromium	3160	ug/L	10.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

Note: The following "Significant Figures" rule has been applied to all results:

Results below 0.01ppm will have two (2) significant figures.

Result above or equal to 0.01ppm will have three (3) significant figures. Quality Control data will always have three (3) significant figures.

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project Project Number: 423575.MP.07.TS P.O. Number: 423575.MP.07.TS

Release Number:

Samples Received on 5/14/2013 11:00:00 PM

Laboratory No. 807949

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Field ID	Lab ID	Collected	Matrix
MW-31-060-192	807949-001	05/07/2013 15:36	Water
MW-230-192	807949-002	05/08/2013 13:45	Water
MW-62-110-192	807949-003	05/08/2013 14:39	Water
MW-62-190-192	807949-004	05/08/2013 14:52	Water
MW-68-240-192	807949-005	05/08/2013 11:46	Water
MW-68BR-280-192	807949-006	05/08/2013 10:28	Water
MW-12-192	807949-007	05/09/2013 11:22	Water
MW-128-192	807949-008	05/09/2013 06:42	Water
MW-20-070-192	807949-009	05/09/2013 13:08	Water
MW-20-100-192	807949-010	05/09/2013 14:23	Water
MW-231-192	807949-011	05/09/2013 14:20	Water
MW-232-192	807949-012	05/09/2013 14:45	Water
MW-67-185-192	807949-013	05/09/2013 10:08	Water
MW-67-225-192	807949-014	05/09/2013 09:11	Water
MW-67-260-192	807949-015	05/09/2013 08:23	Water
MW-233-192	807949-016	05/13/2013 15:25	Water
MW-51-192	807949-017	05/13/2013 15:05	Water
MW-59-100-192	807949-018	05/13/2013 12:52	Water
MW-66-230-192	807949-019	05/13/2013 09:05	Water
MW-68-180-192	807949-020	05/13/2013 10:56	Water
MW-10-192	807949-021	05/14/2013 11:11	Water
MW-20-130-192	807949-022	05/14/2013 08:20	Water
MW-234-192	807949-023	05/14/2013 15:25	Water
MW-50-200-192	807949-024	05/14/2013 15:11	Water
TW-01-192	807949-025	05/14/2013 13:52	Water

Chrome VI by EPA 218.6		Batch 05CrH13L				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
807949-002 Chromium, Hexavalent	ug/L	05/22/2013 11:21	1.00	0.00920	0.20	ND
807949-003 Chromium, Hexavalent	ug/L	05/22/2013 11:42	50.0	0.460	10.0	733



Client: E2 Consulting En	ngineers, Ind	: .	Project Name: Project Number	Page 2 of 14 Printed 6/4/2013			
807949-004 Chromium, Hex	avalent	ug/L	05/22/	2013 12:45 5.	00 0.0460	1.0	ND
807949-005 Chromium, Hex	avalent	ug/L	05/22/	2013 13:05 10	0.920	20.0	2050
807949-006 Chromium, Hex	avalent	ug/L	05/22/	2013 13:47 5.	00 0.0460	1.0	ND
807949-008 Chromium, Hex	avalent	ug/L	05/22/	2013 15:41 10	0.920	20.0	2140
807949-011 Chromium, Hex	avalent	ug/L	05/22/	2013 16:02 1.	0.00920	0.20	ND
807949-012 Chromium, Hex	avalent	ug/L	05/22/	2013 16:54 1.	0.00920	0.20	ND
807949-013 Chromium, Hex	avalent	ug/L	05/22/	2013 17:15 25	50 2.30	50.0	2400
807949-014 Chromium, Hex	avalent	ug/L	05/22/	2013 17:36 25	0 2.30	50.0	3140
807949-015 Chromium, Hex	avalent	ug/L	05/22/	2013 17:57 10	0.920	20.0	2120
807949-016 Chromium, Hex	avalent	ug/L	05/22/	2013 14:18 1.	0.00920	0.20	ND
807949-019 Chromium, Hex	avalent	ug/L	05/22/	2013 15:00 50	00 4.60	100	6520
807949-023 Chromium, Hex	avalent	ug/L	05/22/	2013 15:21 1.	0.00920	0.20	0.64
Method Blank							Awarana.
Purplicate	Unit ug/L	DF 1.00	Result ND			ี่ (ริษาก ⊕	807949-002
Duplicate	a di Maria (1978) També						
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.0593	Expected 0.0582	RPD 1.87	0 - 20	nce Range
Low Level Calibration		1.00 		- 0.0002 - Artel - 17 - 17 - 17 - 17 - 17 - 17 - 17 - 1	1.07 140(20) - 107(0)	0 - 20 Martineras	
	Unit	DF	Result	Evaceted	Pooruon	A conto	noo Bongo
Parameter Chromium, Hexavalent	ug/L	1.00	0.199	Expected 0.200	Recovery 99.3	70 - 130	nce Range
Lab Control Sample	u y, - Wasangasang		#200 Ballia i - 2	- 0.200 - 2490 - 1380 - 1384			
Parameter	Unit	DF	Result	Expected	Recovery	Accenta	nce Range
Chromium, Hexavalent	ug/L	1.00	4.92	5.00	98.3	90 - 110	•
Matrix Spike	in a					Lab ID =	807947-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Accepta	nce Range
Chromium, Hexavalent	ug/L	1.00	1.16	1.12(1.00)	104	90 - 110	•
Matrix Spike						Lab ID =	807949-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Accepta	nce Range
Chromium, Hexavalent	ug/L	1.00	1.07	1.06(1.00)	101	90 - 110	_
Matrix Spike						Lab ID =	807949-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Accepta	nce Range
Chromium, Hexavalent	ug/L	50.0	1480	1480(750)	98.9	90 - 110	_
Matrix Spike						Lab ID =	807949-004
Parameter Chromium, Hexavalent	Unit ug/L	DF 5.00	Result 4.99	Expected/Added 5.00(5.00)	Recovery 99.7	Accepta 90 - 110	nce Range



Client: E2 Consulting Engineers, Inc.			Project Name: Project Number	PG&E Topock Pro:: 423575.MP.07.TS	-	Page 3 of 14 Printed 6/4/2013
Matrix Spike						Lab ID = 807949-004
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.615	Expected/Added 1.00(1.00)	Recovery 61.5	Acceptance Range 90 - 110 Lab ID = 807949-005
Parameter Chromium, Hexavalent	Unit ug/L	DF 100	Result 4440	Expected/Added 4550(2500)	Recovery 95.6	Acceptance Range 90 - 110
Matrix Spike Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 5.08	Expected/Added 5.00(5.00)	Recovery 102	Lab ID = 807949-006 Acceptance Range 90 - 110 Lab ID = 807949-006
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.482	Expected/Added 1.00(1.00)	Recovery 48.2	Acceptance Range 90 - 110
Matrix Spike Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 100	Result 4520	Expected/Added 4640(2500)	Recovery 95.2	Lab ID = 807949-008 Acceptance Range 90 - 110 Lab ID = 807949-011
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.04	Expected/Added 1.02(1.00)	Recovery 102	Acceptance Range 90 - 110 Lab ID = 807949-012
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.07	Expected/Added 1.06(1.00)	Recovery 101	Acceptance Range 90 - 110 Lab ID = 807949-013
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 250	Result 4820	Expected/Added 4900(2500)	Recovery 96.8	Acceptance Range 90 - 110 Lab ID = 807949-014
Parameter Chromium, Hexavalent	Unit ug/L	DF 250	Result 6740	Expected/Added 6890(3750)	Recovery 96.1	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807949-015
Parameter Chromium, Hexavalent	Unit ug/L	DF 100	Result 4520	Expected/Added 4620(2500)	Recovery 96.1	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807949-016
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.04	Expected/Added 1.02(1.00)	Recovery 102	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 807949-019
Parameter Chromium, Hexavalent	Unit ug/L	DF 500	Result 13800	Expected/Added 14000(7500)	Recovery 97.7	Acceptance Range 90 - 110



Client: E2 Consulting Engineers, Inc.			Project Name:	PG&E Topock Project		Page 4 of 14	
			Project Number:	423575.MP.07.TS		Printed 6/4/2013	
Matrix Spike	yra y garafai					Lab ID = 807949-023	
Parameter	Unit	DF	Result	Expected/Added 1.64(1.00)	Recovery	Acceptance Range	
Chromium, Hexavalent	ug/L	1.00	1.64		100	90 - 110	
MRCCS - Secondary							
Parameter Chromium, Hexavalent MRCVS - Primary	Unit	DF	Result	Expected	Recovery	Acceptance Range	
	ug/L	1.00	4.93	5.00	98.6	90 - 110	
Parameter Chromium, Hexavalent MRCVS - Primary	Unit	DF	Result	Expected	Recovery	Acceptance Range	
	ug/L	1.00	10.2	10.0	102	95 - 105	
Parameter Chromium, Hexavalent MRCVS - Primary	Unit	DF	Result	Expected	Recovery	Acceptance Range	
	ug/L	1.00	10.1	10.0	101	95 - 105	
Parameter Chromium, Hexavalent MRCVS - Primary	Unit	DF	Result	Expected	Recovery	Acceptance Range	
	ug/L	1.00	10.0	10.0	100	95 - 105	
Parameter Chromium, Hexavalent MRCVS - Primary	Unit	DF	Result	Expected	Recovery	Acceptance Range	
	ug/L	1.00	10.1	10.0	101	95 - 105	
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range	
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101	95 - 105	



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Chrome VI by EPA 218.0		Batch	05CrH13M				
Parameter		Unit	Analyzed		F MDL	RL	Result
807949-018 Chromium, Hex	avalent	ug/L	05/23	/2013 22:00 25	0 2.30	50.0	4110
807949-020 Chromium, Hex	avalent	ug/L	05/23	/2013 22:21 25	0 2.30	50.0	5010
Method Blank		Jak E. Killanda					4.a
Parameter	Unit	DF	Result				
Chromium, Hexavalent	ug/L	1.00	ND				
Duplicate						Lab ID =	808086-004
Parameter	Unit	DF	Result	Expected	RPD	Accepta	ince Range
Chromium, Hexavalent	ug/L	1.00	0.0374	0.0362	3.26	0 - 20	
Low Level Calibration	Verification	ng#faloyep					
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	ince Range
Chromium, Hexavalent	ug/L	1.00	0.204	0.200	102	70 - 130)
Lab Control Sample							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	nce Range
Chromium, Hexavalent	ug/L	1.00	4.94	5.00	98.8	90 - 110)
Matrix Spike						Lab ID =	807949-018
Parameter	Unit	DF	Result	Expected/Added	Recovery	Accepta	ince Range
Chromium, Hexavalent	ug/L	250	7890	7860(3750)	101	90 - 110)
Matrix Spike						Lab ID =	807949-020
Parameter	Unit	DF	Result	Expected/Added	Recovery	Accepta	ince Range
Chromium, Hexavalent	ug/L	250	9920	10000(5000)	98.3	90 - 110)
Matrix Spike						Lab ID =	808086-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Accepta	nce Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.02(1.00)	102	90 - 110)
Matrix Spike						Lab ID =	808086-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Accepta	ince Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.02(1.00)	102	90 - 110)
Matrix Spike						Lab ID =	808086-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Accepta	ince Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.02(1.00)	101	90 - 110)
Matrix Spike						Lab ID =	808086-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Accepta	nce Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.04(1.00)	102	90 - 110)



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.07.TS

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Revised

Metals by EPA 6020A, Di	ssolved		Batch	051613A				
Parameter		Unit	Anal	yzed	DF	MDL	RL	Result
807949-001 Chromium		ug/L	05/16	/2013 09:40	5.00	0.460	1.0	271
807949-003 Chromium		ug/L	05/16	/2013 10:34	10.0	0.920	2.0	782
807949-004 Chromium		ug/L	05/16	/2013 10:40	2.00	0.184	1.0	ND
807949-005 Chromium		ug/L	05/16/2013 10:46			2.30	5.0	2160
807949-006 Chromium		ug/L	05/16	/2013 12:52	2.00	0.184	1.0	ND
807949-007 Chromium		ug/L	05/16	/2013 12:59	50.0	4.60	10.0	2620
807949-008 Chromium		ug/L	05/16	/2013 11:04	25.0	2.30	5.0	2250
807949-009 Chromium		ug/L	05/16	/2013 13:05	50.0	4.60	10.0	3040
807949-010 Chromium		ug/L	05/16	/2013 13:11	50.0	4.60	10.0	3780
807949-013 Chromium		ug/L	05/16	/2013 13:17	50.0	4.60	10.0	2550
807949-014 Chromium		ug/L	05/16	/2013 11:40	50.0	4.60	10.0	3280
807949-015 Chromium		ug/L	05/16	/2013 11:46	25.0	2.30	5.0	2220
807949-017 Chromium		ug/L	05/16	/2013 11:52	100	9.20	20.0	4950
807949-019 Chromium		ug/L	05/16	/2013 12:04	100	9.20	20.0	7280
807949-020 Chromium		ug/L	05/16	/2013 12:10	100	9.20	20.0	5590
807949-021 Chromium		ug/L	05/16	/2013 13:23	5.00	0.460	1.0	269
807949-022 Chromium		ug/L	05/16	/2013 12:22	200	18.4	40.0	10500
807949-024 Chromium		ug/L	05/16	/2013 13:29	100	9.20	20.0	8670
807949-025 Chromium		ug/L	05/16	/2013 12:46	50.0	4.60	10.0	3160
Method Blank								
Parameter	Unit	DF	Result					
Chromium	ug/L	1.00	ND					
Duplicate							Lab ID =	807949-001
Parameter	Unit	ÐF	Result	Expected	F	RPD	Accepta	nce Range
Chromium	ug/L	5.00	284	271		4.67	0 - 20	
Low Level Calibration	Verification							
Parameter	Unit	DF	Result	Result Expected Recovery		Recovery	Accepta	ince Range
Chromium	ug/L	1.00	0.246	0.200		123	70 - 130)
Lab Control Sample								
Parameter	Unit	ÐF	Result	Expected	F	Recovery	Accepta	ince Range
Chromium	ug/L	2.00	49.9	50.0		99.9	85 - 115	j



Client: E2 Consulting Engineers, Inc.			Project Name: Project Number:	pject	Page 9 of 14 Printed 6/4/2013	
Matrix Spike						Lab ID = 807949-001
Parameter Chromium Matrix Spike Duplicate	Unit ug/L	DF 5.00	Result 428	Expected/Added 421(150)	Recovery 104	Acceptance Range 75 - 125 Lab ID = 807949-001
Parameter Chromium MRCCS - Secondary	Unit ug/L	DF 5.00	Result 439	Expected/Added 421(150)	Recovery 112	Acceptance Range 75 - 125
Parameter Chromium MRCVS - Primary	Unit ug/L	DF 1.00	Result 19.6	Expected 20.0	Recovery 98.0	Acceptance Range 90 - 110
Parameter Chromium	Unit ug/L	DF 1.00	Result 20.6	Expected 20.0	Recovery 103	Acceptance Range 90 - 110
MRCVS - Primary Parameter Chromium MRCVS - Primary	Unit ug/L	DF 1.00	Result 20.3	Expected 20.0	Recovery 101	Acceptance Range 90 - 110
Parameter Chromium MRCVS - Primary	Unit ug/L	DF 1.00	Result 20.1	Expected 20.0	Recovery 100	Acceptance Range 90 - 110
Parameter Chromium Interference Check Sta	Unit ug/L	DF 1.00	Result 20.6	Expected 20.0	Recovery 103	Acceptance Range 90 - 110
Parameter Chromium Interference Check Sta	Unit ug/L	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Parameter Chromium	Unit ug/L	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Parameter Chromium	Unit ug/L	DF 1.00	Result 19.6	Expected 20.0	Recovery 98.3	Acceptance Range 80 - 120
Interference Check Sta Parameter Chromium Serial Dilution	Unit ug/L	DF 1.00	Result 19.0	Expected 20.0	Recovery 94.8	Acceptance Range 80 - 120 Lab ID = 807949-001
Parameter Chromium	Unit ug/L	DF 25.0	Result 281	Expected 271	RPD 3.65	Acceptance Range 0 - 10



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Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
807949-018 Chromium		ug/L	06/03	5/2013 13:11 5	0.0	4.60	10.0	4150
Method Blank	Representation							
Parameter	Unit	DF	Result					
Chromium	ug/L	1.00	ND					
Duplicate							Lab ID =	808086-003
Parameter	Unit	DF	Result	Expected	R	PD	Accepta	ance Range
Chromium	ug/L	2.00	ND	0		0	0 - 20	
Low Level Calibratio	n Verification							
Parameter	Unit	DF	Result	Expected	R	ecovery	Accepta	ance Range
Chromium	ug/L	1.00	0.206	0.200		103	70 - 130)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	Re	ecovery	Accepta	ance Range
Chromium	ug/L	2.00	48.8	50.0		97.7	85 - 115	5
Matrix Spike							Lab ID =	808086-003
Parameter	Unit	DF	Result	Expected/Adde	d R	ecovery	Accepta	ance Range
Chromium	ug/L	2.00	49.8	50.0(50.0)		99.5	75 - 125	5
Matrix Spike Duplica	ate						Lab ID =	808086-003
Parameter	Unit	DF	Result	Expected/Adde		ecovery	-	ance Range
Chromium	ug/L	2.00	50.2	50.0(50.0)		100	75 - 125	5
MRCCS - Secondar	y Eddynada)							
Parameter	Unit	DF	Result	Expected		ecovery		ance Range
Chromium	ug/L	1.00	19.5	20.0		97.5	90 - 110)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	R	ecovery	Accepta	ance Range
Chromium	ug/L	1.00	20.0	20.0		99.8	90 - 110)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected		ecovery	•	ance Range
Chromium	ug/L	1.00	19.8	20.0		98.9	90 - 110)
Interference Check	Standard A							
Parameter	Unit	DF	Result	Expected	R	ecovery	Accepta	ance Range
Chromium	ug/L	1.00	ND	0				



Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 12 of 14

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		PI	ojeci Numbe	1. 423575.IVIP.U7	.10	Printed 6/4/2013
Interference Check St	andard A					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		
Interference Check Sta	andard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	99.2	80 - 120
Interference Check Sta	andard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.8	20.0	93.9	80 - 120
Serial Dilution						Lab ID = 807949-018
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	250	4260	4180	1.97	0 - 10



Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project

Project Number: 423575.MP.07.TS Printed 6/4/2013

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Chromium, Hexavalent	by SM 350	0-Cr B	Batch	05CrH13C			
Parameter		Unit	Anal	lyzed C	F MDL	RL	Result
807949-001 Chromium, Hex	avalent	ug/L	05/22	/2013 15:53 1.	00 4.40	10.0	275
807949-007 Chromium, Hex	avalent	ug/L	05/22	/2013 15:54 25	5.0 110	250	2440
807949-009 Chromium, Hex	avalent	ug/L	05/22	/2013 15:55 25	5.0 110	250	2800
807949-010 Chromium, Hex	avalent	ug/L	05/22	/2013 15:56 25	5.0 110	250	3340
807949-017 Chromium, Hex	avalent	ug/L	05/22	/2013 15:57 25	5.0 110	250	4170
807949-021 Chromium, Hex	avalent	ug/L	05/22	/2013 15:58 1.	00 4.40	10.0	267
807949-022 Chromium, Hex	avalent	ug/L	05/22	/2013 15:59 50	0.0 220	500	9120
807949-024 Chromium, Hex	avalent	ug/L	05/22	/2013 16:04 50	0.0 220	500	7630
807949-025 Chromium, Hex	avalent	ug/L	05/22	/2013 16:05 25	5.0 110	250	2830
Method Blank			ila ka ili ka ka fal				seen Willen
Parameter	Unit	DF	Result				
Chromium, Hexavalent	ug/L	1.00	ND				
Duplicate						Lab ID =	807949-02
Parameter	Unit	DF	Result	Expected	RPD	Accepta	ance Range
Chromium, Hexavalent	ug/L	50.0	9410	9120	3.18	0 - 20	
Lab Control Sample							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	91.8	100	91.8	90 - 110)
Matrix Spike						Lab ID =	807949-02
Parameter	Unit	DF	Result	Expected/Added	d Recovery	Accepta	ance Rang
Chromium, Hexavalent	ug/L	50.0	14200	14100(5000)	101	85 - 11	5
MRCCS - Secondary							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	91.8	100	91.8	90 - 110	כ
MRCVS - Primary	derli seri en si si tita i seri de tropita anga a masa tilopasa anga s Se seri de li Seria de Seria d		en proposition de la company de la compa La company de la company d	ya kalendarin a kalendarin karan sayan sayar karan sayan karan karan karan karan karan karan karan karan karan Karan karan ka	e de la companya de La companya de la co		
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	60.8	60.0	101	90 - 110	כ
MRCVS - Primary						Miran.	
Parameter	Unit	DF	Result	Expected	Recovery	•	ance Rang
Chromium, Hexavalent	ug/L	1.00	60.8	60.0	101	90 - 110	כ



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.07.TS

Page 14 of 14

Printed 6/4/2013

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services

CH2MHILL

CHAIN OF CUSTODY RECORD

5/14/2013 3:36:25 PM

Page 1 OF 2

	Project Name PG Location Topock Project Manager J Sample Manager S	lay Piper	Pres	Container: ervatives: Filtered: ling Time:	250 ml Poly (NH4)2S 04/NH40 H, 4°C Field	250 ml Poly (NH4)2S 04/NH40 H, 4°C Field		See Form Attached		
	Project Number 4 Task Order Project 2013-GMF Turnaround Time Shipping Date: 5 COC Number: 21	P-192-Q2 10 Days /14/2013	3	Matrix	Cr6 (E218.6) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020A) Field Filtered Chromium	ALERT!! Level III QC	Number of Containers	BY FOR
1	MW-31-060-192	5/7/2013	15:36	Water		Х	Х		2	DU-2
2	MW-230-192	5/8/2013	13:45	Water	Х				Z.	
3	MW-62-110-192	5/8/2013	14:39	Water	Х		×		2)
4	MW-62-190-192	5/8/2013	14:52	Water	Х		х		2	
5	MW-68-240-192	5/8/2013	11:46	Water	X,		Х		2	
6	MW-68BR-280-192	5/8/2013	10:28	Water	Х		Х		2	لا بر
4	MW-12-192	5/9/2013	11:22	Water		Х	х		2	> ON
8	MW-128-192	5/9/2013	6:42	Water	х		Х		2	
9	MW-20-070-192	5/9/2013	13:08	Water		Х	Х		2	
kl) MW-20-100-192	5/9/2013	14:23	Water		Х	х		2	
	MW-231-192	5/9/2013	14:20	Water	Х-				1	
/				 					Ą	
.1	1	5/9/2013	14:45	Water	Х				8	1
- 1	MW-232-192	5/9/2013 5/9/2013	14:45 10:08	Water Water	X X		X		2	1

Approved by mpled by

Clinquished by

Received by

Received by

Relinquished by

Signatures

Shipping Details

Method of Shipment: courier

On Ice: yes / no

ATTN:

Special Instructions: April 15 to May 9, 2013

Sample Custody

Report Copy to

Shawn Duffy (530) 229-3303

807949

2

45

TOTAL NUMBER OF CONTAINERS

CH2MHILL **CHAIN OF CUSTODY RECORD** 5/14/2013 3:36:25 PM Page 2 OF 2 250 ml 250 ml 500 ml Project Name PG&E Topock Container Poly Poly Poly Location Topock (NH4)2S (NH4)2S HNO3, Preservatives: 04/NH40 04/NH40 4°C Project Manager Jay Piper H, 4°C H, 4°C Sample Manager Shawn Duffy Field Field Field Filtered: Holding Time: 28 28 180 Project Number 423575.MP.07.TS Cr6 Metals (6020A) Field Filtered Chromium Task Order Cr6 (E218.6) Field Filtered (SM3500B) Field Filtered Project 2013-GMP-192-Q2 Number of Containers Turnaround Time 10 Days Shipping Date: 5/14/2013 COC Number: 21 TIME Matrix DATE COMMENTS MW-67-260-192 5/9/2013 8:23 Water X 2 X DU-2 MW-233-192 5/13/2013 15:25 Same Water X MW-51-192 5/13/2013 15:05 2 Water X X MW-59-100-192 5/13/2013 12:52 Water Х 2 X MW-66-230-192 2 5/13/2013 9:05 Water X X IDU=2 MW-68-180-192 2 10:56 5/13/2013 Water X X MW-10-192 11:44 2 5/14/2013 Water X X MW-20-130-192 2 5/14/2013 8:20 Water X X MW-234-192 5/14/2013 15:25 Water X * MW-50-200-192 2 5/14/2013 15:11 Water X X

American delay	Signatures	Date/Time	Shipping Details		Special Instructions:
Approved by Sampled by		1545	Method of Shipment: courier	ATTN:	April 15 to May 9, 2013
Reinquished by	DUY		On Ice: yes / no	Sample Custody	
Received by	Hafar Davila	9/14/13 19	Airbill No:		Report Copy to
Relinquished by Received by	Kafay Davile	5/14/13 25	Lab Name: Truesdail Laboratories,	Inc.	Shawn Duffy
Received by	Luda, III.	5/14/13 23:0	Lab Phone: (714) 730-6239		(530) 229-3303

TW-01-192

5/14/2013

13:52

Water

X

X

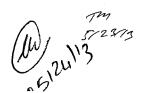
Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	1	Buffer Added (mL)	Final pH	Time Buffered	Initials
5/8/13	807819-1	9.5	NIA	NIA	NA	727
	-2					
	-3		`			
	-4					
	-5					
	-6					
	1 -7					<u> </u>
	-8					
	-9					
	-10					
	-11					
	-/2			·		
1	_/3					<u>.</u>
5/9/13		9.5	MA	NA	NA	Try
5/18/13	8.07949-1	9.5	NIA	N/A	N/4	NE
	- 2					
	- 3					
	- 4					
	<u>- 5</u>				·	
	-6					
	_7 ·				-	
	-8					
	-9					
	-i0					
	<u> - il </u>					
	<u>- i2</u>	-				
	- 14					+
	- is				-	
	_ 16		<u> </u>			1,
\/	~ 17			<u> </u>	<u> </u>	\bigvee



Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
5/15/13	807949-18	9.5	NA	NA	NA	NE
	-19					
	-20					
	-21					
	-22					
	-23				-	
	-24					
	1 -25			<u> </u>		
5/15/13	802947	7.0	2mc/100mc	9.5	7:45 am	124
	807948 -1	8,0	0.3ml /25ml	9.5	7:15 am	لمك
-	-2	9.7	NA	NA	NIA	
	-3	8.0	0,5 ml/25 ml	A 9.5	7:15 am	
	-4	9.5	NA	NA	NIA	
	-5	7.0	2m L/100ml	9.5ml	7:20 am	
	-6		·	-	7:25	
	-7				7:25	
	- 8				7:36	
	-9				7:30	
	-/0				7:30	
	-11				7:35	
	-/2			J	7:35	
5/22/13	808083	6.0	2 ml/100ml	9.5	10:15	Ting
5/22/13	808084-1	9.5	NA	NA	NA	727
	-2					
	-3	-				
	- 4			1		
	-5					
	-6				. (
- 1	-7		J.	<u> </u>		
5/22/13	808085 -1	9.5	NA	NA	MA	Tu
	1 -2		- 1			





Turbidity/pH Check

Turbidity/pH Check								
Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
807846	4	<i>Z</i> 2	5/17/17	ΕS	yes			·
507887	1	I	1	1	T			
807889	1	72	T	L	No	11-00		
8.07894	1	<2	(BI-	Xes			
807893	J	J_{i}	J	7	7			
\$07871 U-10)	<1	₹2	5-14-15	BL	xes			
80789711-41	۲۱	72			Na	1(:00		
80790111-3)	J	7			Ţ	7		
307911	41	62	5714/18	m	year			
807912		ı	ľ	i	7			
807913								
807914						_		
807915								
807916			,					
807917		1	₽ I	J	J.			
\$079/8	<1	72	3-15-13	Poi	Na	8:00		
807949(1)2-1015)		ح ري			X.25			
80 7949 (17-22,24-)	l.		7					
80794/4-2)	くい	72	J	•	No	13:00		
5.67970(10-12)	< \	>2	5~16-13	BE	No	& 7 au		
80796961-3	J	J /	J	J		J		
807991(116)	71	≺ 2	5-17-13	36	Xel			
807993 (1-4)				1				
807994								
807995(1-4)	1		1	1	1			
807997L1-4)	≺ι	٧2.	9-17-13	BE	xes			
807947 NB E-	J	>2 496	1,	J	J	11:00		
808020	71	>2	5- 2e-13	B2-	Yes	700		
808021 -1	71	<i>L</i> 2,	5-21-13	ES	44			
-6	J	1	1	Í	Ī			
808022-(1-6)	21						~	
023	ì							
024								
028(174)								
074								
120								
052								
0.53								
420					j			
270			1		.]/			
(U-1) PECSOS	ZI	22	5 22 13	ES	445			
808036(1-4)	41	<u> </u>	- 1- 11/	1	ا			
808083	L 1	72				10:00		
808084(1-7)	Z1	L 2				-		
	· '		V					

Notes:

- Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
 All Total Recoverable Analytes must be pH adjusted and digested.
 Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

Sample Integrity & Analysis Discrepancy Form

	lient: <u>E2</u>	Lab # SOZ
D	ate Delivered: <u>05</u> 7 <u>/4</u> /13 Time: <u>23. 0</u> 0 By: □Mail Øi	Field Service
1.	Was a Chain of Custody received and signed?	ØYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	☐Yes ☐No Z☐N/A
3.	Are there any special requirements or notes on the COC?	☐Yes ☐No ☐N/A
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No □N/A
5.	Were all requested analyses understood and acceptable?	ØYes □No □N/A
6.	Were samples received in a chilled condition? Temperature (if yes)? <u>3⋅ ∀°C</u>	d Yes □No □N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	ØYes □No □N/A
8	Were sample custody seals intact?	□Yes □No ØN/A
9 .	Does the number of samples received agree with COC?	ØYes □No □N/A
10.	Did sample labels correspond with the client ID's?	dYes □No □N/A
1 1.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☑ Truesdail ☐ Client/	AYes ONO ON/A
12.	Were samples pH checked? pH = SULCIPED	AYes ONO ONA
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	ØYes □No □N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): □ RUSH □ Std	☐Yes ☐No ☐N/A
5.	Sample Matrix:	ater
	□Sludge □Soil □Wipe □Paint □Solid ⊅ÓO	ther Warter
5.	Comments:	
7.	Sample Check-In completed by Truesdail Log-In/Receiving:	Leuda

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14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

June 3, 2013

E2 Consulting Engineers, Inc. Mr. Shawn Duffy 155 Grand Ave., Suite 1000 Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2013-GMP-192-Q2, GROUNDWATER MONITORING

PROJECT, TLI NO.: 808084

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-192-Q2 groundwater-monitoring project for Hexavalent and Total Dissolved Chromium. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody May 21, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

No violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services

Michael tt

Michael Ngo

Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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Laboratory No.: 808084
Date Received: May 21, 2013

Client: E2 Consulting Engineers, Inc. 155 Grand Ave. Suite 1000

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project Project No.: 423575.MP.07.TS P.O. No.: 423575.MP.07.TS

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
808084-001	MW-22-192	E218.6	FLDFLT	5/15/2013	12:06	Chromium, Hexavalent	ND	ug/L	1.0
808084-001	MW-22-192	SW6020	FLDFLT	5/15/2013	12:06	Chromium	ND	ug/L	1.0
808084-002	MW-36-090-192	E218.6	FLDFLT	5/15/2013	14:17	Chromium, Hexavalent	ND	ug/L	0.20
808084-002	MW-36-090-192	SW6020	FLDFLT	5/15/2013	14:17	Chromium	ND	ug/L	1.0
808084-003	MW-52D-192	E218.6	FLDFLT	5/16/2013	10:45	Chromium, Hexavalent	ND	ug/L	1.0
808084-003	MW-52D-192	SW6020	FLDFLT	5/16/2013	10:45	Chromium	ND	ug/L	1.0
808084-004	MW-52M-192	E218.6	FLDFLT	5/16/2013	10:42	Chromium, Hexavalent	ND	ug/L	1.0
808084-004	MW-52M-192	SW6020	FLDFLT	5/16/2013	10:42	Chromium	ND	ug/L	1.0
808084-005	MW-52S-192	E218.6	FLDFLT	5/16/2013	11:29	Chromium, Hexavalent	ND	ug/L	0.20
808084-005	MW-52S-192	SW6020	FLDFLT	5/16/2013	11:29	Chromium	ND	ug/L	1.0
808084-006	MW-53D-192	E218.6	FLDFLT	5/16/2013	9:15	Chromium, Hexavalent	ND	ug/L	1.0
808084-006	MW-53D-192	SW6020	FLDFLT	5/16/2013	9:15	Chromium	ND	ug/L	1.0
808084-007	MW-53M-192	E218.6	FLDFLT	5/16/2013	9:29	Chromium, Hexavalent	ND	ug/L	1.0
808084-007	MW-53M-192	SW6020	FLDFLT	5/16/2013	9:29	Chromium	ND	ug/L	1.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

Note: The following "Significant Figures" rule has been applied to all results:

Results below 0.01ppm will have two (2) significant figures.

Result above or equal to 0.01ppm will have three (3) significant figures. Quality Control data will always have three (3) significant figures.

TRUESDAIL LABORATORIES, INC.

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Page 1 of 10

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Printed 6/3/2013

Laboratory No. 808084

REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project Project Number: 423575.MP.07.TS P.O. Number: 423575,MP.07.TS

Release Number:

Samples Received on 5/21/2013 11:00:00 PM

Field ID	Lab ID	Collected	Matrix
MW-22-192	808084-001	05/15/2013 12:06	Water
MW-36-090-192	808084-002	05/15/2013 14:17	Water
MW-52D-192	808084-003	05/16/2013 10:45	Water
MW-52M-192	808084-004	05/16/2013 10:42	Water
MW-52S-192	808084-005	05/16/2013 11:29	Water
MW-53D-192	808084-006	05/16/2013 09:15	Water
MW-53M-192	808084-007	05/16/2013 09:29	Water

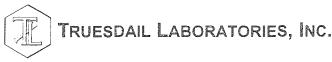
Chrome VI by EPA 218.6		Batch 05CrH13N				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
808084-001 Chromium, Hexavalent	ug/L	05/24/2013 14:35	5.00	0.0460	1.0	ND
808084-002 Chromium, Hexavalent	ug/L	05/24/2013 12:51	1.00	0.00920	0.20	ND
808084-003 Chromium, Hexavalent	ug/L	05/24/2013 15:47	5.00	0.0460	1.0	ND
808084-004 Chromium, Hexavalent	ug/L	05/24/2013 15:58	5.00	0.0460	1.0	ND
808084-005 Chromium, Hexavalent	ug/L	05/24/2013 13:22	1.00	0.00920	0.20	ND
808084-006 Chromium, Hexavalent	ug/L	05/24/2013 16:50	5.00	0.0460	1.0	ND
808084-007 Chromium, Hexavalent	ug/L	05/24/2013 17:11	5.00	0.0460	1.0	ND

Method Blank	anna a santa da mara a manda da maganasa da magan		en e	mandagi tektri puliung sama, sama sama kanganikan paga sama menganingi kangan	ettimining freshelde film graffester och som manne graffester och som men	
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result ND			
Duplicate						Lab ID = 808086-017
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.0383	Expected 0.0342	RPD 11.3	Acceptance Range 0 - 20
Low Level Calibration	n Verification	ugar i				
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 0.207	Expected 0.200	Recovery 104	Acceptance Range 70 - 130



Client: E2 Consulting Engineers, Inc.	Project Name:	PG&E Topock Project	Page 2 of 10
	Project Number	·· 423575 MP 07 TS	Printed 6/3/2013

Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.01	5.00	100	90 - 110
Matrix Spike						Lab ID = 808083-001
Parameter	Unit	DF	Result	Expected/Added 1.13(1.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.16		102	90 - 110
Matrix Spike						Lab ID = 808084-001
Parameter	Unit	DF	Result	Expected/Added 1.00(1.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.984		98.4	90 - 110
Matrix Spike						Lab ID = 808084-001
Parameter	Unit	DF	Result	Expected/Added 5.00(5.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.97		99.4	90 - 110
Matrix Spike						Lab ID = 808084-002
Parameter	Unit	DF	Result	Expected/Added 1.02(1.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05		102	90 - 110
Matrix Spike						Lab ID = 808084-003
Parameter	Unit	DF	Result	Expected/Added 1.00(1.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.965		96.5	90 - 110
Matrix Spike						Lab ID = 808084-003
Parameter	Unit	DF	Result	Expected/Added 5.06(5.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.17		102	90 - 110
Matrix Spike						Lab ID = 808084-004
Parameter	Unit	DF	Result	Expected/Added 5.07(5.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.23		103	90 - 110
Matrix Spike						Lab ID = 808084-004
Parameter	Unit	DF	Result	Expected/Added 1.00(1.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01		101	90 - 110
Matrix Spike						Lab ID = 808084-005
Parameter	Unit	DF	Result	Expected/Added 5.00(5.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.05		101	90 - 110
Matrix Spike						Lab ID = 808084-005
Parameter	Unit	DF	Result	Expected/Added 1.00(1.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.995		99.5	90 - 110
Matrix Spike						Lab ID = 808084-006
Parameter	Unit	DF	Result	Expected/Added 5.13(5.00)	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.12		99.8	90 - 110



Client: E2 Consulting Eng		oject Name: oject Number	pject	Page 3 of 10 Printed 6/3/2013		
Matrix Spike						Lab ID = 808084-006
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.966	Expected/Added 1.00(1.00)	Recovery 96.6	Acceptance Range 90 - 110 Lab ID = 808084-007
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.954	Expected/Added 1.00(1.00)	Recovery 95.4	Acceptance Range 90 - 110 Lab ID = 808084-007
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 5.18	Expected/Added 5.08(5.00)	Recovery 102	Acceptance Range 90 - 110 Lab ID = 808086-006
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.04	Expected/Added 1.00(1.00)	Recovery 104	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 808086-007
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.02	Expected/Added 1.00(1.00)	Recovery 102	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 808086-017
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 1.00	Result 1.06	Expected/Added 1.03(1.00)	Recovery 103	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 4.93	Expected 5.00	Recovery 98.6	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.2	Expected 10.0	Recovery 102	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 10.0	Expected 10.0	Recovery 100	Acceptance Range 95 - 105
MRCVS - Primary						
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 10.3	Expected 10.0	Recovery 103	Acceptance Range 95 - 105

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.

009



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.07.TS

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	Dissolved		Batch	052313A-ICPN	/IS-1			
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
808084-001 Chromium		ug/L	05/23	/2013 19:07	2.00	0.184	1.0	ND
808084-002 Chromium		ug/L	05/23	/2013 19:14	2.00	0.184	1.0	ND
808084-003 Chromium		ug/L	05/23	/2013 19:21	2.00	0.184	1.0	ND
808084-004 Chromium		ug/L	05/23	/2013 19:57	2.00	0.184	1.0	ND
808084-005 Chromium		ug/L	05/23	/2013 20:04	2.00	0.184	1.0	ND
808084-006 Chromium		ug/L	05/23	/2013 20:11	2.00	0.184	1.0	ND
808084-007 Chromium		ug/L	05/23	/2013 20:18	2.00	0.184	1.0	ND
Method Blank								
Parameter	Unit	DF	Result					
Arsenic	ug/L	1.00	ND					
Chromium	ug/L	1.00	ND					
Selenium	ug/L	1.00	ND					
Manganese	ug/L	1.00	ND					
Molybdenum	ug/L	1.00	ND					
Duplicate								
and the contract of the contra							Lab ID =	808085-001
Parameter	Unit	DF	Result	Expected	Markaria F	RPD		
Parameter Arsenic	Unit ug/L	DF 2.00	Result 2.61	Expected 2.60	PERSONAL F	RPD 0.269		
			-	•	F		Accepta	
Arsenic	ug/L	2.00	2.61	2.60	1400,000,000 F	0.269	Accepta 0 - 20	
Arsenic Chromium	ug/L ug/L	2.00 2.00	2.61 ND	2.60 0	F	0.269 0	Accepta 0 - 20 0 - 20	
Arsenic Chromium Selenium	ug/L ug/L ug/L	2.00 2.00 2.00	2.61 ND ND	2.60 0 0	F	0.269 0 0	Accepta 0 - 20 0 - 20 0 - 20	
Arsenic Chromium Selenium Manganese	ug/L ug/L ug/L ug/L ug/L	2.00 2.00 2.00 2.00 2.00	2.61 ND ND 0.878	2.60 0 0 0.882	(2006) F	0.269 0 0 0.398	Accepta 0 - 20 0 - 20 0 - 20 0 - 20	808085-001 ance Range
Arsenic Chromium Selenium Manganese Molybdenum	ug/L ug/L ug/L ug/L ug/L	2.00 2.00 2.00 2.00 2.00	2.61 ND ND 0.878	2.60 0 0 0.882		0.269 0 0 0.398	Accepta 0 - 20 0 - 20 0 - 20 0 - 20 0 - 20	
Arsenic Chromium Selenium Manganese Molybdenum Low Level Calibration	ug/L ug/L ug/L ug/L ug/L n Verification	2.00 2.00 2.00 2.00 2.00	2.61 ND ND 0.878 3.99	2.60 0 0 0.882 4.05		0.269 0 0 0.398 1.59	Accepta 0 - 20 0 - 20 0 - 20 0 - 20 0 - 20	ance Range
Arsenic Chromium Selenium Manganese Molybdenum Low Level Calibration Parameter	ug/L ug/L ug/L ug/L ug/L n Verification Unit	2.00 2.00 2.00 2.00 2.00 DF	2.61 ND ND 0.878 3.99	2.60 0 0 0.882 4.05		0.269 0 0 0.398 1.59	Accepta 0 - 20 0 - 20 0 - 20 0 - 20 0 - 20 Accepta	ance Range ance Range)
Arsenic Chromium Selenium Manganese Molybdenum Low Level Calibration Parameter Arsenic	ug/L ug/L ug/L ug/L ug/L n Verification Unit ug/L	2.00 2.00 2.00 2.00 2.00 DF 1.00	2.61 ND ND 0.878 3.99 Result 0.195	2.60 0 0 0.882 4.05 Expected 0.200		0.269 0 0 0.398 1.59 Recovery 97.4	Accepta 0 - 20 0 - 20 0 - 20 0 - 20 Accepta 70 - 130	ance Range ance Range)
Arsenic Chromium Selenium Manganese Molybdenum Low Level Calibration Parameter Arsenic Chromium	ug/L ug/L ug/L ug/L ug/L n Verification Unit ug/L ug/L	2.00 2.00 2.00 2.00 2.00 DF 1.00	2.61 ND ND 0.878 3.99 Result 0.195 0.166	2.60 0 0 0.882 4.05 Expected 0.200 0.200		0.269 0 0 0.398 1.59 Recovery 97.4 83.0	Accepta 0 - 20 0 - 20 0 - 20 0 - 20 0 - 20 Accepta 70 - 130	ance Range ance Range))



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	Project Number	: 423575.MP.07.TS	Printed 6/3/2013

Parameter Arsenic Unit Ug/L DF 200 48.1 dt 50.0 sec. 285 - 115 Acceptance Range 85 - 115 Chromium ug/L 2.00 48.1 so.0 so.0 sec. 285 - 115 85 - 115 Selenium ug/L 2.00 so.3 so.0 so.0 so.0 so.0 sec. 100 sec. 115 100 sec. 115 Manganese ug/L 2.00 so.2 so.0 so.0 so.0 sec. 100 sec. 115 100 sec. 115 Molybdenum ug/L 2.00 so.0 so.0 so.0 so.0 so.0 so.0 so.0 s	Lab Control Sample						
Arsenic ug/L 2.00 48.1 50.0 96.2 85-115 Chromium ug/L 2.00 50.3 50.0 100 85-115 Selenium ug/L 2.00 48.0 50.0 96.1 85-115 Manganese ug/L 2.00 49.5 50.0 100 85-115 Molybdenum ug/L 2.00 49.5 50.0 100 85-115 Matrix Spike Labi ID= 808085-001 Parameter Unit DF Result Expected/Added Recovery Acceptance Range Arsenic ug/L 2.00 50.9 52.6(50.0) 96.7 75-125 Chromium ug/L 2.00 49.5 50.9(50.0) 97.1 75-125 Manganese ug/L 2.00 49.5 50.9(50.0) 97.0 75-125 Matrix Spike Duplicate Unit DF Result Expected/Added Recovery Acceptance Range Arsenic ug/L 2.00 <td>Parameter</td> <td>Unit</td> <td>DF</td> <td>Result</td> <td>Expected</td> <td>Recovery</td> <td>Acceptance Range</td>	Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium ug/L 2.00 50.3 50.0 100 85-115 Selenium ug/L 2.00 48.0 50.0 96.1 85-115 Manganese ug/L 2.00 50.2 50.0 100 85-115 Molybdenum ug/L 2.00 49.5 50.0 98.9 85-115 Matrix Spike Lab ID = 808085-001 98.7 75-125 Lab ID = 808085-001 Parameter Unit DF Result Expected/Added Recovery Acceptance Range Arsenic ug/L 2.00 50.9 52.6(50.0) 96.7 75-125 Chromium ug/L 2.00 48.6 50.0(50.0) 100 75-125 Manganese ug/L 2.00 49.5 50.9(50.0) 97.0 75-125 Matrix Spike Duplicate Ug/L 2.00 51.7 52.6(50.0) 97.0 75-125 Chromium ug/L 2.00 51.7 52.6(50.0) 98.2 75-125					•	•	
Selenium	Chromium	_	2.00	50.3	50.0	100	85 - 115
Manganese ug/L 2.00 50.2 50.0 100 85 - 115 Molybdenum ug/L 2.00 49.5 50.0 98.9 85 - 115 Matrix Spike Expected/Added Recovery Acceptance Range Arsenic ug/L 2.00 50.9 52.6(50.0) 96.7 75 - 125 Chromium ug/L 2.00 48.6 50.0(50.0) 97.1 75 - 125 Selenium ug/L 2.00 48.6 50.0(50.0) 97.1 75 - 125 Manganese ug/L 2.00 49.5 50.9(50.0) 97.0 75 - 125 Matrix Spike Duplicate 2.00 51.7 52.6(50.0) 97.0 75 - 125 Matrix Spike Duplicate Unit DF Result Expected/Added Recovery Acceptance Range Arsenic ug/L 2.00 51.7 52.6(50.0) 98.2 75 - 125 Chromium ug/L 2.00 51.7 50.9(50.0) 99.6 75 - 125	Selenium	_	2.00	48.0	50.0	96.1	85 - 115
Matrix Spike Lab ID = 808085-001 Parameter Arsenic Unit ug/L DF Result spike Expected/Added spikes Recovery spikes Acceptance Range Arsenic Chromium ug/L 2.00 50.9 52.6(50.0) 96.7 75 - 125 Chromium ug/L 2.00 48.6 50.0(50.0) 97.1 75 - 125 Selenium ug/L 2.00 48.6 50.0(50.0) 97.1 75 - 125 Maryanese ug/L 2.00 52.6 54.0(50.0) 97.0 75 - 125 Molybdenum ug/L 2.00 52.6 54.0(50.0) 97.0 75 - 125 Matrix Spike Duplicate Unit DF Result Expected/Added Recovery Acceptance Range Arsenic ug/L 2.00 51.7 52.6(50.0) 99.2 75 - 125 Chromium ug/L 2.00 51.7 50.0(50.0) 99.6 75 - 125 Selenium ug/L 2.00 50.7 50.9(50.0) 99.6 75 - 125 <td>Manganese</td> <td>ug/L</td> <td>2.00</td> <td>50.2</td> <td>50.0</td> <td>100</td> <td>85 - 115</td>	Manganese	ug/L	2.00	50.2	50.0	100	85 - 115
Matrix Spike Lab ID = 808085-001 Parameter Arsenic Unit ug/L 2.00 50.9 52.6(50.0) 96.7 75 - 125 Chromium ug/L 2.00 50.9 52.6(50.0) 96.7 75 - 125 Selenium ug/L 2.00 48.6 50.0(50.0) 97.1 75 - 125 Manganese ug/L 2.00 49.5 50.9(50.0) 97.0 75 - 125 Molybdenum ug/L 2.00 52.6 54.0(50.0) 97.0 75 - 125 Matrix Spike Duplicate Unit DF Result Expected/Added Recovery Acceptance Range Arsenic ug/L 2.00 51.7 52.6(50.0) 98.2 75 - 125 Lab ID = 808085-001 Expected/Added Recovery Acceptance Range Acceptance Range Arsenic ug/L 2.00 51.7 50.0(50.0) 98.2 75 - 125 Selenium ug/L 2.00 50.7 50.9(50.0) 99.6 75 - 125 Molybdenum <t< td=""><td>Molybdenum</td><td>ug/L</td><td>2.00</td><td>49.5</td><td>50.0</td><td>98.9</td><td>85 - 115</td></t<>	Molybdenum	ug/L	2.00	49.5	50.0	98.9	85 - 115
Arsenic ug/L 2.00 50.9 52.6(50.0) 96.7 75 - 125 Chromium ug/L 2.00 50.2 50.0(50.0) 100 75 - 125 Selenium ug/L 2.00 48.6 50.0(50.0) 97.1 75 - 125 Manganese ug/L 2.00 49.5 50.9(50.0) 97.3 75 - 125 Molybdenum ug/L 2.00 52.6 54.0(50.0) 97.3 75 - 125 Matrix Spike Duplicate Lab ID = 808085-001 102 75 - 125 125 Parameter Unit DF Result Expected/Added Recovery Acceptance Range Arsenic ug/L 2.00 51.7 52.6(50.0) 98.2 75 - 125 Chromium ug/L 2.00 51.1 50.0(50.0) 102 75 - 125 Molybdenum ug/L 2.00 50.7 50.9(50.0) 99.6 75 - 125 Molybdenum ug/L 1.00 19.6 20.0 97.9 90 - 110 </td <td>Matrix Spike</td> <td>Marijanjan</td> <td></td> <td></td> <td></td> <td></td> <td>Lab ID = 808085-001</td>	Matrix Spike	Marijanjan					Lab ID = 808085-001
Arsenic ug/L 2.00 50.9 52.6(50.0) 96.7 75 - 125 Chromium ug/L 2.00 50.2 50.0(50.0) 100 75 - 125 Selenium ug/L 2.00 48.6 50.0(50.0) 97.1 75 - 125 Manganese ug/L 2.00 49.5 50.9(50.0) 97.3 75 - 125 Molybdenum ug/L 2.00 52.6 54.0(50.0) 97.0 75 - 125 Matrix Spike Duplicate Unit DF Result Expected/Added Recovery Acceptance Range Parameter Unit DF Result Expected/Added Recovery Acceptance Range Arsenic ug/L 2.00 51.1 50.0(50.0) 98.2 75 - 125 Selenium ug/L 2.00 50.7 50.9(50.0) 99.6 75 - 125 Manganese ug/L 2.00 53.0 54.0(50.0) 97.9 75 - 125 MRCCS - Secondary Parameter Unit DF R	Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium	Arsenic	ug/L	2.00	50.9	52.6(50.0)	•	•
Manganese ug/L 2.00 49.5 50.9(50.0) 97.3 75 - 125 Molybdenum ug/L 2.00 52.6 54.0(50.0) 97.0 75 - 125 Matrix Spike Duplicate Lab ID = 808085-001 Parameter Unit DF Result Expected/Added Recovery Acceptance Range Arsenic ug/L 2.00 51.7 52.6(50.0) 98.2 75 - 125 Chromium ug/L 2.00 51.1 50.0(50.0) 102 75 - 125 Selenium ug/L 2.00 50.7 50.9(50.0) 99.6 75 - 125 Manganese ug/L 2.00 53.0 54.0(50.0) 97.9 75 - 125 MRCCS - Secondary V 2.00 53.0 54.0(50.0) 97.9 75 - 125 MRCCS - Secondary V 1.00 19.6 20.0 97.9 90 - 110 Chromium ug/L 1.00 19.7 20.0 98.3 90 - 110 Selenium	Chromium	ug/L	2.00	50.2	50.0(50.0)	100	75 - 125
Molybdenum ug/L 2.00 52.6 54.0(50.0) 97.0 75 - 125 Lab ID = 808085-001 Parameter Unit DF Result Expected/Added Sc.(50.0) Recovery Acceptance Range Arsenic ug/L 2.00 51.7 52.6(50.0) 98.2 75 - 125 Chromium ug/L 2.00 51.1 50.0(50.0) 102 75 - 125 Selenium ug/L 2.00 49.8 50.0(50.0) 99.6 75 - 125 Manganese ug/L 2.00 50.7 50.9(50.0) 99.6 75 - 125 MRCCS - Secondary W 2.00 53.0 54.0(50.0) 97.9 75 - 125 MRCCS - Secondary Parameter Unit DF Result Expected Recovery Acceptance Range Arsenic ug/L 1.00 19.7 20.0 98.3 90 - 110 Manganese ug/L 1.00 19.7 20.0 98.4 90 - 110 Manganese ug/L 1.00	Selenium	ug/L	2.00	48.6	50.0(50.0)	97.1	75 - 125
Matrix Spike Duplicate Lab ID = 808085-001 Parameter Unit DF Result Expected/Added Sp. (accord) Recovery Acceptance Range Acceptance Range Arsenic ug/L 2.00 51.7 52.6(50.0) 98.2 75 - 125 75 - 125 Chromium ug/L 2.00 51.1 50.0(50.0) 102 75 - 125 75 - 125 Selenium ug/L 2.00 50.7 50.0(50.0) 99.6 75 - 125 75 - 125 75 - 125 75 - 125 Manganese ug/L 2.00 50.7 50.9(50.0) 99.6 75 - 125 75 - 1	Manganese	ug/L	2.00	49.5	50.9(50.0)	97.3	75 - 125
Parameter Unit DF Result Expected/Added Recovery Acceptance Range Acsenic Arsenic ug/L 2.00 51.7 52.6(50.0) 98.2 75 - 125 Chromium ug/L 2.00 51.1 50.0(50.0) 102 75 - 125 Selenium ug/L 2.00 49.8 50.0(50.0) 99.6 75 - 125 Manganese ug/L 2.00 50.7 50.9(50.0) 99.6 75 - 125 MRCCS - Secondary Arsenic ug/L 2.00 53.0 54.0(50.0) 97.9 75 - 125 MRCCS - Secondary Braameter Ug/L 1.00 19.6 20.0 97.9 90 - 110 Chromium ug/L 1.00 19.7 20.0 98.3 90 - 110 Selenium ug/L 1.00 19.7 20.0 98.4 90 - 110 Manganese ug/L 1.00 19.7 20.0 98.4 90 - 110 MRCVS - Primary Parameter Unit DF <	Molybdenum	ug/L	2.00	52.6	54.0(50.0)	97.0	75 - 125
Arsenic ug/L 2.00 51.7 52.6(50.0) 98.2 75 - 125 Chromium ug/L 2.00 51.1 50.0(50.0) 102 75 - 125 Selenium ug/L 2.00 49.8 50.0(50.0) 99.6 75 - 125 Manganese ug/L 2.00 50.7 50.9(50.0) 99.6 75 - 125 MRCCS - Secondary DF Result Expected Recovery Acceptance Range Arsenic ug/L 1.00 19.6 20.0 97.9 90 - 110 Chromium ug/L 1.00 19.7 20.0 98.3 90 - 110 Selenium ug/L 1.00 19.7 20.0 98.3 90 - 110 Manganese ug/L 1.00 19.7 20.0 98.4 90 - 110 Molybdenum ug/L 1.00 19.5 20.0 97.4 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected Recovery Accepta	Matrix Spike Duplicate						Lab ID = 808085-001
Arsenic ug/L 2.00 51.7 52.6(50.0) 98.2 75 - 125 Chromium ug/L 2.00 51.1 50.0(50.0) 102 75 - 125 Selenium ug/L 2.00 49.8 50.0(50.0) 99.6 75 - 125 Manganese ug/L 2.00 50.7 50.9(50.0) 99.6 75 - 125 Molybdenum ug/L 2.00 53.0 54.0(50.0) 97.9 75 - 125 MRCCS - Secondary Parameter Unit DF Result Expected Recovery Acceptance Range Arsenic ug/L 1.00 19.7 20.0 98.3 90 - 110 Selenium ug/L 1.00 19.7 20.0 98.4 90 - 110 Manganese ug/L 1.00 19.7 20.0 98.4 90 - 110 Molybdenum ug/L 1.00 19.5 20.0 97.4 90 - 110 MRCVS - Primary Parameter Unit DF Re	Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium ug/L 2.00 49.8 50.0(50.0) 99.6 75 - 125 Manganese ug/L 2.00 50.7 50.9(50.0) 99.6 75 - 125 Molybdenum ug/L 2.00 53.0 54.0(50.0) 97.9 75 - 125 MRCCS - Secondary DF Result Expected Recovery Acceptance Range Arsenic ug/L 1.00 19.6 20.0 97.9 90 - 110 Chromium ug/L 1.00 19.7 20.0 98.3 90 - 110 Selenium ug/L 1.00 20.1 20.0 98.4 90 - 110 Manganese ug/L 1.00 19.7 20.0 98.4 90 - 110 Molybdenum ug/L 1.00 19.5 20.0 97.4 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range Arsenic ug/L 1.00 20.0 20.0 100 90	Arsenic	ug/L	2.00	51.7	52.6(50.0)	•	•
Manganese ug/L 2.00 50.7 50.9(50.0) 99.6 75 - 125 Molybdenum ug/L 2.00 53.0 54.0(50.0) 97.9 75 - 125 MRCCS - Secondary Result Expected Recovery Acceptance Range Acceptance Range Arsenic Arsenic ug/L 1.00 19.6 20.0 97.9 90 - 110 Chromium ug/L 1.00 19.7 20.0 98.3 90 - 110 Selenium ug/L 1.00 19.7 20.0 98.4 90 - 110 Manganese ug/L 1.00 19.7 20.0 98.4 90 - 110 Molybdenum ug/L 1.00 19.5 20.0 97.4 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range Arsenic ug/L 1.00 20.0 20.0 100 90 - 110 MRCVS - Primary Primary Expected Recovery Acceptance Range <td< td=""><td>Chromium</td><td>ug/L</td><td>2.00</td><td>51.1</td><td>50.0(50.0)</td><td>102</td><td>75 - 125</td></td<>	Chromium	ug/L	2.00	51.1	50.0(50.0)	102	75 - 125
Molybdenum ug/L 2.00 53.0 54.0(50.0) 97.9 75 - 125 MRCCS - Secondary Parameter Unit DF Result Expected Recovery Acceptance Range Arsenic ug/L 1.00 19.6 20.0 97.9 90 - 110 Chromium ug/L 1.00 19.7 20.0 98.3 90 - 110 Selenium ug/L 1.00 20.1 20.0 100 90 - 110 Manganese ug/L 1.00 19.7 20.0 98.4 90 - 110 MRCVS - Primary MRCVS - Primary 20.0 97.4 90 - 110 MRCVS - Primary 20.0 20.0 100 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range Arsenic ug/L 1.00 20.0 20.0 100 90 - 110 MRCVS - Primary Primary Expected Recovery Acceptance Range Arsenic	Selenium	ug/L	2.00	49.8	50.0(50.0)	99.6	75 - 125
MRCCS - Secondary Parameter Unit DF Result Expected Recovery Acceptance Range Arsenic ug/L 1.00 19.6 20.0 97.9 90 - 110 Chromium ug/L 1.00 19.7 20.0 98.3 90 - 110 Selenium ug/L 1.00 20.1 20.0 100 90 - 110 Manganese ug/L 1.00 19.7 20.0 98.4 90 - 110 Molybdenum ug/L 1.00 19.5 20.0 97.4 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range Arsenic ug/L 1.00 20.0 20.0 100 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range Arsenic ug/L 1.00 20.0 20.0 100 90 - 110	Manganese	ug/L	2.00	50.7	50.9(50.0)	99.6	75 - 125
Parameter Unit DF Result Expected Recovery Acceptance Range Arsenic ug/L 1.00 19.6 20.0 97.9 90 - 110 Chromium ug/L 1.00 19.7 20.0 98.3 90 - 110 Selenium ug/L 1.00 20.1 20.0 100 90 - 110 Manganese ug/L 1.00 19.7 20.0 98.4 90 - 110 Molybdenum ug/L 1.00 19.5 20.0 97.4 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range Arsenic ug/L 1.00 20.0 20.0 100 90 - 110 MRCVS - Primary MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range Arsenic ug/L 1.00 20.0 20.0 100 90 - 110	Molybdenum	ug/L	2.00	53.0	54.0(50.0)	97.9	75 - 125
Arsenic ug/L 1.00 19.6 20.0 97.9 90 - 110 Chromium ug/L 1.00 19.7 20.0 98.3 90 - 110 Selenium ug/L 1.00 20.1 20.0 100 90 - 110 Manganese ug/L 1.00 19.7 20.0 98.4 90 - 110 Molybdenum ug/L 1.00 19.5 20.0 97.4 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range Arsenic ug/L 1.00 20.0 20.0 100 90 - 110 MRCVS - Primary MRCVS - Primary Primary Expected Recovery Acceptance Range Parameter Unit DF Result Expected Recovery Acceptance Range Arsenic ug/L 1.00 20.0 20.0 100 90 - 110	MRCCS - Secondary						
Chromium ug/L 1.00 19.7 20.0 98.3 90 - 110 Selenium ug/L 1.00 20.1 20.0 100 90 - 110 Manganese ug/L 1.00 19.7 20.0 98.4 90 - 110 Molybdenum ug/L 1.00 19.5 20.0 97.4 90 - 110 MRCVS - Primary DF Result Expected Recovery Acceptance Range Arsenic ug/L 1.00 20.0 20.0 100 90 - 110 MRCVS - Primary Unit DF Result Expected Recovery Acceptance Range Arsenic ug/L 1.00 20.0 20.0 100 90 - 110 MRCVS - Primary MRCVS - Primary Expected Recovery Acceptance Range Parameter Unit DF Result Expected Recovery Acceptance Range	Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium ug/L 1.00 20.1 20.0 100 90 - 110 Manganese ug/L 1.00 19.7 20.0 98.4 90 - 110 Molybdenum ug/L 1.00 19.5 20.0 97.4 90 - 110 MRCVS - Primary Unit DF Result Expected Recovery Acceptance Range Arsenic ug/L 1.00 20.0 20.0 100 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range MRCVS - Primary Unit DF Result Expected Recovery Acceptance Range Parameter Unit DF Result Expected Recovery Acceptance Range	Arsenic	ug/L	1.00	19.6	20.0	97.9	90 - 110
Manganese ug/L 1.00 19.7 20.0 98.4 90 - 110 Molybdenum ug/L 1.00 19.5 20.0 97.4 90 - 110 MRCVS - Primary Parameter Unit ug/L DF Result expected Recovery and the property of the primary Recovery and the property and the p	Chromium	ug/L	1.00	19.7	20.0	98.3	90 - 110
Molybdenumug/L1.0019.520.097.490 - 110MRCVS - PrimaryParameter Arsenic MRCVS - PrimaryUnit ug/LDF 1.00Result 20.0Expected 20.0Recovery 20.0Acceptance Range 90 - 110Parameter Arsenic MRCVS - PrimaryUnit ug/LDF 1.00Result 20.0Expected 20.0Recovery 100Acceptance Range 90 - 110MRCVS - PrimaryUnitDFResultExpectedRecoveryAcceptance Range	Selenium	ug/L	1.00	20.1	20.0	100	90 - 110
MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range Arsenic ug/L 1.00 20.0 20.0 100 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range Arsenic ug/L 1.00 20.0 20.0 100 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range	Manganese	ug/L	1.00	19.7	20.0	98.4	90 - 110
Parameter Unit DF Result Expected 20.0 100 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected 20.0 100 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range 20.0 100 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range 20.0 100 90 - 110 MRCVS - Primary	Molybdenum	ug/L	1.00	19.5	20.0	97.4	90 - 110
Arsenic ug/L 1.00 20.0 20.0 100 90 - 110 MRCVS - Primary Parameter Arsenic ug/L 1.00 20.0 Expected Recovery Acceptance Range 20.0 100 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected Recovery 40 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range	MRCVS - Primary						
MRCVS - Primary Parameter Arsenic MRCVS - Primary Unit DF Result Expected Recovery 100 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range Recovery Acceptance Range	Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Parameter Unit DF Result Expected Recovery Acceptance Range arsenic ug/L 1.00 20.0 20.0 100 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range Range Recovery Acceptance Range	Arsenic	ug/L	1.00	20.0	20.0	100	90 - 110
Arsenic ug/L 1.00 20.0 20.0 100 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range	MRCVS - Primary						
MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range	Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Parameter Unit DF Result Expected Recovery Acceptance Range	Arsenic	ug/L	1.00	20.0	20.0	100	90 - 110
·	MRCVS - Primary						
Amorio 10/1 100 10.9 20.0 00.2 00.110	Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic ug/L 1.00 19.6 20.0 99.2 90 - 110	Arsenic	ug/L	1.00	19.8	20.0	99.2	90 - 110

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.

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Printed 6/3/2013

Interference Check St	andard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	ND	0		
Manganese	ug/L	1.00	19.8	20.0	99.0	80 - 120
Interference Check St	andard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.9	20.0	99.5	80 - 120
Interference Check St	andard AB					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0		
	ug/L	1.00	ND	J		
Interference Check St	•					
	•	DF	Result	Expected	Recovery	Acceptance Range
Interference Check St	andard AB				Recovery	Acceptance Range
Interference Check St Parameter	andard AB Unit	DF	Result	Expected	Recovery	Acceptance Range Lab ID = 808085-004
Interference Check St Parameter Molybdenum	andard AB Unit	DF	Result	Expected	Recovery RPD	
Interference Check St Parameter Molybdenum Serial Dilution	andard AB Unit ug/L	DF 1.00	Result ND	Expected 0		Lab ID = 808085-004

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

10-

Mona Nassimi

Manager, Analytical Services

CH2MHILL

CHAIN OF CUSTODY RECORD 808 05/16/2013 1:4

808	084 5/16/2013 1:47:25 PM	
AAA	9 73/10/2013 1:41:25 PW	

Page 1 OF 1

	L L							Page	UF _	99046
Project Name F	G&E Topoc	k (Container	250 mi Poly	2x250 ml Poly	500 ml Poly	2x500 ml Poly			
Location Topo	ock			(NH4)2S	(NH4)2S	HNO3,	HNO3,			1
Project Manage	r Jay Piper	Pres	ervatives:	04/NH40 H, 4°C	04/NH40 H, 4°C	4°C	4°C	Poold 5/21/12		
Sample Manage	r Shawn Du	ffv	Filtered:		Field	Field	Field	Rec'd 5/21/13		
		-	ling Time:		28	180	180	S#8 0 8 0 8 4		'i.,
Drainat Number	400c7c 38F			20	20	100				
Project Number Task Order	*AJOID.RNE	r.07.13		0	Cr6	<u> </u>	Metals			
	88D 402 O2			16 (Metals	sle (-	
Project 2013-G		0		E21	218	(60	(602		lum	
Turnaround Tim Shipping Date:	•	3		Cr6 (E218.6) Field Filtered	(E218.6R) Field Filterec	(6020A) Field Chromium	(6020A-R) Field Chromium		Number	
				Fie		omi.	omiR		of	
COC Number:	24			ď	eld	um leld	um Fiel		င္ပ	
				-ilte	File	Filtere	d F		ntainers	
				red	ered	ered	Filtere		ine	
	DATE	TIME	Matrix				a l		S	COMMENT
MW-22-192	5/15/2013	12:06	Water	х		X			2	
MW-36-090-192	5/15/2013	14:17	Water	X		Х			2	
MW-52D-192	5/16/2013	10:45	Water		х		х		4	
MW-52M-192	5/16/2013	10:42	Water		х		х		4	Mag
MW-525-192	5/16/2013	11:29	Water		Х		х		4	1602
MW-53D-192	5/16/2013	9:15	Water		Х		Х		Ą	
MW-53M-192	5/16/2013	9:29	Water		х		×		4	
		+	 				 	TOTAL NUMBER OF CONTAINERS	24	7

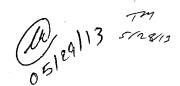


For Sample Conditions See Form Attached

	Signatures	Date/Time	Shipping Details		Special Instructions:
Approved by Sampled by		> 71-13 1700	Method of Shipment: courier	ATTN:	April 15 to May 9, 2013
Selinquished by		1 700	On Ice: yes / no	Sample Custody	
eceived by	Rafael Davila	5-21-13	Airbill No:		Banari Canuta
Relinquished by	Rafail Davila	5-21-13 23:	Lab Name: Truesdail Laboratories, Inc.		Report Copy to Shawn Duffy
Received by	-00 75	dadie ozina	Lab Phone: (714) 730-6239		(530) 229-3303

Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
5/15/13	807949-18	9.5	NA	NA	NA	NE
).	-(9					
	-20					
	-21					
	-22					-
	-29					
	-24					
	1 -25			J	1	
5/15/13	807947	7-0	2 ml/100m C	9-5	7:45 am	124
	807948 -1	8.0	0.3ml /25ml	9.5	7:15 am	لمحد
-	-2	9.7	NA	NA	NA	
	-3	8.0	0,5 ml/25 ml	# 9.5	7:15 am	
	-4	9.5	NA	NA	NIA.	
	-5	7.0	2011/100ml	9,5ml	7:20 am	
	-6				7:25	
	-7		·		7:25	
	-8				7=30	
	-9				7:30	
	~/ò			-	7:30	
	-//				7:35	
<u> </u>	-/2				7:35	
5/22/13	808083	6.0	2 ml/100ml	9.5	10:15	724
5/22/13	808084 -1	9.5.	NA	MA	NA	727
	-3					
		-				
	2-					
	-6					
	J -7	J	1		J. 1.	
5/22/13	808085 -1	9,5	NA	NA	MA	Tun
	1 -2	1				







Turbidity/pH Check

Turbidity/pH Cneck								
Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
807846	4	Z2	5/17/17	ES	yes:		2	
507887	1	I		1	yes 1			
807889	1	72			No	11-00		
8.07894	1	< 2		BZ-	XUS			
807893				7	7			
207871 (1-10)	<1	<2	5-14-15	BL	xes			
80789711-41	17	72		1	Na	/(/00		
80794111-3)	J	7			7	1		
307911	41	42	5714/18	m	y.			
807912		1	1	1	1			
807913								
807914								
807915		١.,						
807916								
507917					Ţ			
5079/8	۲۱	72	3-15-13	Psi-	No	8:00		
807949(1)2-10)		ح ري		1	X.05			
80 7749 (17-22,24-)		1.	1.		.(
807941(1-2)	<1	72	J	1	NO	13:00		
5 67970 (10-12)	< \	>2	5-16-13	BF	No	8 5 10		
8-796961-3		J ,	.1	1	1	L		
807991(116)	71	ל נ	5-17-13	35	74	-		
807993(1-4)				1		-		
80.7994		-						
807995 (1-4)			1		1			
807997L1-4)	<1	٧2.	9-17-13	BE	xes			
807947 4B E-	J	>2 436	I.	J.	J	11:00		
808020	71	72	5'- 2e-13	B 2-	Yes	700		
808021-1	71	Z 2,	5-21-13	ES	yes	-		
-6	1	1.	1	Î	j			
808022-(1-6)	21							
023	ì							
024								
028(12)								
074						"		
120								
052								
053								
0.54								
055	1				-1/-			
308054 (1-6)	21	22	5 /22/13	ES	yes			
808036(1-4)	21	42	2 10 11/	i i	-) 			
808083	41	72				10:00		
808084(1-7)	41	12				13 30		
008084(1-1)		44	W	V				

Notes:

- Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
 All Total Recoverable Analytes must be pH adjusted and digested.
 Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

Sample Integrity & Analysis Discrepancy Form

. (Client: <u>E 2</u>	Lab# Soft
L	Date Delivered: ☑ 1 월/13 Time: 월5: ◎ By: □Mall ☑	Field Service
: 1	. Was a Chain of Custody received and signed?	ØYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ÆN/A
3.	Are there any special requirements or notes on the COC?	□Yes □No ØN/A
4.	If a letter was sent with the COC, does it match the COC?	☐Yes ☐No ☐N/A
5.	Were all requested analyses understood and acceptable?	Yes DNo DNA
6.	Were samples received in a chilled condition? Temperature (if yes)? <u>4.0 ° C</u>	ØYes □No □N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	⊠Yes □No □N/A
8.	Were sample custody seals intact?	□Yes □No ÆN/A
9.	Does the number of samples received agree with COC?	ØYes □No □N/A
10.	Did sample labels correspond with the client ID's?	dYes QNo QN/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: Truesdail □Client	ØYes □No □N/A
12.	Were samples pH checked? pH =Sel C.O. C	ÅYes □No □N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☐Yes □No □N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): D RUSH D Std	ØYes □No □N/A
<i>15.</i>	Sample Matrix: DLiquid Drinking Water DGround W	ater
	□Sludge □Soil □Wipe □Paint □Solid 🗯 □	ther Wasle
16.	Comments:	
17.	Sample Check-In completed by Truesdal Log-In/Receiving:	Luda
	QC	$H = \frac{1}{2}$



14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

June 5, 2013

E2 Consulting Engineers, Inc. Mr. Shawn Duffy 155 Grand Ave., Suite 1000 Oakland, California 94612

Dear Mr. Duffy:

SUBJECT:

CASE NARRATIVE PG&E TOPOCK 2013-RMP-191, SURFACEWATER MONITORING

PROJECT, TLI No.: 808085

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-RMP-191 surfacewater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody on May 21, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Samples for pH analysis by SM 4500-H B were received past the method specified holding time. Mr. Duffy approved the analysis of the samples.

No other violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services

Allichael the

Michael Ngo

Quality Assurance/Quality Control Officer

Established 1931



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Event 2013-RMP-191 Cr by SW 6020, Surfacewater Samples Samples field filtered unless otherwise noted

Sample ID	Initial pH	pH adjustment needed?	Amount of additional acid needed	Final pH	Comments
C-BNS-D-191	2.00	No			
C-I-3-D-191	2.00	No No			
C-I-3-S-191	2.00	No			
C-MAR-D-191	2.00	No			
C-MAR-S-191	2.00	No			
C-R22A-D-191	2.00	No			
C-R22A-S-191	2.00	No			
C-R27-D-191	2.00	No			
C-R27-S-191	2.00	No			
C-TAZ-D-191	2.00	No			
C-TAZ-S-191	2.00	No			
R63-191	2.00	No			

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Event 2013-RMP-191 Cr (VI) by EPA 218.6, Surfacewater Samples Samples field filtered unless otherwise noted

Sample ID	Initial pH	pH adjustment needed?	Amount of additional buffer needed	Final pH	Comments
C-BNS-D-191	9.50	No			
C-I-3-D-191	9.50	No			
C-I-3-S-191	9.50	No			
C-MAR-D-191	9.50	No			
C-MAR-S-191	9.50	No			
C-MW-80-191	9.50	No			
C-MW-81-191	9.50	No			
C-R22A-D-191	9.50	No			
C-R22A-S-191	9.50	No			
C-R27-D-191	9.50	No			
C-R27-S-191	9.50	No			
C-TAZ-D-191	9.50	No			
C-TAZ-S-191	9.50	No			
R63-191	9.50	No			

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

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14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Laboratory No.: 808085 Date Received: May 21, 2013

Client: E2 Consulting Engineers, Inc. 155 Grand Ave. Suite 1000 Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project Project No.: 423575.MP.02.RM P.O. No.: 423575.MP.02.RM

Analytical Results Summary

		Analysis	Extraction		Sample				
Lab Sample ID	Field ID	Method	Method	Sample Date	Time	Parameter	Result	Units	RL
808085-001	C-BNS-D-191	E120.1	NONE	5/20/2013	11:43	EC	827	umhos/cm	2.00
808085-001	C-BNS-D-191	E218.6	FLDFLT	5/20/2013	11:43	Chromium, Hexavalent	ND	ug/L	0.20
808085-001	C-BNS-D-191	SM2320B	NONE	5/20/2013	11:43	Alkalinity	129	mg/L	5.00
808085-001	C-BNS-D-191	SM2320B	NONE	5/20/2013	11:43	Alkalinity, Bicarbonate (As CaCO3)	129	mg/L	5.00
808085-001	C-BNS-D-191	SM2320B	NONE	5/20/2013	11:43	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808085-001	C-BNS-D-191	SM2540D	NONE	5/20/2013	11:43	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
808085-001	C-BNS-D-191	SM4500HB	NONE	5/20/2013	11:43	PH	8.28 J	pН	4.00
808085-001	C-BNS-D-191	SW6010B	FLDFLT	5/20/2013	11:43	Iron	ND	ug/L	20.0
808085-001	C-BNS-D-191	SW6010B	NONE	5/20/2013	11:43	Iron	ND	ug/L	20.0
808085-001	C-BNS-D-191	SW6020	FLDFLT	5/20/2013	11:43	Arsenic	2.6	ug/L	0.50
808085-001	C-BNS-D-191	SW6020	FLDFLT	5/20/2013	11:43	Chromium	ND	ug/L	1.0
808085-001	C-BNS-D-191	SW6020	FLDFLT	5/20/2013	11:43	Manganese	0.88	ug/L	0.50
808085-001	C-BNS-D-191	SW6020	FLDFLT	5/20/2013	11:43	Molybdenum	4.0	ug/L	2.0
808085-001	C-BNS-D-191	SW6020	FLDFLT	5/20/2013	11:43	Selenium	ND	ug/L	5.0
808085-002	C-I-3-D-191	E120.1	NONE	5/20/2013	10:10	EC	830	umhos/cm	2.00
808085-002	C-I-3-D-191	E218.6	FLDFLT	5/20/2013	10:10	Chromium, Hexavalent	ND	ug/L	0.20
808085-002	C-I-3-D-191	SM2320B	NONE	5/20/2013	10:10	Alkalinity	125	mg/L	5.00
808085-002	C-I-3-D-191	SM2320B	NONE	5/20/2013	10:10	Alkalinity, Bicarbonate (As CaCO3)	125	mg/L	5.00
808085-002	C-I-3-D-191	SM2320B	NONE	5/20/2013	10:10	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808085-002	C-I-3-D-191	SM2540D	NONE	5/20/2013	10:10	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
808085-002	C-I-3-D-191	SM4500HB	NONE	5/20/2013	10:10	PH	8.28 J	pН	4.00
808085-002	C-I-3-D-191	SW6010B	FLDFLT	5/20/2013	10:10	iron	ND	ug/L	20.0
808085-002	C-I-3-D-191	SW6010B	NONE	5/20/2013	10:10	Iron	ND	ug/L	20.0
808085-002	C-I-3-D-191	SW6020	FLDFLT	5/20/2013	10:10	Arsenic	2.5	ug/L	0.50
808085-002	C-I-3-D-191	SW6020	FLDFLT	5/20/2013	10:10	Chromium	ND	ug/L	1.0
808085-002	C-I-3-D-191	SW6020	FLDFLT	5/20/2013	10:10	Manganese	0.73	ug/L	0.50
808085-002	C-I-3-D-191	SW6020	FLDFLT	5/20/2013	10:10	Molybdenum	4.0	ug/L	2.0
808085-002	C-I-3-D-191	SW6020	FLDFLT	5/20/2013	10:10	Selenium	ND	ug/L	5.0

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Lab Sample II) Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
								Onics	
808085-003	C-I-3-S-191	E120.1	NONE	5/20/2013	10:25	EC	830	umhos/cm	2.00
808085-003	C-I-3-S-191	E218.6	FLDFLT	5/20/2013	10:25	Chromium, Hexavalent	ND	ug/L	0.20
808085-003	C-I-3-S-191	SM2320B	NONE	5/20/2013	10:25	Alkalinity	123	mg/L	5.00
808085-003	C-I-3-S-191	SM2320B	NONE	5/20/2013	10:25	Alkalinity, Bicarbonate (As CaCO3)	123	mg/L	5.00
808085-003	C-I-3-S-191	SM2320B	NONE	5/20/2013	10:25	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808085-003	C-I-3-S-191	SM2540D	NONE	5/20/2013	10:25	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
808085-003	C-I-3-S-191	SM4500HB	NONE	5/20/2013	10:25	PH	8.09 J	рН	4.00
808085-003	C-I-3-S-191	SW6010B	FLDFLT	5/20/2013	10:25	Iron	ND	ug/L	20.0
808085-003	C-I-3-S-191	SW6010B	NONE	5/20/2013	10:25	Iron	ND	ug/L	20.0
808085-003	C-I-3-S-191	SW6020	FLDFLT	5/20/2013	10:25	Arsenic	2.5	ug/L	0.50
808085-003	C-I-3-S-191	SW6020	FLDFLT	5/20/2013	10:25	Chromium	ND	ug/L	1.0
808085-003	C-I-3-S-191	SW6020	FLDFLT	5/20/2013	10:25	Manganese	0.74	ug/L	0.50
808085-003	C-I-3-S-191	SW6020	FLDFLT	5/20/2013	10:25	Molybdenum	3.9	ug/L	2.0
808085-003	C-I-3-S-191	SW6020	FLDFLT	5/20/2013	10:25	Selenium	ND	ug/L	5.0
808085-004	C-MAR-D-191	E120.1	NONE	5/20/2013	12:51	EC	954	umhos/cm	2.00
808085-004	C-MAR-D-191	E218.6	FLDFLT	5/20/2013	12:51	Chromium, Hexavalent	ND	ug/L	0.20
808085-004	C-MAR-D-191	SM2320B	NONE	5/20/2013	12:51	Alkalinity	159	mg/L	5.00
808085-004	C-MAR-D-191	SM2320B	NONE	5/20/2013	12:51	Alkalinity, Bicarbonate (As CaCO3)	159	mg/L	5.00
808085-004	C-MAR-D-191	SM2320B	NONE	5/20/2013	12:51	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808085-004	C-MAR-D-191	SM2540D	NONE	5/20/2013	12:51	Suspended Solids (Residue, Non-Filterable)	28.8	mg/L	10.0
808085-004	C-MAR-D-191	SM4500HB	NONE	5/20/2013	12:51	PH	7.60 J	pН	4.00
808085-004	C-MAR-D-191	SW6010B	FLDFLT	5/20/2013	12:51	Iron	ND	ug/L	20.0
808085-004	C-MAR-D-191	SW6010B	NONE	5/20/2013	12:51	Iron	824	ug/L	20.0
808085-004	C-MAR-D-191	SW6020	FLDFLT	5/20/2013	12:51	Arsenic	2.4	ug/L	0.50
808085-004	C-MAR-D-191	SW6020	FLDFLT	5/20/2013	12:51	Chromium	ND	ug/L	1.0
808085-004	C-MAR-D-191	SW6020	FLDFLT	5/20/2013	12:51	Manganese	42.6	ug/L	0.50
808085-004	C-MAR-D-191	SW6020	FLDFLT	5/20/2013	12:51	Molybdenum	4.2	ug/L	2.0
808085-004	C-MAR-D-191	SW6020	FLDFLT	5/20/2013	12:51	Selenium	ND	ug/L	5.0



Lab Sample II) Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
808085-005	C-MAR-S-191	E120.1	NONE	5/20/2013	13:05	EC	960	umhos/cm	2.00
808085-005	C-MAR-S-191	E218.6	FLDFLT	5/20/2013	13:05	Chromium, Hexavalent	ND	ug/L	0.20
808085-005	C-MAR-S-191	SM2320B	NONE	5/20/2013	13:05	Alkalinity	164	mg/L	5.00
808085-005	C-MAR-S-191	SM2320B	NONE	5/20/2013	13:05	Alkalinity, Bicarbonate (As CaCO3)	164	mg/L	5.00
808085-005	C-MAR-S-191	SM2320B	NONE	5/20/2013	13:05	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808085-005	C-MAR-S-191	SM2540D	NONE	5/20/2013	13:05	Suspended Solids (Residue, Non-Filterable)	23.2	mg/L	10.0
	C-MAR-S-191	SM4500HB	NONE	5/20/2013	13:05	PH	8.29 J	pH	4.00
808085-005		SW6010B	FLDFLT	5/20/2013	13:05	Iron	210	•	20.0
808085-005	C-MAR-S-191	SW6010B	NONE	5/20/2013	13:05	Iron	772	ug/L	20.0
808085-005	C-MAR-S-191					Arsenic	2.6	ug/L	0.50
808085-005	C-MAR-S-191	SW6020	FLDFLT	5/20/2013	13:05	Chromium	ND	ug/L	1.0
808085-005	C-MAR-S-191	SW6020	FLDFLT	5/20/2013	13:05		44.1	ug/L	0.50
808085-005	C-MAR-S-191	SW6020	FLDFLT	5/20/2013 5/20/2013	13:05	Mahahan	44.1 4.2	ug/L	2.0
808085-005	C-MAR-S-191	SW6020	FLDFLT		13:05	Molybdenum	4.2 ND	ug/L	5.0
808085-005	C-MAR-S-191	SW6020	FLDFLT	5/20/2013	13:05	Selenium Chromium Hovevelont		ug/L	
808085-006	C-MW-80-191	E218.6	FLDFLT	5/20/2013	10:35	Chromium, Hexavalent	ND ND	ug/L	0.20 0.20
808085-007	C-MW-81-191	E218.6	FLDFLT	5/20/2013	11:35	Chromium, Hexavalent		ug/L	
808085-008	C-R22A-D-191	E120.1	NONE	5/20/2013	11:03	EC Characters Hermaniant	838 ND	umhos/cm	2.00 0.20
808085-008	C-R22A-D-191	E218.6	FLDFLT	5/20/2013	11:03	Chromium, Hexavalent		ug/L	
808085-008	C-R22A-D-191	SM2320B	NONE	5/20/2013	11:03	Alkalinity	126	mg/L	5.00 5.00
808085-008	C-R22A-D-191	SM2320B	NONE	5/20/2013	11:03	Alkalinity, Bicarbonate (As CaCO3)	126 ND	mg/L	
808085-008	C-R22A-D-191	SM2320B	NONE	5/20/2013	11:03	Alkalinity, Carbonate (As CaCO3)	ND ND	mg/L	5.00
808085-008	C-R22A-D-191	SM2540D	NONE	5/20/2013	11:03	Suspended Solids (Residue, Non-Filterable)		mg/L	10.0
808085-008	C-R22A-D-191	SM4500HB	NONE	5/20/2013	11:03	PH	8.23 J	pH	4.00
808085-008	C-R22A-D-191	SW6010B	FLDFLT	5/20/2013	11:03	Iron	ND	ug/L	20.0
808085-008	C-R22A-D-191	SW6010B	NONE	5/20/2013	11:03	Iron	27.5	ug/L	20.0
808085-008	C-R22A-D-191	SW6020	FLDFLT	5/20/2013	11:03	Arsenic	2.6	ug/L	0.50
808085-008	C-R22A-D-191	SW6020	FLDFLT	5/20/2013	11:03	Chromium	ND	ug/L	1.0
808085-008	C-R22A-D-191	SW6020	FLDFLT	5/20/2013	11:03	Manganese	1.2	ug/L	0.50
808085-008	C-R22A-D-191	SW6020	FLDFLT	5/20/2013	11:03	Molybdenum	4.0	ug/L	2.0
808085-008	C-R22A-D-191	SW6020	FLDFLT	5/20/2013	11:03	Selenium	ND	ug/L	5.0

TRUESDAIL LABORATORIES, INC.

		Analysis	Extraction	0 1 5 1	Sample	B			
Lab Sample II	Field ID	Method	Method	Sample Date	Time	Parameter	Result	Units	RL
808085-009	C-R22A-S-191	E120.1	NONE	5/20/2013	11:21	EC	834	umhos/cm	2.00
808085-009	C-R22A-S-191	E218.6	FLDFLT	5/20/2013	11:21	Chromium, Hexavalent	ND	ug/L	0.20
808085-009	C-R22A-S-191	SM2320B	NONE	5/20/2013	11:21	Alkalinity	126	mg/L	5.00
808085-009	C-R22A-S-191	SM2320B	NONE	5/20/2013	11:21	Alkalinity, Bicarbonate (As CaCO3)	126	mg/L	5.00
808085-009	C-R22A-S-191	SM2320B	NONE	5/20/2013	11:21	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808085-009	C-R22A-S-191	SM2540D	NONE	5/20/2013	11:21	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
808085-009	C-R22A-S-191	SM4500HB	NONE	5/20/2013	11:21	PH	7.63 J	рН	4.00
808085-009	C-R22A-S-191	SW6010B	FLDFLT	5/20/2013	11:21	Iron	ND	ug/L	20.0
808085-009	C-R22A-S-191	SW6010B	NONE	5/20/2013	11:21	Iron	26.1	ug/L	20.0
808085-009	C-R22A-S-191	SW6020	FLDFLT	5/20/2013	11:21	Arsenic	2.4	ug/L	0.50
808085-009	C-R22A-S-191	SW6020	FLDFLT	5/20/2013	11:21	Chromium	ND	ug/L	1.0
808085-009	C-R22A-S-191	SW6020	FLDFLT	5/20/2013	11:21	Manganese	1.2	ug/L	0.50
808085-009	C-R22A-S-191	SW6020	FLDFLT	5/20/2013	11:21	Molybdenum	3.9	ug/L	2.0
808085-009	C-R22A-S-191	SW6020	FLDFLT	5/20/2013	11:21	Selenium	ND	ug/L	5.0
808085-010	C-R27-D-191	E120.1	NONE	5/20/2013	12:13	EC	832	umhos/cm	2.00
808085-010	C-R27-D-191	E218.6	FLDFLT	5/20/2013	12:13	Chromium, Hexavalent	ND	ug/L	0.20
808085-010	C-R27-D-191	SM2320B	NONE	5/20/2013	12:13	Alkalinity	130	mg/L	5.00
808085-010	C-R27-D-191	SM2320B	NONE	5/20/2013	12:13	Alkalinity, Bicarbonate (As CaCO3)	130	mg/L	5.00
808085-010	C-R27-D-191	SM2320B	NONE	5/20/2013	12:13	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808085-010	C-R27-D-191	SM2540D	NONE	5/20/2013	12:13	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
808085-010	C-R27-D-191	SM4500HB	NONE	5/20/2013	12:13	PH	8.21 J	рН	4.00
808085-010	C-R27-D-191	SW6010B	FLDFLT	5/20/2013	12:13	Iron	ND	ug/L	20.0
808085-010	C-R27-D-191	SW6010B	NONE	5/20/2013	12:13	Iron	26.4	ug/L	20.0
808085-010	C-R27-D-191	SW6020	FLDFLT	5/20/2013	12:13	Arsenic	2.6	ug/L	0.50
808085-010	C-R27-D-191	SW6020	FLDFLT	5/20/2013	12:13	Chromium	ND	ug/L	1.0
808085-010	C-R27-D-191	SW6020	FLDFLT	5/20/2013	12:13	Manganese	1.2	ug/L	0.50
808085-010	C-R27-D-191	SW6020	FLDFLT	5/20/2013	12:13	Molybdenum	3.9	ug/L	2.0
808085-010	C-R27-D-191	SW6020	FLDFLT	5/20/2013	12:13	Selenium	ND	ug/L	5.0

Lab Sample II	n Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
808085-011	C-R27-S-191	E120.1	NONE	5/20/2013	12:29	EC	832	umhos/cm	2.00
808085-011	C-R27-S-191	E218.6	FLDFLT	5/20/2013	12:29	Chromium, Hexavalent	ND	ug/L	0.20
808085-011	C-R27-S-191	SM2320B	NONE	5/20/2013	12:29	Alkalinity	130	mg/L	5.00
808085-011	C-R27-S-191	SM2320B	NONE	5/20/2013	12:29	Alkalinity, Bicarbonate (As CaCO3)	130	mg/L	5.00
808085-011	C-R27-S-191	SM2320B	NONE	5/20/2013	12:29	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808085-011	C-R27-S-191	SM2540D	NONE	5/20/2013	12:29	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
808085-011	C-R27-S-191	SM4500HB	NONE	5/20/2013	12:29	PH	8.25 J	pН	4.00
808085-011	C-R27-S-191	SW6010B	FLDFLT	5/20/2013	12:29	Iron	ND	ug/L	20.0
808085-011	C-R27-S-191	SW6010B	NONE	5/20/2013	12:29	Iron	25.8	ug/L	20.0
808085-011	C-R27-S-191	SW6020	FLDFLT	5/20/2013	12:29	Arsenic	2.6	ug/L	0.50
808085-011	C-R27-S-191	SW6020	FLDFLT	5/20/2013	12:29	Chromium	ND	ug/L	1.0
808085-011	C-R27-S-191	SW6020	FLDFLT	5/20/2013	12:29	Manganese	1.0	ug/L	0.50
808085-011	C-R27-S-191	SW6020	FLDFLT	5/20/2013	12:29	Molybdenum	3.8	ug/L	2.0
808085-011	C-R27-S-191	SW6020	FLDFLT	5/20/2013	12:29	Selenium	ND	ug/L	5.0
808085-012	C-TAZ-D-191	E120.1	NONE	5/20/2013	9:30	EC	833	umhos/cm	2.00
808085-012	C-TAZ-D-191	E218.6	FLDFLT	5/20/2013	9:30	Chromium, Hexavalent	ND	ug/L	0.20
808085-012	C-TAZ-D-191	SM2320B	NONE	5/20/2013	9:30	Alkalinity	126	mg/L	5.00
808085-012	C-TAZ-D-191	SM2320B	NONE	5/20/2013	9:30	Alkalinity, Bicarbonate (As CaCO3)	126	mg/L	5.00
808085-012	C-TAZ-D-191	SM2320B	NONE	5/20/2013	9:30	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808085-012	C-TAZ-D-191	SM2540D	NONE	5/20/2013	9:30	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
808085-012	C-TAZ-D-191	SM4500HB	NONE	5/20/2013	9:30	PH	8.29 J	pН	4.00
808085-012	C-TAZ-D-191	SW6010B	FLDFLT	5/20/2013	9:30	Iron	ND	ug/L	20.0
808085-012	C-TAZ-D-191	SW6010B	NONE	5/20/2013	9:30	Iron	ND	ug/L	20.0
808085-012	C-TAZ-D-191	SW6020	FLDFLT	5/20/2013	9:30	Arsenic	2.4	ug/L	0.50
808085-012	C-TAZ-D-191	SW6020	FLDFLT	5/20/2013	9:30	Chromium	ND	ug/L	1.0
808085-012	C-TAZ-D-191	SW6020	FLDFLT	5/20/2013	9:30	Manganese	0.75	ug/L	0.50
808085-012	C-TAZ-D-191	SW6020	FLDFLT	5/20/2013	9:30	Molybdenum	3.7	ug/L	2.0
808085-012	C-TAZ-D-191	SW6020	FLDFLT	5/20/2013	9:30	Selenium	ND	ug/L	5.0



l ah Camula ID	Eigld ID	Analysis	Extraction	Cample Date	Sample	Davanatas	Desult	11-:4-	DI
Lab Sample ID	Fleid ID	Method	Method	Sample Date	Time	Parameter	Result	Units	RL
808085-013	C-TAZ-S-191	E120.1	NONE	5/20/2013	9:45	EC	824	umhos/cm	2.00
808085-013	C-TAZ-S-191	E218.6	FLDFLT	5/20/2013	9:45	Chromium, Hexavalent	ND	ug/L	0.20
808085-013	C-TAZ-S-191	SM2320B	NONE	5/20/2013	9:45	Alkalinity	118	mg/L	5.00
808085-013	C-TAZ-S-191	SM2320B	NONE	5/20/2013	9:45	Alkalinity, Bicarbonate (As CaCO3)	118	mg/L	5.00
808085-013	C-TAZ-S-191	SM2320B	NONE	5/20/2013	9:45	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808085-013	C-TAZ-S-191	SM2540D	NONE	5/20/2013	9:45	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
808085-013	C-TAZ-S-191	SM4500HB	NONE	5/20/2013	9:45	PH	8.24 J	pН	4.00
808085-013	C-TAZ-S-191	SW6010B	FLDFLT	5/20/2013	9:45	Iron	ND	ug/L	20.0
808085-013	C-TAZ-S-191	SW6010B	NONE	5/20/2013	9:45	Iron	ND	ug/L	20.0
808085-013	C-TAZ-S-191	SW6020	FLDFLT	5/20/2013	9:45	Arsenic	2.4	ug/L	0.50
808085-013	C-TAZ-S-191	SW6020	FLDFLT	5/20/2013	9:45	Chromium	ND	ug/L	1.0
808085-013	C-TAZ-S-191	SW6020	FLDFLT	5/20/2013	9:45	Manganese	0.84	ug/L	0.50
808085-013	C-TAZ-S-191	SW6020	FLDFLT	5/20/2013	9:45	Molybdenum	4.0	ug/L	2.0
808085-013	C-TAZ-S-191	SW6020	FLDFLT	5/20/2013	9:45	Selenium	ND	ug/L	5.0
808085-014	R63-191	E120.1	NONE	5/20/2013	10:45	EC	858	umhos/cm	2.00
808085-014	R63-191	E218.6	FLDFLT	5/20/2013	10:45	Chromium, Hexavalent	ND	ug/L	0.20
808085-014	R63-191	SM2320B	NONE	5/20/2013	10:45	Alkalinity	119	mg/L	5.00
808085-014	R63-191	SM2320B	NONE	5/20/2013	10:45	Alkalinity, Bicarbonate (As CaCO3)	119	mg/L	5.00
808085-014	R63-191	SM2320B	NONE	5/20/2013	10:45	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808085-014	R63-191	SM2540D	NONE	5/20/2013	10:45	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
808085-014	R63-191	SM4500HB	NONE	5/20/2013	10:45	PH	8.10 J	ρH	4.00
808085-014	R63-191	SW6010B	FLDFLT	5/20/2013	10:45	Iron	ND	ug/L	20.0
808085-014	R63-191	SW6010B	NONE	5/20/2013	10:45	Iron	106	ug/L	20.0
808085-014	R63-191	SW6020	FLDFLT	5/20/2013	10:45	Arsenic	2.6	ug/L	0.50
808085-014	R63-191	SW6020	FLDFLT	5/20/2013	10:45	Chromium	ND	ug/L	1.0
808085-014	R63-191	SW6020	FLDFLT	5/20/2013	10:45	Manganese	5.6	ug/L	0.50
808085-014	R63-191	SW6020	FLDFLT	5/20/2013	10:45	Molybdenum	4.0	ug/L	2.0
808085-014	R63-191	SW6020	FLDFLT	5/20/2013	10:45	Selenium	ND	ug/L	5.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

Note: The following "Significant Figures" rule has been applied to all results:

Results below 0.01ppm will have two (2) significant figures.

Result above or equal to 0.01ppm will have three (3) significant figures.

Quality Control data will always have three (3) significant figures.

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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Printed 6/5/2013

Laboratory No. 808085

REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM
P.O. Number: 423575.MP.02.RM

Release Number:

Samples Received on 5/21/2013 11:00:00 PM

Field ID	Lab ID	Collected	Matrix
C-BNS-D-191	808085-001	05/20/2013 11:43	Water
C-I-3-D-191	808085-002	05/20/2013 10:10	Water
C-I-3-S-191	808085-003	05/20/2013 10:25	Water
C-MAR-D-191	808085-004	05/20/2013 12:51	Water
C-MAR-S-191	808085-005	05/20/2013 13:05	Water
C-MW-80-191	808085-006	05/20/2013 10:35	Water
C-MW-81-191	808085-007	05/20/2013 11:35	Water
C-R22A-D-191	808085-008	05/20/2013 11:03	Water
C-R22A-S-191	808085-009	05/20/2013 11:21	Water
C-R27-D-191	808085-010	05/20/2013 12:13	Water
C-R27-S-191	808085-011	05/20/2013 12:29	Water
C-TAZ-D-191	808085-012	05/20/2013 09:30	Water
C-TAZ-S-191	808085-013	05/20/2013 09:45	Water
R63-191	808085-014	05/20/2013 10:45	Water

Alkalinity by SM 2320B		Batch 05ALK13H				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
808085-001 Alkalinity as CaCO3	mg/L	05/30/2013	1.00	1.68	5.00	129
Bicarbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	129
Carbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	ND
808085-002 Alkalinity as CaCO3	mg/L	05/30/2013	1.00	1.68	5.00	125
Bicarbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	125
Carbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	ND
808085-003 Alkalinity as CaCO3	mg/L	05/30/2013	1.00	1.68	5.00	123
Bicarbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	123
Carbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	ND
808085-004 Alkalinity as CaCO3	mg/L	05/30/2013	1.00	1.68	5.00	159
Bicarbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	159



Client: E2 Consulting Engineers, Inc.	Project Name: PG&E Topock Project Project Number: 423575.MP.02.RM			ct	Page 2 of 22 Printed 6/5/2013		
808085-004 Carbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	ND	
808085-005 Alkalinity as CaCO3	mg/L	05/30/2013	1.00	1.68	5.00	164	
Bicarbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	164	
Carbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	ND	
808085-008 Alkalinity as CaCO3	mg/L	05/30/2013	1.00	1.68	5.00	126	
Bicarbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	126	
Carbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	ND	
808085-009 Alkalinity as CaCO3	mg/L	05/30/2013	1.00	1.68	5.00	126	
Bicarbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	126	
Carbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	ND	
808085-010 Alkalinity as CaCO3	mg/L	05/30/2013	1.00	1.68	5.00	130	
Bicarbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	130	
Carbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	ND	
808085-011 Alkalinity as CaCO3	mg/L	05/30/2013	1.00	1.68	5.00	130	
Bicarbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	130	
Carbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	ND	
808085-012 Alkalinity as CaCO3	mg/L	05/30/2013	1.00	1.68	5.00	126	
Bicarbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	126	
Carbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	ND	
808085-013 Alkalinity as CaCO3	mg/L	05/30/2013	1.00	1.68	5.00	118	
Bicarbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	118	
Carbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	ND	
808085-014 Alkalinity as CaCO3	mg/L	05/30/2013	1.00	1.68	5.00	119	
Bicarbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	119	
Carbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	ND	
Method Blank							
Parameter Unit	DF	Result					
Alkalinity as CaCO3 mg/L	1.00	ND					
Duplicate					Lab ID =	808085-011	
Parameter Unit	DF	Result Expected	F	RPD	•	nce Range	
Alkalinity as CaCO3 mg/L	1.00	129 130		0.772	0 - 20		
Lab Control Sample							
Parameter Unit Alkalinity as CaCO3 mg/L	DF 1.00	Result Expected 102 100	F	Recovery 102	Accepta 90 - 110	nce Range	



Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 3 of 22

Project Number: 423575.MP.02.RM Printed 6/5/2013

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	101	100	101	90 - 110
Matrix Spike						Lab ID = 808085-014
Parameter	Unit	DF	Result	Expected/Added 219(100)	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	232		113	75 - 125



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Printed 6/5/2013

Project Number: 423575.MP.02.RM

Batch 05EC13L Specific Conductivity - EPA 120.1 Parameter Unit DF MDL RL Analyzed Result 808085-001 Specific Conductivity umhos/cm 05/31/2013 1.00 0.116 2.00 827 808085-002 Specific Conductivity umhos/cm 05/31/2013 1.00 0.116 2.00 830 808085-003 Specific Conductivity umhos/cm 05/31/2013 1.00 0.116 2.00 830 808085-004 Specific Conductivity umhos/cm 1.00 0.116 2.00 954 05/31/2013 05/31/2013 1.00 0.116 2.00 960 808085-005 Specific Conductivity umhos/cm 808085-008 Specific Conductivity umhos/cm 05/31/2013 1.00 0.116 2.00 838 1.00 0.116 2.00 834 808085-009 Specific Conductivity umhos/cm 05/31/2013 808085-010 Specific Conductivity umhos/cm 05/31/2013 1.00 0.116 2.00 832 2.00 1.00 832 808085-011 Specific Conductivity umhos/cm 05/31/2013 0.116 808085-012 Specific Conductivity umhos/cm 05/31/2013 1.00 0.116 2.00 833 1.00 0.116 2.00 824 808085-013 Specific Conductivity umhos/cm 05/31/2013 05/31/2013 1.00 0.116 2.00 858 808085-014 Specific Conductivity umhos/cm

Method Blank						
Parameter	Unit	DF	Result			
Specific Conductivity	umhos	1.00	ND			Lab ID = 808085-003
Duplicate						Lab ID = 000000-003
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	830	830	0	0 - 10
Duplicate			Filania.			Lab ID = 808085-014
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	857	858	0.117	0 - 10
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	701	706	99.3	90 - 110
Lab Control Sample Do	uplicate	and the state of t	ang ang tinta ang kalang ang ang ang ang ang ang ang ang ang	ampiter (1885) i mari mari a sa a saman na a sa a sa a sa a sa a s		
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	703	706	99.6	90 - 110
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	700	706	99.2	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	940	998	94.2	90 - 110



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Metals by EPA 6010B,	Total		Batch 052413A-Th2							
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result		
808085-001 Iron		ug/L	05/24	/2013 13:15	1.00	9.50	20.0	ND		
808085-002 Iron		ug/L	05/24	/2013 13:21	1.00	9.50	20.0	ND		
808085-003 Iron		ug/L	05/24	/2013 13:28	1.00	9.50	20.0	ND		
808085-004 Iron		ug/L	05/24	/2013 13:34	1.00	9.50	20.0	824		
808085-005 Iron		ug/L	05/24	/2013 13:40	1.00	9.50	20.0	772		
808085-008 Iron		ug/L	05/24	/2013 13:46	1.00	9.50	20.0	27.5		
808085-009 Iron		ug/L	05/24	/2013 13:52	1.00	9.50	20.0	26.1		
808085-010 Iron		ug/L	05/24	/2013 13:59	1.00	9.50	20.0	26.4		
808085-011 Iron		ug/L	05/24	/2013 14:05	1.00	9.50	20.0	25.8		
808085-012 Iron		ug/L	05/24/2013 14:11		1.00	9.50	20.0	ND		
808085-013 Iron		ug/L	05/24	/2013 14:35	1.00	9.50	20.0	ND		
808085-014 Iron		ug/L	05/24	/2013 14:41	1.00	9.50	20.0	106		
Method Blank					gaithean.		denema in terrolea.			
Parameter	Unit	DF	Result							
Iron	ug/L	1.00	ND							
Duplicate							Lab ID =	808083-00		
Parameter	Unit	DF	Result	Expected		RPD	Accepta	nce Range		
Iron	ug/L	1.00	ND	0		0	0 - 20	_		
Lab Control Sample	e de la companya de La companya de la co									
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	nce Range		
Iron	ug/L	1.00	56.0	50.0		112	85 - 115	5		
Matrix Spike							Lab ID =	808083-001		
Parameter	Unit	DF	Result	Expected/Ad	lded	Recovery	Accepta	ince Range		
Iron	ug/L	1.00	50.2	50.0(50.0)		100	75 - 125	5		
Matrix Spike Duplic	ate		en er gestelligt state geste der kalt skeden er til Lander state har er geste der kalt skeden er til				Lab ID =	808083-001		
Parameter	Unit	DF	Result	Expected/Ad	ded	Recovery	Accepta	nce Range		
Iron	ug/L	1.00	50.3	50.0(50.0)		101	75 - 125	5		
	rv									
MRCCS - Seconda	" '					-	A 4-	_		
MRCCS - Seconda Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ince Range		
	•	DF 1.00	Result 5120	Expected 5000		Recovery 102	90 - 110	_		
Parameter	Unit			•		_	•	_		
Parameter Iron	Unit			•		_	90 - 110	_		



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Chrome VI by EPA 218.6	;		Batch	05CrH13O				
Parameter		Unit	Anal	yzed	DF	MDL	RL	Result
808085-001 Chromium, Hexa	avalent	ug/L	05/28	/2013 12:14	1.00	0.00820	0.20	ND
808085-002 Chromium, Hexa	avalent	ug/L	05/28	/2013 12:25	1.00	0.00820	0.20	ND
808085-003 Chromium, Hexa	avalent	ug/L	05/28	/2013 12:35	1.00	0.00820	0.20	ND
808085-004 Chromium, Hexa	avalent	ug/L	05/28/	/2013 12:46	1.00	0.00820	0.20	ND
308085-005 Chromium, Hexa	08085-005 Chromium, Hexavalent		05/28	/2013 12:56	1.00	0.00820	0.20	ND
308085-006 Chromium, Hexa	avalent	ug/L	05/28	/2013 13:58	1.00	0.00820	0.20	ND
308085-007 Chromium, Hexa	avalent	ug/L	05/28	/2013 14:09	1.00	0.00820	0.20	ND
308085-008 Chromium, Hexa	avalent	ug/L	05/28/2013 14:19		1.00	0.00820	0.20	ND
308085-009 Chromium, Hexa	avalent	ug/L	05/28/2013 14:30		1.00	0.00820	0.20	ND
308085-010 Chromium, Hexa	avalent	ug/L	05/28/2013 14:40		1.00	0.00820	0.20	ND
308085-011 Chromium, Hexa	avalent	ug/L	05/28/2013 14:50		1.00	0.00820	0.20	ND
308085-012 Chromium, Hexa	avalent	ug/L	05/28/2013 15:01		1.00	0.00820	0.20	ND
308085-013 Chromium, Hexa	avalent	ug/L	05/28/2013 15:50		1.00	0.00820	0.20	ND
308085-014 Chromium, Hexa	avalent	ug/L	05/28/2013 16:01 1.00		0.00820	0.20	ND	
Method Blank		42 W J					egi e e e e e	
Parameter	Unit	DF	Result					
Chromium, Hexavalent	ug/L	1.00	ND					
Duplicate							Lab ID =	808085-00
Parameter	Unit	DF	Result	Expected	1	RPD	Accepta	ance Rang
Chromium, Hexavalent	ug/L	1.00	0.0448	0.0441		1.57	0 - 20	
Low Level Calibration	Verification							
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Rang
Chromium, Hexavalent	ug/L	1.00	0.205	0.200		102	70 - 130	0
Lab Control Sample								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Rang
Chromium, Hexavalent	ug/L	1.00	4.94	5.00		98.8	90 - 110	0
Matrix Spike							Lab ID =	808085-00
Parameter	Unit	DF	Result	Expected/Ad	ded	Recovery	Accepta	ance Rang
Chromium, Hexavalent	ug/L	1.00	1.05	1.04(1.00)		100	90 - 110)
Matrix Spike							Lab ID =	808085-00
Parameter	Unit	DF	Result	Expected/Ad	ded	Recovery	Accepta	ance Rang
Chromium, Hexavalent	ug/L	1.00	1.06	1.04(1.00)		102	90 - 110	0



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Matrix Spike						Lab ID = 808085-003
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.04	Expected/Added 1.04(1.00)	Recovery 101	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 808085-004
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.02	Expected/Added 1.00(1.00)	Recovery 102	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 808085-005
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.03	Expected/Added 1.00(1.00)	Recovery 103	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 808085-006
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.03	Expected/Added 1.00(1.00)	Recovery 103	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 808085-007
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.02	Expected/Added 1.00(1.00)	Recovery 102	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 808085-008
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.04	Expected/Added 1.04(1.00)	Recovery 100.	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 808085-009
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.05	Expected/Added 1.04(1.00)	Recovery 101	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 808085-010
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.05	Expected/Added 1.04(1.00)	Recovery 101	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 808085-011
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.06	Expected/Added 1.04(1.00)	Recovery 102	Acceptance Range 90 - 110
Matrix Spike		o satisfaçõe terre a apara a sua emere receivo				Lab ID = 808085-012
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.08	Expected/Added 1.04(1.00)	Recovery 105	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 808085-013
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.04	Expected/Added 1.04(1.00)	Recovery 100	Acceptance Range 90 - 110
Matrix Spike						Lab ID = 808085-014
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.16	Expected/Added 1.17(1.00)	Recovery 99.1	Acceptance Range 90 - 110



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Parameter	·	Unit	Analyzed	DF	MDL	RL	Result
808085-001 Arser	io		05/23/2013 14:48		0.200		
Chror		ug/L	05/23/2013 14:48	2.00		0.50	2.6
		ug/L	05/23/2013 14:48	2.00	0.184 0.172	1.0 0.50	ND
_	anese	ug/L		2.00			0.88
•	denum	ug/L	05/23/2013 14:48	2.00	0.414	2.0	4.0
Selen		ug/L	05/23/2013 14:48	2.00	0.160	5.0	ND 0.5
308085-002 Arser		ug/L	05/23/2013 15:17	2.00	0.200	0.50	2.5
Chror		ug/L	05/23/2013 15:17	2.00	0.184	1.0	ND
_	anese	ug/L	05/23/2013 15:17	2.00	0.172	0.50	0.73
•	denum	ug/L	05/23/2013 15:17	2.00	0.414	2.0	4.0
Selen		ug/L	05/23/2013 15:17	2.00	0.160	5.0	ND
308085-003 Arsen		ug/L	05/23/2013 15:46	2.00	0.200	0.50	2.5
Chror		ug/L	05/23/2013 15:46	2.00	0.184	1.0	ND
_	anese	ug/L	05/23/2013 15:46	2.00	0.172	0.50	0.74
•	denum ·	ug/L	05/23/2013 15:46	2.00	0.414	2.0	3.9
Selen		ug/L	05/23/2013 15:46	2.00	0.160	5.0	ND
308085-004 Arsen		ug/L	05/23/2013 15:53	2.00	0.200	0.50	2.4
Chror		ug/L 	05/23/2013 15:53	2.00	0.184	1.0	ND
•	anese	ug/L	05/23/2013 15:53	2.00	0.172	0.50	42.6
·	denum	ug/L	05/23/2013 15:53	2.00	0.414	2.0	4.2
Selen		ug/L	05/23/2013 15:53	2.00	0.160	5.0	ND
308085-005 Arsen		ug/L	05/23/2013 16:00	2.00	0.200	0.50	2.6
Chron		ug/L	05/23/2013 16:00	2.00	0.184	1.0	ND
_	anese	ug/L	05/23/2013 16:00	2.00	0.172	0.50	44.1
-	denum	ug/L	05/23/2013 16:00	2.00	0.414	2.0	4.2
Selen		ug/L	05/23/2013 16:00	2.00	0.160	5.0	ND
308085-008 Arsen		ug/L	05/23/2013 16:07	2.00	0.200	0.50	2.6
Chron		ug/L	05/23/2013 16:07	2.00	0.184	1.0	ND
-	anese	ug/L	05/23/2013 16:07	2.00	0.172	0.50	1.2
•	denum	ug/L	05/23/2013 16:07	2.00	0.414	2.0	4.0
Selen	ium	ug/L	05/23/2013 16:07	2.00	0.160	5.0	ND
808085-009 Arsen	ic	ug/L	05/23/2013 16:14	2.00	0.200	0.50	2.4
Chron	nium	ug/L	05/23/2013 16:14	2.00	0.184	1.0	ND
Mang	anese	ug/L	05/23/2013 16:14	2.00	0.172	0.50	1.2
Molyb	denum	ug/L	05/23/2013 16:14	2.00	0.414	2.0	3.9



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808085-009 Selenium	ug/l	_ 05/23/	2013 16:14	2.00	0.160	5.0	ND
808085-010 Arsenic	ug/l		2013 16:22	2.00	0.200	0.50	2.6
Chromium	ug/l	_ 05/23/	2013 16:22	2.00	0.184	1.0	ND
Manganese	ug/l	_ 05/23/	2013 16:22	2.00	0.172	0.50	1.2
Molybdenum	ug/l	_ 05/23/	2013 16:22	2.00	0.414	2.0	3.9
Selenium	ug/l	_ 05/23/	2013 16:22	2.00	0.160	5.0	ND
808085-011 Arsenic	ug/l	_ 05/23/	2013 16:29	2.00	0.200	0.50	2.6
Chromium	ug/l	_ 05/23/	2013 16:29	2.00	0.184	1.0	ND
Manganese	ug/l	_ 05/23/	2013 16:29	2.00	0.172	0.50	1.0
Molybdenum	ug/l	_ 05/23/	2013 16:29	2.00	0.414	2.0	3.8
Selenium	ug/l	_ 05/23/	2013 16:29	2.00	0.160	5.0	ND
808085-012 Arsenic	ug/l	_ 05/23/	2013 16:36	2.00	0.200	0.50	2.4
Chromium	ug/l	_ 05/23/	2013 16:36	2.00	0.184	1.0	ND
Manganese	ug/l	_ 05/23/	2013 16:36	2.00	0.172	0.50	0.75
Molybdenum	ug/l	_ 05/23/	2013 16:36	2.00	0.414	2.0	3.7
Selenium	ug/l	_ 05/23/	2013 16:36	2.00	0.160	5.0	ND
808085-013 Arsenic	ug/l	_ 05/23/	2013 16:43	2.00	0.200	0.50	2.4
Chromium	ug/l	_ 05/23/	2013 16:43	2.00	0.184	1.0	ND
Manganese	ug/l	_ 05/23/	2013 16:43	2.00	0.172	0.50	0.84
Molybdenum	ug/l	_ 05/23/	2013 16:43	2.00	0.414	2.0	4.0
Selenium	ug/l	_ 05/23/	2013 16:43	2.00	0.160	5.0	ND
808085-014 Arsenic	ug/l	_ 05/23/	2013 16:50	2.00	0.200	0.50	2.6
Chromium	ug/l	_ 05/23/	2013 16:50	2.00	0.184	1.0	ND
Manganese	ug/l	_ 05/23/	2013 16:50	2.00	0.172	0.50	5.6
Molybdenum	ug/l	_ 05/23/	2013 16:50	2.00	0.414	2.0	4.0
Selenium	ug/l	_ 05/23/	2013 16:50	2.00	0.160	5.0	ND
Method Blank	stemens et geprane es se arrives es figliere propriée de reconstruit de se	egas familiajane egus jugu juga last last familiajane en sugue en septembro. En last familias est last en last las series de last last last last last last last last	ent spiller en segmen englich betreigt ein sterre paret in henri paret. Seine de deutsche betreich der spiller der betreich deutsche betreich der bestreich der der bestreich der der	engentjene i krime i mesembet Santika i sikapila kan kepika i	angga yaya dan masari Afalik masariya daybay	e ettere e mette i i sere si tri i etter. Si ja sõisija kiikse asuska e säärenes.	and the second s
Parameter	Unit DF	Result					
Arsenic	ug/L 1.00						
Chromium	ug/L 1.00						
Selenium	ug/L 1.00						
Manganese	ug/L 1.00						
Molybdenum	ug/L 1.00) ND					



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Duplicate						Lab ID = 808085-001
Parameter Arsenic	Unit ug/L	DF 2.00	Result 2.61	Expected 2.60	RPD 0.269	Acceptance Range 0 - 20
Chromium	ug/L	2.00	ND	0	0	0 - 20
Selenium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	0.878	0.882	0.398	0 - 20
Molybdenum	ug/L	2.00	3.99	4.05	1.59	0 - 20
Low Level Calibration \	Verification					
Parameter Arsenic	Unit ug/L	DF 1.00	Result 0.195	Expected 0.200	Recovery 97.4	Acceptance Range 70 - 130
Chromium	ug/L	1.00	0.166	0.200	83.0	70 - 130
Selenium	ug/L	1.00	0.210	0.200	105	70 - 130
Manganese	ug/L	1.00	0.260	0.200	130	70 - 130
Molybdenum	ug/L	1.00	0.445	0.500	89.0	70 - 130
Lab Control Sample				e statista ja vieta al la saltita.		
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.00	48.1	50.0	96.2	85 - 115
Chromium	ug/L	2.00	50.3	50.0	100	85 - 115
Selenium	ug/L	2.00	48.0	50.0	96.1	85 - 115
Manganese	ug/L	2.00	50.2	50.0	100	85 - 115
Molybdenum	ug/L	2.00	49.5	50.0	98.9	85 - 115
Matrix Spike						Lab ID = 808085-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	50.9	52.6(50.0)	96.7	75 - 125
Chromium	ug/L	2.00	50.2	50.0(50.0)	100	75 - 125
Selenium	ug/L	2.00	48.6	50.0(50.0)	97.1	75 - 125
Manganese	ug/L	2.00	49.5	50.9(50.0)	97.3	75 - 125
Molybdenum	ug/L	2.00	52.6	54.0(50.0)	97.0	75 - 125
Matrix Spike Duplicate						Lab ID = 808085-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	51.7	52.6(50.0)	98.2	75 - 125
Chromium	ug/L	2.00	51.1	50.0(50.0)	102	75 - 125
Selenium	ug/L	2.00	49.8	50.0(50.0)	99.6	75 - 125
Manganese	ug/L	2.00	50.7	50.9(50.0)	99.6	75 - 125
Molybdenum	ug/L	2.00	53.0	54.0(50.0)	97.9	75 - 125



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Interference Check Sta	andard A					
Parameter Molybdenum	Unit ug/L	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Interference Check Sta	indard A					
Parameter Molybdenum	Unit ug/L	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Interference Check Sta	indard AB					
Parameter Arsenic Interference Check Sta	Unit ug/L andard AB	DF 1.00	Result 18.4	Expected 20.0	Recovery 92.2	Acceptance Range 80 - 120
Parameter Arsenic Interference Check Sta	Unit ug/L	DF 1.00	Result 19.0	Expected 20.0	Recovery 94.9	Acceptance Range 80 - 120
Parameter	Unit	DF	Result	Expected	Pooruss.	Acceptance Banco
Chromium	ug/L	1.00	19.4	20.0	Recovery 97.2	Acceptance Range 80 - 120
Interference Check Sta	•					
Parameter Chromium Selenium	Unit ug/L ug/L	DF 1.00 1.00	Result 20.0 ND	Expected 20.0	Recovery 100	Acceptance Range 80 - 120
Interference Check Sta	ndard AB					
Parameter Selenium	Unit ug/L	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.8	20.0	99.0	80 - 120
Interference Check Sta	ndard AB					
Parameter Manganese	Unit ug/L	DF 1.00	Result 19.9	Expected 20.0	Recovery 99.5	Acceptance Range 80 - 120
Interference Check Sta	ndard AB					
Parameter Molybdenum	Unit ug/L	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Interference Check Sta	ndard AB					
Parameter Molybdenum	Unit ug/L	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range
Serial Dilution						Lab ID = 808085-004
Parameter Manganese	Unit ug/L	DF 10.0	Result 43.4	Expected 42.6	RPD 1.79	Acceptance Range 0 - 10



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Metals by EPA 6010B, D	issolved		Batch	052313B				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
808085-001 Iron		ug/L	05/23	/2013 12:22	1.00	3.57	20.0	ND
808085-002 Iron		ug/L	05/23	/2013 13:05	1.00	3.57	20.0	ND
808085-003 Iron		ug/L	05/23	/2013 13:11	1.00	3.57	20.0	ND
808085-004 Iron		ug/L	05/23	/2013 13:17	1.00	3.57	20.0	ND
308085-005 Iron		ug/L	05/23	/2013 13:23	1.00	3.57	20.0	210
808085-008 Iron		ug/L	05/23	/2013 13:30	1.00	3.57	20.0	ND
808085-009 Iron		ug/L	05/23	/2013 13:36	1.00	3.57	20.0	ND
808085-010 Iron		ug/L	05/23	/2013 13:42	1.00	3.57	20.0	ND
808085-011 Iron		ug/L	05/23	/2013 13:48	1.00	3.57	20.0	ND
808085-012 Iron		ug/L	05/23	/2013 13:55	1.00	3.57	20.0	ND
808085-013 Iron		ug/L	05/23	/2013 14:26	1.00	3.57	20.0	ND
808085-014 Iron		ug/L	05/23	/2013 14:32	1.00	3.57	20.0	ND
Method Blank			18 de la capación de			Bassas radificat.		
Parameter	Unit	DF	Result					
Iron	ug/L	1.00	ND					
Duplicate							Lab ID =	808085-00
Parameter	Unit	DF	Result	Expected		RPD	Accepta	nce Rang
Iron	ug/L	1.00	ND	0		0	0 - 20	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	nce Rang
Iron	ug/L	1.00	56.0	50.0		112	85 - 118	5
Matrix Spike							Lab ID =	808085-00
Parameter	Unit	DF	Result	Expected/Ad	dded	Recovery	Accepta	ince Rang
Iron	ug/L	1.00	51.3	50.0(50.0)		103	75 - 128	5
Matrix Spike Duplicate			a pot de federal de la potación de la proposición de la proposición de la proposición de la proposición de la Seguina de la composición de la proposición de la proposición de la proposición de la proposición de la propos	e printerior de la companya de la c La companya de la co			Lab ID =	808085-00
Parameter	Unit	DF	Result	Expected/Ad	ded	Recovery	Accepta	nce Rang
Iron	ug/L	1.00	53.6	50.0(50.0)		107	75 - 125	5
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ince Rang
Iron	ug/L	1.00	5140	5000		103	90 - 110)
MRCVS - Primary								
D(1.1:4	DF	Result	Expected		Recovery	Accenta	naa Bana
Parameter	Unit	IJΓ	Nesuit	Expedied		Recovery	~ccebis	ince Rang



PG&E Topock Project Client: E2 Consulting Engineers, Inc. Project Name:

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Project Number: 423575.MP.02.RM

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pH by SM 4500-H B			Batch	05PH13Q					
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result	ś.
808085-003 pH		рН	05/22	/2013 10:20	1.00	0.0250	4.00	8.09	J
808085-014 pH		рН	05/22	/2013 10:25	1.00	0.0250	4.00	8.10	J
Method Blank	417.							ari da wakazi na P	
Parameter	Unit	DF	Result						
рН	рН	1.00	ND						
Duplicate							Lab ID =	808086-011	
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range	!
рН	pН	1.00	8.24	8.23		0.121	0 - 20		
Lab Control Sample									
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range	!
рН	pН	1.00	7.01	7.00		100	90 - 110		
Lab Control Sample D	uplicate								
Parameter	Unit	DF	Result	Expected	, F	Recovery	Accepta	ance Range	!
pН	pН	1.00	7.02	7.00		100	90 - 110)	
MRCVS - Primary									
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range	!
pН	рН	1.00	7.02	7.00		100	90 - 110)	



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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J

Project Number: 423575.MP.02.RM

Printed 6/5/2013

pH by SM 4500-H B			Batch	05PH13R				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
808085-001 pH		рН	05/22	/2013 14:44	1.00	0.0250	4.00	8.28
808085-002 pH		рН	05/22	/2013 14:37	1.00	0.0250	4.00	8.28
808085-004 pH		рН	05/22	/2013 14:35	1.00	0.0250	4.00	7.60
808085-005 pH		рН	05/22	/2013 14:42	1.00	0.0250	4.00	8.29
808085-008 pH		рН	05/22	/2013 14:32	1.00	0.0250	4.00	8.23
808085-009 pH		рН	05/22	/2013 14:40	1.00	0.0250	4.00	7.63
808085-010 pH		pН	05/22	/2013 14:20	1.00	0.0250	4.00	8.21
808085-011 pH		рН	05/22	/2013 13:30	1.00	0.0250	4.00	8.25
808085-012 pH		рН	05/22	/2013 13:33	1.00	0.0250	4.00	8.29
808085-013 pH		pН	05/22	/2013 13:25	1.00	0.0250	4.00	8.24
Method Blank								
Parameter	Unit	DF	Result					
pН	pН	1.00	ND					
Duplicate							Lab ID =	808085-001
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range
pН	рН	1.00	8.28	8.28		0	0 - 20	
Duplicate							Lab ID =	808085-010
Parameter	Unit	DF	Result	Expected	F	RPD	•	ance Range
рН	рН	1.00	8.22	8.21		0.122	0 - 20	
Lab Control Sample	e de la compa							
Parameter	Unit	DF	Result	Expected	F	Recovery	•	ance Range
рН	pН	1.00	6.98	7.00		99.7	90 - 110)
Lab Control Sample	e Duplicate							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
pH	рН	1.00	7.05	7.00		101	90 - 110)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	•	ance Range
pН	pН	1.00	7.03	7.00		100	90 - 110)



Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 22 of 22

Project Number: 423575.MP.02.RM Printed 6/5/2013

Total Suspended Solids	by SM 25	40 D	Batch	05TSS13M				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
808085-001 Total Suspende	d Solids	mg/L	05/24	/2013	1.00	0.349	10.0	ND
808085-002 Total Suspende	d Solids	mg/L	05/24	/2013	1.00	0.349	10.0	ND
808085-003 Total Suspende	d Solids	mg/L	05/24	/2013	1.00	0.349	10.0	ND
808085-004 Total Suspende	d Solids	mg/L	05/24	/2013	1.00	0.349	10.0	28.8
808085-005 Total Suspende	d Solids	mg/L	05/24	/2013	1.00	0.349	10.0	23.2
808085-008 Total Suspende	d Solids	mg/L	05/24	/2013	1.00	0.349	10.0	ND
808085-009 Total Suspender	d Solids	mg/L	05/24	/2013	1.00	0.349	10.0	ND
808085-010 Total Suspende	d Solids	mg/L	05/24	/2013	1.00	0.349	10.0	ND
808085-011 Total Suspende	d Solids	mg/L	05/24	/2013	1.00	0.349	10.0	ND
808085-012 Total Suspende	d Solids	mg/L	05/24	/2013	1.00	0.349	10.0	ND
808085-013 Total Suspende	d Solids	mg/L	05/24	/2013	1.00	0.349	10.0	ND
808085-014 Total Suspender	d Solids	mg/L	05/24	/2013	1.00	0.349	10.0	ND
Method Blank				14. A		de Paris Leo		A Section
Parameter	Unit	DF	Result					
Total Suspended Solids	mg/L	1.00	ND					
Duplicate							Lab ID =	808085-012
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ince Range
Total Suspended Solids	mg/L	1.00	ND	0		0	0 - 10	J
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Total Suspended Solids	mg/L	1.00	99.0	100		99.0	90 - 110)
Lab Control Sample [Duplicate							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ınce Range
Total Suspended Solids	mg/L	1.00	103	100		103	90 - 110)

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services





Total Suspended Solids by SM 2540 D

Calculations

Batch: 05TSS13M Date Analyzed: 05/24/13

Dish Number	Laboratory Number	Sample volume, ml	lnitial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference , g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL,	Reported Value, ppm
F31	BLK	1000	1.4210	1.4210	1.421	0.0000	No	0.0000	0.0	2.5	ND
F34	808085-1	250	1,4329	1.4331	1.4331	0.0000	No	0.0002	0.8	10.0	ND
F35	808085-2	250	1.4278	1.4278	1 4278	0.0000	No	0.0000	0.0	10.0	ND
F36	808085-3	250	1.4249	1 4249	1,4249	0.0000	No	0.0000	0.0	10.0	ND
F37	808085-4	250	1.4322	1.4394	1 4394	0.0000	No	0.0072	28.8	10.0	28.8
F38	808085-5	250	1.4388	1.4446	1.4446	0.0000	No	0.0058	23.2	10.0	23.2
F39	808085-8	250	1.4278	1.4280	1.428	0.0000	No	0.0002	0.8	10.0	ND
F40	808085-9	250	1,4323	1.4323	1 4323	0.0000	No	0.0000	0.0	10.0	ND
F41	808085-10	250	1.4421	1 4421	1.4421	0.0000	No	0.0000	0.0	10.0	ND
F42	808085-11	250	1.4360	1.4360	1,436	0.0000	No	0.0000	0.0	10.0	ND
F43	808085-12	250	1.4313	1.4314	1 4314	0.0000	No	0.0001	0.4	10.0	ND
F44	808085-12D	250	1.43:15	1 4316	1.4316	0.0000	No	0.0001	0.4	10.0	ND
F45	808085-13	250	1.4370	1,4370	1.437	0.0000	No	0.0000	0.0	10.0	ND
F46	808085-14	250	1.4378	1.4387	1.4387	0.0000	No	0.0009	3.6	10.0	ND
F47	808099-1	300	1.4380	1.4590	1.459	0.0000	No	0.0210	70.0	8.3	70.0
F48	808099-2	25	1.4426	1,5360	1 536	0.0000	No	0.0934	3736.0	100.0	3736.0
F49	808099-3	25	1.4270	1.5350	1,535	0.0000	No	0.1080	4320.0	100.0	4320.0
F50	808099-4	10	1.4350	1.4875	1.4875	0.0000	No	0.0525	5250.0	250.0	5250.0
F51	808099-4D	10	1,4355	1,4880	1 488	0.0000	No	0.0525	5250.0	250.0	5250.0
				4.4530	1.4500	0.0000		0.0000		05.0	
F32	LCS-1	100	1.4403	1,4502	1.4502	0.0000	No	0.0099	99.0	25.0	99.0
F33	LCS-2	100	1.4400	1,4503	1.4503_	0.0000	No	0.0103	103.0	25.0	103.0

Calculation as follows:

Non-Filterable residue (TSS), mg/L = $\left(\frac{A-B}{C}\right) \times 10^6$

Where: A = weight of dish + residue in grams.

B = weight of dish in grams.

C = mL of sample filtered.

RL= reporting limit.

ND = not detected (below the reporting limit)

Laboratory Control Sample (LCS) Summary

QC Std	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	99	100	99.0%	90-110%	Yes
LCSD	1.03	100	103.0%	90-110%	Yes

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
808085-12	0.0001	0,0001	0.0%	≤5%	Yes
808099-4	0.0525	0:0525	0.0%	5%	Yes

GAUTAM Analyst Printed Name



$$P = \left(\frac{LC}{LT}\right) \times 100$$
% Difference =
$$\frac{|A \text{ or } B - C|}{C} \times 100$$

where
$$C = \frac{A+B}{2}$$

A = Weght of the first sample in (g).

B = Weght of the second sample in (g).

C = Average weight in (g).

Maksim G. Reviewer Printed Name



Alkalinity by SM 2320B

Analytical Batch: 05ALK13H Matrix: WATER Date of Analysis: 5/30/13

Lab ID	Sample pH	Sample Volume (ml)	N of HCL	Titrant Volume to reach pH 8.3	P Alkalinity as CaCO3	Titrant Volume to reach pH 4.5	Total ml. titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCO3 Conc. as CaCO ₃ (ppm)	CO3 Alkalinity as CaCO ₃ (ppm)	OH Alkalinity as CaCO ₃ (ppm)	Low Alkalinity as CaCO ₃
BLANK	7.04	50	0.02		0.0	0.00		0.0	5	ND	ND	ND	ND	lanear .
808085-1	8,25	50	0.02		0.0	6.45		129.0	5	129.0	129.0	ND	ND	
808085-2	8,30	50	0.02	0.00	0.0	6,25		125.0	5	125.0	125.0	ND	ND	
808085-3	8.32	50	0.02	0.00	0.0	6.15		123.0	5	123.0	123.0	0	ND	
808085-4	7.62	50	0.02		0.0	7.95		159.0	5	159.0	159.0	ND	ND	
808085-5	7,66	50	0.02		0.0	8.20		164.0	5	164.0	164.0	ND	ND	
808085-8	8.15	50	0.02		0.0	6.30		126.0	5	126.0	126.0	ND	ND	
808085-9	8,27	50	0.02		0.0	6.30		126.0	5	126.0	126.0	ND	ND	
808085-10	8.33	50	0.02	0.00	0.0	6.50		130,0	5	130.0	130.0	0	ND	
808085-11	8.32	50	0.02	0.00	0.0	6.50		130.0	5	130.0	130.0	0	ND	
808085-11 DUP	8.33	50	0.02	0.00	0.0	6.45		129.0	5	129.0	129.0	0	ND	
808085-12	8.31	50	0.02	0.00	0.0	6.30		126.0	5	126.0	126.0	0	ND	
808085-13	8.32	50	0.02	0.0	0.0	5.90		118.0	5	118.0	118.0	0	ND	
808085-14	8.36	50	0.02	0.0	0.0	5.95		119.0	5	119.0	119.0	0	ND	50
808085-14 MS	9.52	50	0.02	2.5	49.0	11,60		232.0	5	232.0	134.0	98	ND	
808099-1	7.06	50	0.02		0.0	11.90		238.0	5	238.0	238.0	ND	ND	
808099-5	7,38	50	0.02		0.0	5.80		116.0	5	116.0	116.0	ND	ND	
808113-1	6.91	50	0.02		0.0	13.20		264.0	5	264.0	264.0	ND	ND	
808113-5	7.34	50	0.02		0.0	6,40		128.0	5	128.0	128.0	ND	ИD	
808151-20	8.12	50	0.02		0.0	5.80		116.0	5	116.0	116.0	ND	ND	
LCS	10.21	50	0.02	2.3	46.0	5,10		102.0	5	102.0	10.0	92	ND	
LCSD	10.28	50	0.02	2.4	48.0	5.05		101.0	5	101.0	5.0	96	ND	

Calculations as follows:

Tor P=

Where:

mL sample

T = Total Alkalinity, mg CaCO3/L

P = Phenolphthalein Alkalinity, mg CaCO3/L

A = mL standard acid used N = normality of standard acid Low Alkalinity: = as mg/L CaCO3

 $(2 \times B - C) \times N \times 50000$

mL sample

Where: B = mL titrant to first recorded pH

C = Total mL titrant to reach pH 0.3 unit lower

N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate

MS/MSD = Matrix Spike/Duplicate

ND = Not Detected (below the reporting limit)

Laboratory Control Sample (LCS/LCSD) Summary

Accept Limit

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Accetance Limit	QC Within Control?
LCS	102	100	102.0%	90-110	Yes
LCSD	101	100	101.0%	90-110	Yes

QC Within

Control?

Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
808085-11	130	129	0.8%	20%	Yes

Sample Matrix Spike (MS/MSD) Summary

Oumple Matri	v oblive (i	י נשטוווטוו	Guilliniai y										
Lab Number	Conc of Unspk spl	Dil Factor	Added Spk Conc	MS/MSD Amt	Measrd Conc of Spk Spl	Theor Conc of Spk Spl	MS/MSD % Rec	MS Accept Limit	QC Within Control?	RPD	RPD Accept Limit	QC Within Control?	
808085-14	1 19	1	100	100	232	219.00	113%	75-125	Yes				į
000003-14		1	100	100				70-120				1 1	ĺ

Melissa S Analyst Printed Name

Blank Summary

Measured

Value, ppm

Reporting

Limit, RL

5 ppm

Maksim G. Reviewer Printed Name

CH2MHILL

CHAIN OF CUSTODY RECORD

5/21/2013 3:12:17 PM

Project	Name PG	&E Topoc	k (Container:	3X250 ml Poly	250 Poly	500 ml	3x500	3x500	2x1	2x1	2x1	2x1		- 	
	n Topoc		_		(NH4)2S	(NH4)2S	Poly HNO3,	mi Poly HNO3,	ml Poly HNO3,	Liter 4°C	Liter 4°C	Liter 4°C	Liter 4°C		1	
Project	Manager .	Jay Piper	Pres	ervatives:	Ò4/NH4O H, 4°C	04/NH40 H, 4°C	4°C	4°C	4°C					Rec'd 5/21/13		
Sample	Manager 8	Shawn Dul	ffy	Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA	Rec'd 5/21/13 Sgd 8 0 8 0 8 5		
			Holo	ling Time:	28	28	180	180	180	14	14	14	14	59d		
Task Or Project Turnaro Shippin	Number 4 der 2013-RMA bund Time g Date: 5, imber: TL	P-191 10 Days /14/2013	5	Matrix	Cr6 (E218.6 - river) Field Filtered	Field QC Or6 (E218.6-river)	Metals (6010B) Total Fe	Metals (SW6010B/SW6020Adis) Field Filtered As,Mn,Fe,Se,Mo	Metals (6020A) Field Filtered Chromium	Specific Conductance (E120.1)	Alkalinity (SM2320B)	PH (SM4500HB)	TSS (SM2540)	ALERIII	Number of Containers	COMMENTS
C-BNS-D-	-191	5/20/2013	11:43	Water	х		X	Х	Х	Х	Х	х	Х		9	7
2 C-1-3-D-19	91	5/20/2013	10:10	Water	Х		Х	ж	ж	х	Х	Х	Х		9	
\$ C-I-3-S-19	91	5/20/2013	10:25	Water	Х		Х	X	Х	Х	Х	X	Х		9	DH=2,
C-MAR-D	-191	5/20/2013	12:51	Water	×		Х	х	Х	х	х	Х	Х		9	(60204
C-MAR-S	-191	5/20/2013	13:05	Water	х		Х	х	х	Х	Х	Х	х		9	1601013
C-MW-80	-191	5/20/2013	10:35	Water		х									1	
7 C-MW-81-	-191	5/20/2013	11:35	Water	<u> </u>	X									1	
C-R22A-D)-191	5/20/2013	11:03	Water	x			X	×	X	×	X	×		9	7
G-R22A-S	3-191	5/20/2013	11:21	Water	х		X	X	×	×	×	X	X		9	
C-R27-D-	191	5/20/2013	12:13	 	x		X	X	X	X	x	Х	Х	For Sample Conditions See Form Attached	9	- Constant of the Constant of
C-R27-S-		5/20/2013	12:29	 	X	 	X	X	×	x	×	×	X	For Sample Cullulus	1 9	m=2
C-TAZ-D-		5/20/2013	9:30	Water	х				X	x	×	x	x	Can Form Attached	1 9	6020/
C-TAZ-S-		5/20/2013	9:45	Water	×		x	X	×	X	x	X	x	266 LAIIII LIGAR	9	60/08
R63-191	·	5/20/2013	10:45	 	X	 	<u> </u>	 		X					9	
		JIEUTEUTS	10.40	1.00		1	X	Х	X	A	X	X	X			/

Approved by

Sampled by Family Inquished by

Redeived by

Relinquished by Received by

Date/Time 5-2/-/3 Signatures 1700

Shipping Details

Method of Shipment: FedEx

On Ice: yes / no

5-21-13 17-Airbill No: 5-21-13 23: Lab Name: Truesdail Laboratories, Inc.

5/21/13 23: (20) Lab Phone: (714) 730-6239

ATTN:

May 22-23, 2013

Special Instructions:

Sample Custody

Report Copy to

Shawn Duffy (530) 229-3303

Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	
5/15/13	807949-18	9.5	NA	NA	NA	NE
	-19					
	-20					
	-21					
	-22					
	-29				-	
	-24					
	V -25			>	\	
5/15/13	807947	7.0	201/100mc	9-5	7:45 am	124
05175/13	807948 -1	8,0	0.3ml /25ml	9.5	7:15 am	127
	-2	9.7	NA	NA	NA	
	-3	8.0	0,5 ml/25 ml	# 9.5	7:15 am	
	-4	9.5	NA	NA	NIA	
	-5	7.0	2ml/100ml	9.5ml	7:20 am	
	-6				7:25	
	-7				7:25	
	-8				7 = 36	
	-9				7:30	
	-/0				7:30	
	-//				7:35	
	-/2	1		<u> </u>	7:35	
5/22/13	808083	6.0	2 ml/100ml	9.5	10:15	724
5/22/13	808084-1	9.5	NA	NA	ng	727
	-2					
	-3					
	-4					
	2-					
	-6					
			<u> </u>	<u> </u>		
5/22/13	808085 -1	9,5	MA	NA	MA	Tan
	1 -21	1		<u> </u>		

NE 5/24/13

J5129/13

Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab	Number	Initia	al pH	Buffer A	dded (mL)	Fin	al pH	Time	Buffered	Ini	tials
05/22/13	8080	088 - 3	ک. 9		NA		N	<u> </u>	N.	A	72	7
		- 4										
		-5										
		-6										
		-7										
		-8										
		-9										
		-10										
		-11										
		-12		-								
		-13										
	\	1 -14	4	/		/	7	,		/		,
05/22/13	808 C	86 -1	9.5		NA		NI	4	NI	t	n	1
		-2										
		- 3										
		-4										
		-se										
		-6										
		7										
		-8										
		-9									\perp	
		-10						·				
		-11										
		-12						****				
		-13										
		-14										
		-15										
		-1.6		·							\perp	
1		-17			1		J		W	/	$\underline{\mathcal{J}}$	
05/23/13	80811	1-1	7.0		0.5ml/	25 ml	9.5		16:0		124	
4	<u>\lambda</u>	-2	<u> </u>				<u> </u>		<u> </u>		K	

(M) 5129 113



Turbidity/pH Check

Turbidity/pH Check											
Sample Number	Turbidity	рH	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments			
808085(1-5,8-14	1 41	12	5/22/13	ES	yes						
808086(2,5,8-17		1	L	V	V						
808061 (10-12)	41	72	5/22/13	ES	NO	3:30					
808075 (1-3)	-	ì	ì	1	1						
208077 (1-2, C-6)					1						
803098	J			1/	yes						
808093	350	DLID	SAMPLE	5/22/13 13	77LC						
\$08 107(1-3) To Tay	<1	42	5-23-13	BE	xes						
808099-1,-6	71	<2	5/23/13	ne	yee						
808116 (1- 2)	<1	>2	11	BE	NO.	13:00					
80816111-2			5-29-13	35-	24/ 0	10:30					
808179	1		5-30-13	1	y e5	2:30					
508158(1-4)	71	42	5/30/13.	n	yes			+			
808113(1,6)	9	i	1	1	0 i			•			
808112											
808111 (1-3)											
803109	41										
808129											
808157		٠,٠	5.4	J.	<u> </u>						
305175	71	<2	5-30-13	BE	xes						
808176(10-12)	<1	72		.	NO	10:30					
808186	>1	42	1	à	isu						
808188(1-3)	<١	72		35	yu No	14:30					
808 95	21	72	6/3/13	ES	y-es						
808 196	i	1	i	i	J -3						
808 20 3	1/										
808215	71	< Z	6/4/13	ES	y-es						
216	1	1	719717	7	972						
217		$\overline{}$									
808225 (17,24)	KI	72	6/4/13	ES	NO						
EC 8 5 6 8 (1-5)	<1	72	6-5-13	BE-	Xes	8 :30		after i.f			
80826761-5)		J,			j	L		after L.f			
808269		〈 2				VBE.					
80827161-31		1,		J,	1	100		19 D			
808268	<1	<2	6-5-13	BE	x e-3						
808270	1		1								
808272 (1-8)			1					Plant			
:				¥							
				+							
		-									

- 1. Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
- All Total Recoverable Analytes must be pH adjusted and digested.
 Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

Sample Integrity & Analysis Discrepancy Form

. •	Client: <u>E 2</u>	Lab # _ 8080
D	Date Delivered: 05/2//13 Time23:00 By: DMall 20	Field Service DClie
1.	Was a Chain of Custody received and signed?	AYes ONO ON
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ÞN//
<i>3.</i>	Are there any special requirements or notes on the COC?	TYes INO DANA
4.	If a letter was sent with the COC, does it match the COC?	☐Yes ☐No PAN/A
5 .	Were all requested analyses understood and acceptable?	☐Yes □No □N/A
6 .	Were samples received in a chilled condition? Temperature (if yes)? <u>Y. S. C.</u>	ØYes □No □N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	dYes □No □N/A
8.	Were sample custody seals intact?	□Yes □No ☑N/A
9.	Does the number of samples received agree with COC?	diYes □No □N/A
10.	Did sample labels correspond with the client ID's?	Yes QNo QN/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by:∕□Truesdall □Client	Tyes INO IN/A
12.	Were samples pH checked? pH = $\frac{Sel\ C.O.C.}{}$	AYes ONO ONA
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	DYes ONO ONA
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): □ RUSH	ØYes □No □N/A
'5 .	Sample Matrix:	ater DWaste Water
	ロSludge ロSoil ロWipe ロPaint ロSolid 対O	ther <u>Nater</u>
6.	Comments:	

est/Desktop/Forms A - D/Discrp.FormBlank.doc



Established 1931



14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

June 5, 2013

E2 Consulting Engineers, Inc. Mr. Shawn Duffy 155 Grand Ave., Suite 1000 Oakland, California 94612

Dear Mr. Duffy:

SUBJECT:

CASE NARRATIVE PG&E TOPOCK 2013-RMP-191, SURFACEWATER MONITORING

PROJECT, TLI NO.: 808086

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-RMP-191 surfacewater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody on May 21, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Samples for pH analysis by SM 4500-H B were received past the method specified holding time. Mr. Duffy approved the analysis of the samples.

Due to the discrepancy between the Total Dissolved Chromium (2.1 ug/L) and Hexavalent Chromium (ND<0.20 ug/L) results for sample SW2-191, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were both ND<1.0 ug/L. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and also yielded a result of ND<1.0 ug/L. The result from the re-digested Total Dissolved Chromium sample was reported as it more closely matched the results from the Total Dissolved Chromium re-analysis and Hexavalent Chromium sample container.

No other violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted, TRUESDAIL LABORATORIES, INC.

Lo Mona Nassimi

Manager, Analytical Services

Michael Ste

Michael Ngo

Quality Assurance/Quality Control Officer

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Event 2013-RMP-191 Cr by SW 6020, Surfacewater Samples Samples field filtered unless otherwise noted

Sample ID	Initial pH	pH adjustment needed?	Amount of additional acid needed	Final pH	Comments
SW1-191	2.00	No			
SW2-191	2.00	No			
C-CON-D-191	2.00	No			
C-CON-S-191	2.00	No			
C-NR1-D-191	2.00	No			
C-NR1-S-191	2.00	No			
C-NR3-D-191	2.00	No			
C-NR3-S-191	2.00	No			
C-NR4-D-191	2.00	No			
C-NR4-S-191	2.00	No			
R-19-191	2.00	No			
R-28-191	2.00	No			
RRB-191	2.00	No			





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Event 2013-RMP-191 Cr (VI) by EPA 218.6, Surfacewater Samples Samples field filtered unless otherwise noted

Sample ID	Initial pH	pH adjustment needed?	Amount of additional buffer needed	Final pH	Comments
RMP-AB1-191	9.50	No			
SW1-191	9.50	No			
SW2-191	9.50	No			
C-CON-D-191	9.50	No			
C-CON-S-191	9.50	No			
C-MW-82-191	9.50	No			
C-MW-83-191	9.50	No			_
C-NR1-D-191	9.50	No			
C-NR1-S-191	9.50	No			
C-NR3-D-191	9.50	No			
C-NR3-S-191	9.50	No			
C-NR4-D-191	9.50	No			
C-NR4-S-191	9.50	No			
R-19-191	9.50	No			
R-28-191	9.50	No			
RMP-AB2-191	9.50	No			
RRB-191	9.50	No			

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

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14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Laboratory No.: 808086 Date Received: May 21, 2013

Client: E2 Consulting Engineers, Inc. 155 Grand Ave. Suite 1000

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project Project No.: 423575.MP.02.RM P.O. No.: 423575.MP.02.RM

Analytical Results Summary

Lab Sample II) Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
808086-001	RMP-AB1-191	E218.6	LABFLT	5/20/2013	13:15	Chromium, Hexavalent	ND	ug/L	0.20
808086-002	SW1-191	E120.1	NONE	5/20/2013	7:45	EC	867	umhos/cm	2.00
808086-002	SW1-191	E218.6	FLDFLT	5/20/2013	7:45	Chromium, Hexavalent	ND	ug/L	0.20
808086-002	SW1-191	SM4500HB	NONE	5/20/2013	7:45	PH	7.42 J	рH	4.00
808086-002	SW1-191	SW6020	FLDFLT	5/20/2013	7:45	Chromium	ND	ug/L	1.0
808086-003	SW2-191	E120.1	NONE	5/20/2013	8:00	EC	853	umhos/cm	2.00
808086-003	SW2-191	E218.6	FLDFLT	5/20/2013	8:00	Chromium, Hexavalent	ND	ug/L	0.20
808086-003	SW2-191	SM4500HB	NONE	5/20/2013	8:00	PH	7.50 J	pН	4.00
808086-003	SW2-191	SW6020	FLDFLT	5/20/2013	8:00	Chromium	ND	ug/L	1.0
808086-004	C-CON-D-191	E120.1	NONE	5/21/2013	9:57	EC	836	umhos/cm	2.00
808086-004	C-CON-D-191	E218.6	FLDFLT	5/21/2013	9:57	Chromium, Hexavalent	ND	ug/L	0.20
808086-004	C-CON-D-191	SM2320B	NONE	5/21/2013	9:57	Alkalinity	132	mg/L	5.00
808086-004	C-CON-D-191	SM2320B	NONE	5/21/2013	9:57	Alkalinity, Bicarbonate (As CaCO3)	132	mg/L	5.00
808086-004	C-CON-D-191	SM2320B	NONE	5/21/2013	9:57	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808086-004	C-CON-D-191	SM2540D	NONE	5/21/2013	9:57	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
808086-004	C-CON-D-191	SM4500HB	NONE	5/21/2013	9:57	PH	8.26 J	pН	4.00
808086-004	C-CON-D-191	SW6010B	FLDFLT	5/21/2013	9:57	Iron	ND	ug/L	20.0
808086-004	C-CON-D-191	SW6010B	NONE	5/21/2013	9:57	Iron	ND	ug/L	20.0
808086-004	C-CON-D-191	SW6020	FLDFLT	5/21/2013	9:57	Arsenic	2.5	ug/L	0.50
808086-004	C-CON-D-191	SW6020	FLDFLT	5/21/2013	9:57	Chromium	ND	ug/L	1.0
808086-004	C-CON-D-191	SW6020	FLDFLT	5/21/2013	9:57	Manganese	0.68	ug/L	0.50
808086-004	C-CON-D-191	SW6020	FLDFLT	5/21/2013	9:57	Molybdenum	4.2	ug/L	2.0
808086-004	C-CON-D-191	SW6020	FLDFLT	5/21/2013	9:57	Selenium	ND	ug/L	5.0



Lab Sample II) Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
808086-005	C-CON-S-191	E120.1	NONE	5/21/2013	10:13	EC	834	umhos/cm	2.00
808086-005	C-CON-S-191	E218.6	FLDFLT	5/21/2013	10:13	Chromium, Hexavalent	ND	ug/L	0.20
808086-005	C-CON-S-191	SM2320B	NONE	5/21/2013	10:13	Alkalinity	135	mg/L	5.00
808086-005	C-CON-S-191	SM2320B	NONE	5/21/2013	10:13	Alkalinity, Bicarbonate (As CaCO3)	135	mg/L	5.00
808086-005	C-CON-S-191	SM2320B	NONE	5/21/2013	10:13	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808086-005	C-CON-S-191	SM2540D	NONE	5/21/2013	10:13	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
808086-005	C-CON-S-191	SM4500HB	NONE	5/21/2013	10:13	PH	8.27 J	рН	4.00
808086-005	C-CON-S-191	SW6010B	FLDFLT	5/21/2013	10:13	Iron	ND	ug/L	20.0
808086-005	C-CON-S-191	SW6010B	NONE	5/21/2013	10:13	Iron	ND	ug/L	20.0
808086-005	C-CON-S-191	SW6020	FLDFLT	5/21/2013	10:13	Arsenic	2.4	ug/L	0.50
808086-005	C-CON-S-191	SW6020	FLDFLT	5/21/2013	10:13	Chromium	ND	ug/L	1.0
808086-005	C-CON-S-191	SW6020	FLDFLT	5/21/2013	10:13	Manganese	0.74	ug/L	0.50
808086-005	C-CON-S-191	SW6020	FLDFLT	5/21/2013	10:13	Molybdenum	4.1	ug/L	2.0
808086-005	C-CON-S-191	SW6020	FLDFLT	5/21/2013	10:13	Selenium	ND	ug/L	5.0
808086-006	C-MW-82-191	E218.6	LABFLT	5/21/2013	8:40	Chromium, Hexavalent	ND	ug/L	0.20
808086-007	C-MW-83-191	E218.6	LABFLT	5/21/2013	9:47	Chromium, Hexavalent	ND	ug/L	0.20
808086-008	C-NR1-D-191	E120.1	NONE	5/21/2013	10:42	EC	834	umhos/cm	2.00
808086-008	C-NR1-D-191	E218.6	FLDFLT	5/21/2013	10:42	Chromium, Hexavalent	ND	ug/L	0.20
808086-008	C-NR1-D-191	SM2320B	NONE	5/21/2013	10:42	Alkalinity	132	mg/L	5.00
808086-008	C-NR1-D-191	SM2320B	NONE	5/21/2013	10:42	Alkalinity, Bicarbonate (As CaCO3)	132	mg/L	5.00
808086-008	C-NR1-D-191	SM2320B	NONE	5/21/2013	10:42	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808086-008	C-NR1-D-191	SM2540D	NONE	5/21/2013	10:42	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
808086-008	C-NR1-D-191	SM4500HB	NONE	5/21/2013	10:42	PH	8.27 J	pH	4.00
808086-008	C-NR1-D-191	SW6010B	FLDFLT	5/21/2013	10:42	Iron	ND	ug/L	20.0
808086-008	C-NR1-D-191	SW6010B	NONE	5/21/2013	10:42	Iron	26.1	ug/L	20.0
808086-008	C-NR1-D-191	SW6020	FLDFLT	5/21/2013	10:42	Arsenic	2.4	ug/L	0.50
808086-008	C-NR1-D-191	SW6020	FLDFLT	5/21/2013	10:42	Chromium	ND	ug/L	1.0
808086-008	C-NR1-D-191	SW6020	FLDFLT	5/21/2013	10:42	Manganese	0.64	ug/L	0.50
808086-008	C-NR1-D-191	SW6020	FLDFLT	5/21/2013	10:42	Molybdenum	4.2	ug/L	2.0
808086-008	C-NR1-D-191	SW6020	FLDFLT	5/21/2013	10:42	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
808086-009	C-NR1-S-191	E120.1	NONE	5/21/2013	10:55	EC	827	umhos/cm	2.00
808086-009	C-NR1-S-191	E218.6	FLDFLT	5/21/2013	10:55	Chromium, Hexavalent	ND	ug/L	0.20
808086-009	C-NR1-S-191	SM2320B	NONE	5/21/2013	10:55	Alkalinity	131	mg/L	5.00
808086-009	C-NR1-S-191	SM2320B	NONE	5/21/2013	10:55	Alkalinity, Bicarbonate (As CaCO3)	131	mg/L	5.00
808086-009	C-NR1-S-191	SM2320B	NONE	5/21/2013	10:55	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808086-009	C-NR1-S-191	SM2540D	NONE	5/21/2013	10:55	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
808086-009	C-NR1-S-191	SM4500HB	NONE	5/21/2013	10:55	PH	8.27 J	рH	4.00
808086-009	C-NR1-S-191	SW6010B	FLDFLT	5/21/2013	10:55	Iron	ND	ug/L	20.0
808086-009	C-NR1-S-191	SW6010B	NONE	5/21/2013	10:55	Iron	22.5	ug/L	20.0
808086-009	C-NR1-S-191	SW6020	FLDFLT	5/21/2013	10:55	Arsenic	2.5	ug/L	0.50
808086-009	C-NR1-S-191	SW6020	FLDFLT	5/21/2013	10:55	Chromium	ND	ug/L	1.0
808086-009	C-NR1-S-191	SW6020	FLDFLT	5/21/2013	10:55	Manganese	0.76	ug/L	0.50
808086-009	C-NR1-S-191	SW6020	FLDFLT	5/21/2013	10:55	Molybdenum	4.4	ug/L	2.0
808086-009	C-NR1-S-191	SW6020	FLDFLT	5/21/2013	10:55	Selenium	ND	ug/L	5.0
808086-010	C-NR3-D-191	E120.1	NONE	5/21/2013	11:17	EC	826	umhos/cm	2.00
808086-010	C-NR3-D-191	E218.6	FLDFLT	5/21/2013	11:17	Chromium, Hexavalent	ND	ug/L	0.20
808086-010	C-NR3-D-191	SM2320B	NONE	5/21/2013	11:17	Alkalinity	127	mg/L	5.00
808086-010	C-NR3-D-191	SM2320B	NONE	5/21/2013	11:17	Alkalinity, Bicarbonate (As CaCO3)	127	mg/L	5.00
808086-010	C-NR3-D-191	SM2320B	NONE	5/21/2013	11:17	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808086-010	C-NR3-D-191	SM2540D	NONE	5/21/2013	11:17	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
808086-010	C-NR3-D-191	SM4500HB	NONE	5/21/2013	11:17	PH	8.28 J	рН	4.00
808086-010	C-NR3-D-191	SW6010B	FLDFLT	5/21/2013	11:17	Iron	ND	ug/L	20.0
808086-010	C-NR3-D-191	SW6010B	NONE	5/21/2013	11:17	Iron	ND	ug/L	20.0
808086-010	C-NR3-D-191	SW6020	FLDFLT	5/21/2013	11:17	Arsenic	2.6	ug/L	0.50
808086-010	C-NR3-D-191	SW6020	FLDFLT	5/21/2013	11:17	Chromium	ND	ug/L	1.0
808086-010	C-NR3-D-191	SW6020	FLDFLT	5/21/2013	11:17	Manganese	0.70	ug/L	0.50
808086-010	C-NR3-D-191	SW6020	FLDFLT	5/21/2013	11:17	Molybdenum	4.2	ug/L	2.0
808086-010	C-NR3-D-191	SW6020	FLDFLT	5/21/2013	11:17	Selenium	ND	ug/L	5.0



		Analysis	Extraction		Sample				
Lab Sample ID	Field ID	Method	Method	Sample Date	Time	Parameter	Result	Units	RL
808086-011	C-NR3-S-191	E120.1	NONE	5/21/2013	11:30	EC	835	umhos/cm	2.00
808086-011	C-NR3-S-191	E218.6	FLDFLT	5/21/2013	11:30	Chromium, Hexavalent	ND	ug/L	0.20
808086-011	C-NR3-S-191	SM2320B	NONE	5/21/2013	11:30	Alkalinity	129	mg/L	5.00
808086-011	C-NR3-S-191	SM2320B	NONE	5/21/2013	11:30	Alkalinity, Bicarbonate (As CaCO3)	129	mg/L	5.00
808086-011	C-NR3-S-191	SM2320B	NONE	5/21/2013	11:30	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808086-011	C-NR3-S-191	SM2540D	NONE	5/21/2013	11:30	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
808086-011	C-NR3-S-191	SM4500HB	NONE	5/21/2013	11:30	PH	8.23 J	pН	4.00
808086-011	C-NR3-S-191	SW6010B	FLDFLT	5/21/2013	11:30	Iron	ND	ug/L	20.0
808086-011	C-NR3-S-191	SW6010B	NONE	5/21/2013	11:30	Iron	ND	ug/L	20.0
808086-011	C-NR3-S-191	SW6020	FLDFLT	5/21/2013	11:30	Arsenic	2.4	ug/L	0.50
808086-011	C-NR3-S-191	SW6020	FLDFLT	5/21/2013	11:30	Chromium	ND	ug/L	1.0
808086-011	C-NR3-S-191	SW6020	FLDFLT	5/21/2013	11:30	Manganese	0.80	ug/L	0.50
808086-011	C-NR3-S-191	SW6020	FLDFLT	5/21/2013	11:30	Molybdenum	4.0	ug/L	2.0
808086-011	C-NR3-S-191	SW6020	FLDFLT	5/21/2013	11:30	Selenium	ND	ug/L	5.0
808086-012	C-NR4-D-191	E120.1	NONE	5/21/2013	11:53	EC	836	umhos/cm	2.00
808086-012	C-NR4-D-191	E218.6	FLDFLT	5/21/2013	11:53	Chromium, Hexavalent	ND	ug/L	0.20
808086-012	C-NR4-D-191	SM2320B	NONE	5/21/2013	11:53	Alkalinity	127	mg/L	5.00
808086-012	C-NR4-D-191	SM2320B	NONE	5/21/2013	11:53	Alkalinity, Bicarbonate (As CaCO3)	127	mg/L	5.00
808086-012	C-NR4-D-191	SM2320B	NONE	5/21/2013	11:53	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808086-012	C-NR4-D-191	SM2540D	NONE	5/21/2013	11:53	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
808086-012	C-NR4-D-191	SM4500HB	NONE	5/21/2013	11:53	PH	8.20 J	pН	4.00
808086-012	C-NR4-D-191	SW6010B	FLDFLT	5/21/2013	11:53	Iron	ND	ug/L	20.0
808086-012	C-NR4-D-191	SW6010B	NONE	5/21/2013	11:53	Iron	ND	ug/L	20.0
808086-012	C-NR4-D-191	SW6020	FLDFLT	5/21/2013	11:53	Arsenic	2.4	ug/L	0.50
808086-012	C-NR4-D-191	SW6020	FLDFLT	5/21/2013	11:53	Chromium	ND	ug/L	1.0
808086-012	C-NR4-D-191	SW6020	FLDFLT	5/21/2013	11:53	Manganese	0.67	ug/L	0.50
808086-012	C-NR4-D-191	SW6020	FLDFLT	5/21/2013	11:53	Molybdenum	4.0	ug/L	2.0
808086-012	C-NR4-D-191	SW6020	FLDFLT	5/21/2013	11:53	Selenium	ND	ug/L	5.0



1 1.0. 1.15	. F. 1115	Analysis	Extraction	On and Date	Sample	Post of the	.		
Lab Sample ID	Field ID	Method	Method	Sample Date	Time	Parameter	Result	Units	RL
808086-013	C-NR4-S-191	E120.1	NONE	5/21/2013	12:08	EC	835	umhos/cm	2.00
808086-013	C-NR4-S-191	E218.6	FLDFLT	5/21/2013	12:08	Chromium, Hexavalent	ND	ug/L	0.20
808086-013	C-NR4-S-191	SM2320B	NONE	5/21/2013	12:08	Alkalinity	123	mg/L	5.00
808086-013	C-NR4-S-191	SM2320B	NONE	5/21/2013	12:08	Alkalinity, Bicarbonate (As CaCO3)	123	mg/L	5.00
808086-013	C-NR4-S-191	SM2320B	NONE	5/21/2013	12:08	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808086-013	C-NR4-S-191	SM2540D	NONE	5/21/2013	12:08	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
808086-013	C-NR4-S-191	SM4500HB	NONE	5/21/2013	12:08	PH	8.09 J	pН	4.00
808086-013	C-NR4-S-191	SW6010B	FLDFLT	5/21/2013	12:08	Iron	ND	ug/L	20.0
808086-013	C-NR4-S-191	SW6010B	NONE	5/21/2013	12:08	Iron	ND	ug/L	20.0
808086-013	C-NR4-S-191	SW6020	FLDFLT	5/21/2013	12:08	Arsenic	2.5	ug/L	0.50
808086-013	C-NR4-S-191	SW6020	FLDFLT	5/21/2013	12:08	Chromium	ND	ug/L	1.0
808086-013	C-NR4-S-191	SW6020	FLDFLT	5/21/2013	12:08	Manganese	0.74	ug/L	0.50
808086-013	C-NR4-S-191	SW6020	FLDFLT	5/21/2013	12:08	Molybdenum	4.1	ug/L	2.0
808086-013	C-NR4-S-191	SW6020	FLDFLT	5/21/2013	12:08	Selenium	ND	ug/L	5.0
808086-014	R-19-191	E120.1	NONE	5/21/2013	9:16	EC	835	umhos/cm	2.00
808086-014	R-19-191	E218.6	FLDFLT	5/21/2013	9:16	Chromium, Hexavalent	ND	ug/L	0.20
808086-014	R-19-191	SM2320B	NONE	5/21/2013	9:16	Alkalinity	126	mg/L	5.00
808086-014	R-19-191	SM2320B	NONE	5/21/2013	9:16	Alkalinity, Bicarbonate (As CaCO3)	126	mg/L	5.00
808086-014	R-19-191	SM2320B	NONE	5/21/2013	9:16	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808086-014	R-19-191	SM2540D	NONE	5/21/2013	9:16	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
808086-014	R-19-191	SM4500HB	NONE	5/21/2013	9:16	PH	8.30 J	pΗ	4.00
808086-014	R-19-191	SW6010B	FLDFLT	5/21/2013	9:16	Iron	ND	ug/L	20.0
808086-014	R-19-191	SW6010B	NONE	5/21/2013	9:16	Iron	20.2	ug/L	20.0
808086-014	R-19-191	SW6020	FLDFLT	5/21/2013	9:16	Arsenic	2.5	ug/L	0.50
808086-014	R-19-191	SW6020	FLDFLT	5/21/2013	9:16	Chromium	ND	ug/L	1.0
808086-014	R-19-191	SW6020	FLDFLT	5/21/2013	9:16	Manganese	0.95	ug/L	0.50
808086-014	R-19-191	SW6020	FLDFLT	5/21/2013	9:16	Molybdenum	3.9	ug/L	2.0
808086-014	R-19-191	SW6020	FLDFLT	5/21/2013	9:16	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	Di
									RL
808086-015	R-28-191	E120.1	NONE	5/21/2013	8:56	EC	836	umhos/cm	2.00
808086-015	R-28-191	E218.6	FLDFLT	5/21/2013	8:56	Chromium, Hexavalent	ND	ug/L	0.20
808086-015	R-28-191	SM2320B	NONE	5/21/2013	8:56	Alkalinity	127	mg/L	5.00
808086-015	R-28-191	SM2320B	NONE	5/21/2013	8:56	Alkalinity, Bicarbonate (As CaCO3)	127	mg/L	5.00
808086-015	R-28-191	SM2320B	NONE	5/21/2013	8:56	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808086-015	R-28-191	SM2540D	NONE	5/21/2013	8:56	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
808086-015	R-28-191	SM4500HB	NONE	5/21/2013	8:56	PH	8.23 J	pН	4.00
808086-015	R-28-191	SW6010B	FLDFLT	5/21/2013	8:56	Iron	ND	ug/L	20.0
808086-015	R-28-191	SW6010B	NONE	5/21/2013	8:56	Iron	ND	ug/L	20.0
808086-015	R-28-191	SW6020	FLDFLT	5/21/2013	8:56	Arsenic	2.3	ug/L	0.50
808086-015	R-28-191	SW6020	FLDFLT	5/21/2013	8:56	Chromium	ND	ug/L	1.0
808086-015	R-28-191	SW6020	FLDFLT	5/21/2013	8:56	Manganese	0.91	ug/L	0.50
808086-015	R-28-191	SW6020	FLDFLT	5/21/2013	8:56	Molybdenum	4.0	ug/L	2.0
808086-015	R-28-191	SW6020	FLDFLT	5/21/2013	8:56	Selenium	ND	ug/L	5.0
808086-016	RMP-AB2-191	E218.6	LABFLT	5/21/2013	12:16	Chromium, Hexavalent	ND	ug/L	0.20
808086-017	RRB-191	E120.1	NONE	5/21/2013	9:28	EC	844	umhos/cm	2.00
808086-017	RRB-191	E218.6	FLDFLT	5/21/2013	9:28	Chromium, Hexavalent	ND	ug/L	0.20
808086-017	RRB-191	SM2320B	NONE	5/21/2013	9:28	Alkalinity	114	mg/L	5.00
808086-017	RRB-191	SM2320B	NONE	5/21/2013	9:28	Alkalinity, Bicarbonate (As CaCO3)	114	mg/L	5.00
808086-017	RRB-191	SM2320B	NONE	5/21/2013	9:28	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808086-017	RRB-191	SM2540D	NONE	5/21/2013	9:28	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
808086-017	RRB-191	SM4500HB	NONE	5/21/2013	9:28	PH	8.19 J	рН	4.00
808086-017	RRB-191	SW6010B	FLDFLT	5/21/2013	9:28	Iron	ND	ug/L	20.0
808086-017	RRB-191	SW6010B	NONE	5/21/2013	9:28	Iron	38.3	ug/L	20.0
808086-017	RRB-191	SW6020	FLDFLT	5/21/2013	9:28	Arsenic	2.5	ug/L	0.50
808086-017	RRB-191	SW6020	FLDFLT	5/21/2013	9:28	Chromium	ND	ug/L	1.0
808086-017	RRB-191	SW6020	FLDFLT	5/21/2013	9:28	Manganese	5.2	ug/L	0.50
808086-017	RRB-191	SW6020	FLDFLT	5/21/2013	9:28	Molybdenum	4.0	ug/L	2.0
808086-017	RRB-191	SW6020	FLDFLT	5/21/2013	9:28	Selenium	ND	ug/L	5.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

Note: The following "Significant Figures" rule has been applied to all results:

Results below 0.01ppm will have two (2) significant figures.

Result above or equal to 0.01ppm will have three (3) significant figures.

Quality Control data will always have three (3) significant figures.

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Collected

05/21/2013 09:16

05/21/2013 08:56

05/21/2013 12:16

05/21/2013 09:28

Established 1931

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14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

Printed 6/5/2013

Matrix

Water Water

Water

Water

Laboratory No. 808086

REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project Project Number: 423575.MP.02.RM P.O. Number: 423575.MP.02.RM

Release Number:

Field ID

R-19-191

R-28-191

RRB-191

RMP-AB2-191

Samples Received on 5/21/2013 11:00:00 PM

Lab ID

808086-014

808086-015

808086-016

808086-017

 i icia ib	Labib	Odlicolou	MIGHIX
RMP-AB1-191	808086-001	05/20/2013 13:15	Water
SW1-191	808086-002	05/20/2013 07:45	Water
SW2-191	808086-003	05/20/2013 08:00	Water
C-CON-D-191	808086-004	05/21/2013 09:57	Water
C-CON-S-191	808086-005	05/21/2013 10:13	Water
C-MW-82-191	808086-006	05/21/2013 08:40	Water
C-MW-83-191	808086-007	05/21/2013 09:47	Water
C-NR1-D-191	808086-008	05/21/2013 10:42	Water
C-NR1-S-191	808086-009	05/21/2013 10:55	Water
C-NR3-D-191	808086-010	05/21/2013 11:17	Water
C-NR3-S-191	808086-011	05/21/2013 11:30	Water
C-NR4-D-191	808086-012	05/21/2013 11:53	Water
C-NR4-S-191	808086-013	05/21/2013 12:08	Water

Alkalinity by SM 2320B		Batch 05ALK13I				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
808086-004 Alkalinity as CaCO3	mg/L	05/30/2013	1.00	1.68	5.00	132
Bicarbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	132
Carbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	ND
808086-005 Alkalinity as CaCO3	mg/L	05/30/2013	1.00	1.68	5.00	135
Bicarbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	135
Carbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	ND
808086-008 Alkalinity as CaCO3	mg/L	05/30/2013	1.00	1.68	5.00	132
Bicarbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	132
Carbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	ND



Client: E2 Consulting E	Engineers, In		roject Name: roject Numbe	PG&E Topo r: 423575.MP	-	ot	Page 2 of 26 Printed 6/5/2013		
808086-009 Alkalinity as C	aCO3	mg/L	05/30	/2013	1.00	1.68	5.00	131	
Bicarbonate (C		mg/L		/2013	1.00	1.68	5.00	131	
Carbonate (Ca	•	mg/L	05/30		1.00	1.68	5.00	ND	
808086-010 Alkalinity as Ca	•	mg/L	05/30		1.00	1.68	5.00	127	
Bicarbonate (C		mg/L	05/30		1.00	1.68	5.00	127	
Carbonate (Ca	•	mg/L	05/30	/2013	1.00	1.68	5.00	ND	
808086-011 Alkalinity as Ca	aCO3	mg/L	05/30	/2013	1.00	1.68	5.00	129	
Bicarbonate (C	Calculated)	mg/L	05/30	/2013	1.00	1.68	5.00	129	
Carbonate (Ca	lculated)	mg/L	05/30	/2013	1.00	1.68	5.00	ND	
808086-012 Alkalinity as Ca	aCO3	mg/L	05/30	/2013	1.00	1.68	5.00	127	
Bicarbonate (C	Calculated)	mg/L	05/30	/2013	1.00	1.68	5.00	127	
Carbonate (Ca	lculated)	mg/L	05/30	/2013	1.00	1.68	5.00	ND	
808086-013 Alkalinity as Ca	aCO3	mg/L	05/30	/2013	1.00	1.68	5.00	123	
Bicarbonate (C	Calculated)	mg/L	05/30	/2013	1.00	1.68	5.00	123	
Carbonate (Ca	lculated)	mg/L	05/30	/2013	1.00	1.68	5.00	ND	
808086-014 Alkalinity as Ca	aCO3	mg/L	05/30	/2013	1.00	1.68	5.00	126	
Bicarbonate (C	Calculated)	mg/L	05/30	/2013	1.00	1.68	5.00	126	
Carbonate (Ca	lculated)	mg/L	05/30	/2013	1.00	1.68	5.00	ND	
808086-015 Alkalinity as Ca	aCO3	mg/L	05/30	/2013	1.00	1.68	5.00	127	
Bicarbonate (C	calculated)	mg/L	05/30	/2013	1.00	1.68	5.00	127	
Carbonate (Ca	lculated)	mg/L	05/30	/2013	1.00	1.68	5.00	ND	
808086-017 Alkalinity as Ca	aCO3	mg/L	05/30	/2013	1.00	1.68	5.00	114	
Bicarbonate (C	Calculated)	mg/L	05/30	/2013	1.00	1.68	5.00	114	
Carbonate (Ca	lculated)	mg/L	05/30	/2013	1.00	1.68	5.00	ND	
Method Blank									
Parameter	Unit	DF	Result						
Alkalinity as CaCO3	mg/L	1.00	ND						
Duplicate							Lab ID =	808086-011	
Parameter	Unit	DF	Result	Expected	R	PD	-	nce Range	
Alkalinity as CaCO3	mg/L	1.00	125	129		3.15	0 - 20		
Lab Control Sample									
Parameter	Unit	DF	Result	Expected	R	ecovery	•	nce Range	
Alkalinity as CaCO3	mg/L	1.00	101	100		101	90 - 110	•	
Lab Control Sample	•								
Parameter	Unit	DF	Result	Expected	R	ecovery	-	nce Range	
Alkalinity as CaCO3	mg/L	1.00	100	100		100	90 - 110	•	



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project Page 3 of 26

Project Number: 423575.MP.02.RM

Printed 6/5/2013

Matrix Spike

Lab ID = 808086-011

Parameter Alkalinity as CaCO3

Unit mg/L

DF 1.00 Result 227

Expected/Added 229(100)

Recovery 98.0

Acceptance Range

75 - 125



Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.RM

Printed 6/5/2013

Specific Conductivity -	EPA 120.1		Batch	05EC13M				
Parameter		Unit	Ana	Analyzed		MDL	RL	Result
808086-002 Specific Condu	ıctivity	umhos/	cm 05/31	1/2013	1.00	0.116	2.00	867
808086-003 Specific Condu	ıctivity	umhos/	cm 05/31	05/31/2013		0.116	2.00	853
808086-004 Specific Condu	ctivity	umhos/	cm 05/31	/2013	1.00	0.116	2.00	836
808086-005 Specific Condu	ctivity	umhos/	cm 05/31	/2013	1.00	0.116	2.00	834
808086-008 Specific Condu	ctivity	umhos/	cm 05/31	1/2013	1.00	0.116	2.00	834
808086-009 Specific Condu	ıctivity	umhos/	cm 05/31	1/2013	1.00	0.116	2.00	827
808086-010 Specific Condu	ctivity	umhos/	cm 05/31	/2013	1.00	0.116	2.00	826
808086-011 Specific Condu	ctivity	umhos/	cm 05/31	/2013	1.00	0.116	2.00	835
808086-012 Specific Condu	ctivity	umhos/	cm 05/31	/2013	1.00	0.116	2.00	836
808086-013 Specific Condu	ctivity	umhos/	cm 05/31	1/2013	1.00	0.116	2.00	835
808086-014 Specific Condu	ctivity	umhos/	cm 05/31	1/2013	1.00	0.116	2.00	835
808086-015 Specific Condu	ctivity	umhos/	cm 05/31	/2013	1.00	0.116	2.00	836
808086-017 Specific Condu	ctivity	umhos/	cm 05/31	/2013	1.00	0.116	2.00	844
Specific Conductivity Duplicate Parameter	umhos Unit	1.00 DF	ND Result	Expected		SPD		808086-01 ance Rang
Parameter Specific Conductivity	umhos	1.00	Result 836	Expected 835	r	0.120	0 - 10	ance Range
Duplicate	A. A. C.	7.00 20%	24-F69-11-11			- 0.120 27 aug 31317		808086-017
Parameter	Unit	DF	Result	Functed		e estimatorio. RPD		
Specific Conductivity	umhos	1.00	843	Expected 844	Г	0.118	0 - 10	ance Range
Lab Control Sample		1988 a	49/44	Artinista.				
Parameter Specific Conductivity	Unit umhos	DF 1.00	Result 690	Expected 706	F	Recovery 97.7	Accepta 90 - 110	ance Range
Lab Control Sample	Duplicate							
Parameter Specific Conductivity	Unit umhos	DF 1.00	Result 703	Expected 706	F	Recovery 99.6	Accepta 90 - 110	ance Range)
MRCCS - Secondary	y							
Parameter Specific Conductivity	Unit umhos	DF 1.00	Result 698	Expected 706	F	Recovery 98.9	Accepta 90 - 110	ance Range)



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.02.RM

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Metals by EPA 6010B, T	otal		Batch	052813A-Th2			
Parameter		Unit	Ana	lyzed	DF MDL	. RL	Result
808086-004 Iron		ug/L	05/28	/2013 13:23	.00 9.50	20.0	ND
808086-005 Iron		ug/L	05/28	/2013 14:12	1.00 9.50	20.0	ND
808086-008 Iron		ug/L	05/28	/2013 14:18 1	1.00 9.50	20.0	26.1
808086-009 iron		ug/L	05/28	/2013 14:25 1	1.00 9.50	20.0	22.5
808086-010 Iron		ug/L	05/28	/2013 14:31 1	1.00 9.50	20.0	ND
808086-011 Iron		ug/L	05/28	/2013 14:37 1	1.00 9.50	20.0	ND
808086-012 Iron		ug/L	05/28	/2013 14:43 1	1.00 9.50	20.0	ND
808086-013 Iron		ug/L	05/28	/2013 14:49 1	1.00 9.50	20.0	ND
808086-014 Iron		ug/L	05/28	/2013 14:56 1	9.50	20.0	20.2
808086-015 Iron		ug/L	05/28	/2013 15:02 1	9.50	20.0	ND
808086-017 Iron		ug/L	05/28	/2013 15:08 1	1.00 9.50	20.0	38.3
Method Blank							
Parameter	Unit	DF	Result				
Iron	ug/L	1.00	ND				
Duplicate						Lab ID =	808086-004
Parameter	Unit	DF	Result	Expected	RPD	Accepta	ance Range
Iron	ug/L	1.00	ND	0	0	0 - 20	
Lab Control Sample							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	ance Range
Iron	ug/L	1.00	2130	2000	106	85 - 11	5
Matrix Spike						Lab ID =	808086-004
Parameter	Unit	DF	Result	Expected/Adde	ed Recovery	Accepta	ance Range
Iron	ug/L	1.00	1980	2000(2000)	98.8	75 - 12	5
Matrix Spike Duplicate	ė (1750 m.).					Lab ID =	808086-004
Parameter	Unit	DF	Result	Expected/Adde	ed Recovery	Accepta	ance Range
Iron	ug/L	1.00	1980	2000(2000)	99.2	75 - 12	5
MRCCS - Secondary							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	ance Range
Iron	ug/L	1.00	5040	5000	101	90 - 110	כ
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	ance Range
Iron	ug/L	1.00	5260	5000	105	90 - 110)



Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.RM Printed 6/5/2013

Chrome VI by EPA 218.6)		Batch	05CrH13M				
Parameter		Unit	Anal	yzed	DF	MDL	RL	Result
808086-001 Chromium, Hexa	avalent	ug/L	05/23/	/2013 13:51	1.00	0.00920	0.20	ND
808086-002 Chromium, Hexa	avalent	ug/L	05/23/	/2013 14:01	1.00	0.00920	0.20	ND
808086-003 Chromium, Hexa	avalent	ug/L	05/23/	/2013 14:12	1.00	0.00920	0.20	ND
808086-004 Chromium, Hexa	avalent	ug/L	05/23/	/2013 14:22	1.00	0.00920	0.20	ND
808086-005 Chromium, Hexa	avalent	ug/L	05/23/	/2013 14:33	1.00	0.00920	0.20	ND
808086-008 Chromium, Hexa	avalent	ug/L	05/23/	/2013 15:04	1.00	0.00920	0.20	ND
808086-009 Chromium, Hexa	avalent	ug/L	05/23/	/2013 15:35	1.00	0.00920	0.20	ND
808086-010 Chromium, Hexa	avalent	ug/L	05/23/	/2013 15:46	1.00	0.00920	0.20	ND
808086-011 Chromium, Hexa	avalent	ug/L	05/23/	/2013 15:56	1.00	0.00920	0.20	ND
808086-012 Chromium, Hexa	avalent	ug/L	05/23/	2013 16:06	1.00	0.00920	0.20	ND
808086-013 Chromium, Hexa	avalent	ug/L	05/23/	/2013 16:17	1.00	0.00920	0.20	ND
808086-014 Chromium, Hexa	avalent	ug/L	05/23/	2013 16:27	1.00	0.00920	0.20	ND
808086-015 Chromium, Hexa	avalent	ug/L	/L 05/23/2013 16:38		1.00	0.00920	0.20	ND
808086-016 Chromium, Hexavalent		ug/L	05/23/	2013 16:48	1.00	0.00920	0.20	ND
Method Blank				a Singha Sala		ana u Minis		
Parameter	Unit	DF	Result					
Chromium, Hexavalent	ug/L	1.00	ND					
Duplicate							Lab ID =	808086-00
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	0.0374	0.0362		3.26	0 - 20	
Low Level Calibration	Verification							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	0.204	0.200		102	70 - 130)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	4.94	5.00		98.8	90 - 110)
Matrix Spike							Lab ID =	807949-01
Parameter	Unit	DF	Result	Expected/Add	ed F	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	250	7890	7860(3750)		101	90 - 110)
Matrix Spike							Lab ID =	807949-02
Parameter	Unit	DF	Result	Expected/Add	ed F	Recovery	•	ance Range
Chromium, Hexavalent	ug/L	250	9920	10000(5000)		98.3	90 - 110)



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Matrix Spike					Lab ID = 808086-001	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.04	Expected/Added 1.02(1.00)	Recovery 102	Acceptance Range 90 - 110 Lab ID = 808086-002
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.04	Expected/Added 1.02(1.00)	Recovery 102	Acceptance Range 90 - 110
Matrix Spike Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.03	Expected/Added 1.02(1.00)	Recovery 101	Acceptance Range 90 - 110 Lab ID = 808086-004
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.05	Expected/Added 1.04(1.00)	Recovery 102	Acceptance Range 90 - 110 Lab ID = 808086-005
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.04(1.00)	Recovery 97.4	Acceptance Range 90 - 110 Lab ID = 808086-008
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.03	Expected/Added 1.04(1.00)	Recovery 99.4	Acceptance Range 90 - 110 Lab ID = 808086-009
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.06	Expected/Added 1.04(1.00)	Recovery 103	Acceptance Range 90 - 110
Matrix Spike Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.06	Expected/Added 1.04(1.00)	Recovery 102	Lab ID = 808086-010 Acceptance Range 90 - 110 Lab ID = 808086-011
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.07	Expected/Added 1.04(1.00)	Recovery 103	Acceptance Range 90 - 110
Matrix Spike Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.02	Expected/Added 1.04(1.00)	Recovery 98.6	Lab ID = 808086-012 Acceptance Range 90 - 110 Lab ID = 808086-013
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.06	Expected/Added 1.04(1.00)	Recovery 103	Acceptance Range 90 - 110 Lab ID = 808086-014
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.07	Expected/Added 1.04(1.00)	Recovery 103	Acceptance Range 90 - 110



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Matrix Spike					Lab ID = 808086-015			
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.05	Expected/Added 1.04(1.00)	Recovery 101	Acceptance Range 90 - 110 Lab ID = 808086-016		
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 1.00	Result 1.03	Expected/Added 1.01(1.00)	Recovery 102	Acceptance Range 90 - 110		
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 4.93	Expected 5.00	Recovery 98.6	Acceptance Range 90 - 110		
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.3	Expected 10.0	Recovery 103	Acceptance Range 95 - 105		
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105		
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105		
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105		
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105		
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 10.3	Expected 10.0	Recovery 103	Acceptance Range 95 - 105		



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Chrome VI by EPA 218.6	3		Batch	05CrH13N				
Parameter		Unit	Anal	yzed	DF	MDL	RL	Result
808086-006 Chromium, Hex	avalent	ug/L	05/24/2013 10:46		1.00	0.00920	0.20	ND
808086-007 Chromium, Hex	avalent	ug/L	05/24/	/2013 10:56	1.00	0.00920	0.20	ND
808086-017 Chromium, Hex	avalent	ug/L	05/24	/2013 11:06	1.00	0.00920	0.20	ND
Method Blank								
Parameter	Unit	DF	Result					
Chromium, Hexavalent	ug/L	1.00	ND					
Duplicate							Lab ID =	808086-017
Parameter	Unit	DF	Result	Expected	i	RPD	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	0.0383	0.0342		11.3	0 - 20	
Low Level Calibration	Verification	rfføyette						
Parameter	Unit	DF	Result	Expected	ł	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	0.207	0.200		104	70 - 130)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	ı	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	5.01	5.00		100	90 - 110)
Matrix Spike							Lab ID =	808083-001
Parameter	Unit	DF	Result	Expected/Ad	ded l	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	1.16	1.13(1.00)		102	90 - 110)
Matrix Spike							Lab ID =	808084-001
Parameter	Unit	DF	Result	Expected/Ad	ded I	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	0.984	1.00(1.00)		98.4	90 - 110)
Matrix Spike							Lab ID =	808084-001
Parameter	Unit	DF	Result	Expected/Ad	ded l	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	5.00	4.97	5.00(5.00)		99.4	90 - 110)
Matrix Spike	and the second seco	و در	et de finale de como estado en estado en entre br>La como entre en en			periodici proprieta de la companya del companya de la companya del companya de la	Lab ID =	808084-002
Parameter	Unit	DF	Result	Expected/Ad	ded l	Recovery	Accepta	nce Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.02(1.00)		102	90 - 110)
Matrix Spike							Lab ID =	808084-003
Parameter	Unit	DF	Result	Expected/Ad	ded l	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	0.965	1.00(1.00)		96.5	90 - 110)
Matrix Spike							Lab ID =	808084-003
Parameter	Unit	DF	Result	Expected/Ad	ded I	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	5.00	5.17	5.06(5.00)		102	90 - 110)



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Matrix Spike						Lab ID = 808084-004	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 5.23	Expected/Added 5.07(5.00)	Recovery 103	Acceptance Range 90 - 110 Lab ID = 808084-004	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.01	Expected/Added 1.00(1.00)	Recovery 101	Acceptance Range 90 - 110 Lab ID = 808084-005	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 5.05	Expected/Added 5.00(5.00)	Recovery 101	Acceptance Range 90 - 110 Lab ID = 808084-005	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.995	Expected/Added 1.00(1.00)	Recovery 99.5	Acceptance Range 90 - 110 Lab ID = 808084-006	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 5.12	Expected/Added 5.13(5.00)	Recovery 99.8	Acceptance Range 90 - 110 Lab ID = 808084-006	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.966	Expected/Added 1.00(1.00)	Recovery 96.6	Acceptance Range 90 - 110 Lab ID = 808084-007	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 0.954	Expected/Added 1.00(1.00)	Recovery 95.4	Acceptance Range 90 - 110 Lab ID = 808084-007	
Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 5.00	Result 5.18	Expected/Added 5.08(5.00)	Recovery 102	Acceptance Range 90 - 110 Lab ID = 808086-006	
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 1.04	Expected/Added 1.00(1.00)	Recovery 104	Acceptance Range 90 - 110	
Matrix Spike Parameter Chromium, Hexavalent Matrix Spike	Unit ug/L	DF 1.00	Result 1.02	Expected/Added 1.00(1.00)	Recovery 102	Lab ID = 808086-007 Acceptance Range 90 - 110 Lab ID = 808086-017	
Parameter Chromium, Hexavalent MRCCS - Secondary	Unit ug/L	DF 1.00	Result 1.06	Expected/Added 1.03(1.00)	Recovery 103	Acceptance Range 90 - 110	
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 4.93	Expected 5.00	Recovery 98.6	Acceptance Range 90 - 110	



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	PA 6020A, Dissolv		Batch 052913A-ICPMS-1						
Parameter		Unit	Analyzed	DF	MDL	RL	Resul		
808086-002 Ch	romium	ug/L	05/29/2013 11:59	2.00	0.184	1.0	ND		
808086-004 Ar	senic	ug/L	05/29/2013 09:28	2.00	0.200	0.50	2.5		
Ch	romium	ug/L	05/29/2013 09:28	2.00	0.184	1.0	ND		
Ma	anganese	ug/L	05/29/2013 09:28	2.00	0.172	0.50	0.68		
Mo	olybdenum	ug/L	05/29/2013 09:28	2.00	0.414	2.0	4.2		
Se	elenium	ug/L	05/29/2013 09:28	2.00	0.160	5.0	ND		
308086-005 Ar	senic	ug/L	05/29/2013 10:19	2.00	0.200	0.50	2.4		
Ch	nromium	ug/L	05/29/2013 10:19	2.00	0.184	1.0	ND		
Ma	anganese	ug/L	05/29/2013 10:19	2.00	0.172	0.50	0.74		
Mo	olybdenum	ug/L	05/29/2013 10:19	2.00	0.414	2.0	4.1		
Se	elenium	ug/L	05/29/2013 10:19	2.00	0.160	5.0	ND		
308086-008 Ars	senic	ug/L	05/29/2013 10:26	2.00	0.200	0.50	2.4		
Ch	romium	ug/L	05/29/2013 10:26	2.00	0.184	1.0	ND		
Ma	anganese	ug/L	05/29/2013 10:26	2.00	0.172	0.50	0.64		
Mc	olybdenum	ug/L	05/29/2013 10:26	2.00	0.414	2.0	4.2		
Se	elenium	ug/L	05/29/2013 10:26	2.00	0.160	5.0	ND		
308086-009 Ars	senic	ug/L	05/29/2013 10:33	2.00	0.200	0.50	2.5		
Ch	romium	ug/L	05/29/2013 10:33	2.00	0.184	1.0	ND		
Ma	anganese	ug/L	05/29/2013 10:33	2.00	0.172	0.50	0.76		
Mc	olybdenum	ug/L	05/29/2013 10:33	2.00	0.414	2.0	4.4		
Se	lenium	ug/L	05/29/2013 10:33	2.00	0.160	5.0	ND		
308086-010 Ars	senic	ug/L	05/29/2013 10:40	2.00	0.200	0.50	2.6		
Ch	romium	ug/L	05/29/2013 10:40	2.00	0.184	1.0	ND		
Ma	anganese	ug/L	05/29/2013 10:40	2.00	0.172	0.50	0.70		
Mc	olybdenum	ug/L	05/29/2013 10:40	2.00	0.414	2.0	4.2		
Se	lenium	ug/L	05/29/2013 10:40	2.00	0.160	5.0	ND		
308086-011 Ars	senic	ug/L	05/29/2013 10:47	2.00	0.200	0.50	2.4		
Ch	romium	ug/L	05/29/2013 10:47	2.00	0.184	1.0	ND		
Ma	anganese	ug/L	05/29/2013 10:47	2.00	0.172	0.50	0.80		
Mo	olybdenum	ug/L	05/29/2013 10:47	2.00	0.414	2.0	4.0		
Se	lenium	ug/L	05/29/2013 10:47	2.00	0.160	5.0	ND		
308086-012 Ars	senic	ug/L	05/29/2013 11:23	2.00	0.200	0.50	2.4		
Ch	romium	ug/L	05/29/2013 11:23	2.00	0.184	1.0	ND		
Ma	anganese	ug/L	05/29/2013 11:23	2.00	0.172	0.50	0.67		



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808086-012 Molybdenum		ug/L	05/29/	2013 11:23	2.00	0.414	2.0	4.0
Selenium		ug/L	05/29/	2013 11:23	2.00	0.160	5.0	ND
808086-013 Arsenic		ug/L	05/29/	2013 11:01	2.00	0.200	0.50	2.5
Chromium		ug/L	05/29/	2013 11:01	2.00	0.184	1.0	ND
Manganese		ug/L	05/29/	2013 11:01	2.00	0.172	0.50	0.74
Molybdenum		ug/L	05/29/	2013 11:01	2.00	0.414	2.0	4.1
Selenium		ug/L	05/29/	2013 11:01	2.00	0.160	5.0	ND
808086-014 Arsenic		ug/L	05/29/	2013 11:09	2.00	0.200	0.50	2.5
Chromium		ug/L	05/29/	2013 11:09	2.00	0.184	1.0	ND
Manganese		ug/L	05/29/	2013 11:09	2.00	0.172	0.50	0.95
Molybdenum		ug/L	05/29/	2013 11:09	2.00	0.414	2.0	3.9
Selenium		ug/L	05/29/	2013 11:09	2.00	0.160	5.0	ND
808086-015 Arsenic		ug/L	05/29/	2013 11:16	2.00	0.200	0.50	2.3
Chromium		ug/L	05/29/	2013 11:16	2.00	0.184	1.0	ND
Manganese		ug/L	05/29/	2013 11:16	2.00	0.172	0.50	0.91
Molybdenum		ug/L	05/29/	2013 11:16	2.00	0.414	2.0	4.0
Selenium		ug/L	05/29/	2013 11:16	2.00	0.160	5.0	ND
808086-017 Arsenic		ug/L	05/29/	2013 11:52	2.00	0.200	0.50	2.5
Chromium		ug/L	05/29/	2013 11:52	2.00	0.184	1.0	ND
Manganese		ug/L	05/29/	2013 11:52	2.00	0.172	0.50	5.2
Molybdenum		ug/L	05/29/	2013 11:52	2.00	0.414	2.0	4.0
Selenium		ug/L	05/29/	2013 11:52	2.00	0.160	5.0	ND
Method Blank								
Parameter	Unit	DF	Result					
Arsenic	ug/L	1.00	ND					
Chromium	ug/L	1.00	ND					
Selenium	ug/L	1.00	ND					
Manganese	ug/L	1.00	ND					
Molybdenum	ug/L	1.00	ND					
Duplicate							Lab ID =	808086-004
Parameter	Unit	DF	Result	Expected	F	RPD	•	nce Range
Arsenic	ug/L	2.00	2.54	2.53		0.355	0 - 20	
Chromium	ug/L	2.00	ND	0		0	0 - 20	
Selenium	ug/L	2.00	ND	0		0	0 - 20	
Manganese Maluhdanum	ug/L	2.00	0.693	0.678		2.14	0 - 20	
Molybdenum	ug/L	2.00	4.14	4.21		1.77	0 - 20	



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Low Level Calibration V	erification					
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.195	0.200	97.6	70 - 130
Chromium	ug/L	1.00	0.211	0.200	106	70 - 130
Selenium	ug/L	1.00	0.187	0.200	93.6	70 - 130
Manganese	ug/L	1.00	0.223	0.200	111	70 - 130
Molybdenum	ug/L	1.00	0.468	0.500	93.7	70 - 130
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.00	49.8	50.0	99.7	85 - 115
Chromium	ug/L	2.00	50.8	50.0	102	85 - 115
Selenium	ug/L	2.00	49.0	50.0	98.1	85 - 115
Manganese	ug/L	2.00	50.1	50.0	100	85 - 115
Molybdenum	ug/L	2.00	50.2	50.0	100	85 - 115
Matrix Spike						Lab ID = 808086-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	56.1	52.5(50.0)	107	75 - 125
Chromium	ug/L	2.00	55.0	50.0(50.0)	110	75 - 125
Selenium	ug/L	2.00	52.4	50.0(50.0)	105	75 - 125
Manganese	ug/L	2.00	53.8	50.7(50.0)	106	75 - 125
Molybdenum	ug/L	2.00	58.6	54.2(50.0)	109	75 - 125
Matrix Spike Duplicate						Lab ID = 808086-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	51.0	52.5(50.0)	96.9	75 - 125
Chromium	ug/L	2.00	49.2	50.0(50.0)	98.4	75 - 125
Selenium	ug/L	2.00	51.1	50.0(50.0)	102	75 - 125
Manganese	ug/L	2.00	49.6	50.7(50.0)	97.9	75 - 125
Molybdenum	ug/L	2.00	56.3	54.2(50.0)	104	75 - 125
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.6	20.0	97.8	90 - 110
Chromium	ug/L	1.00	20.1	20.0	101	90 - 110
Selenium	ug/L	1.00	19.1	20.0	95.7	90 - 110
Manganese	ug/L	1.00	19.4	20.0	97.1	90 - 110
Molybdenum	ug/L	1.00	19.2	20.0	96.2	90 - 110



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Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
808086-003 Chromium		ug/L	05/30)/2013 14:50	2.00	0.184	1.0	ND
Method Blank						and the c	. 47 . 5	
Parameter	Unit	DF	Result					
Chromium	ug/L	1.00	ND					
Duplicate							Lab ID =	808086-003
Parameter	Unit	DF	Result	Expected	RI	PD	Accepta	nce Range
Chromium	ug/L	2.00	ND	0		0	0 - 20	
Low Level Calibration	Verification	igaray i						
Parameter	Unit	DF	Result	Expected	R	ecovery	Accepta	nce Range
Chromium	ug/L	1.00	0.188	0.200		94.2	70 - 130)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	Re	ecovery	Accepta	nce Range
Chromium	ug/L	2.00	45.0	50.0		89.9	85 - 115	5
Matrix Spike						ing a second	Lab ID =	808086-003
Parameter	Unit	DF	Result	Expected/Adde		ecovery	•	nce Range
Chromium	ug/L	2.00	47.0	50.0(50.0)	,	94.0	75 - 125	j
Matrix Spike Duplicat	e i jili.						Lab ID =	808086-003
Parameter	Unit	DF	Result	Expected/Adde		ecovery	•	ince Range
Chromium	ug/L	2.00	45.3	50.0(50.0)		90.6	75 - 125	5
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected	Re	ecovery	Accepta	ince Range
Chromium	ug/L	1.00	20.1	20.0		101	90 - 110)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	R	ecovery	Accepta	ince Range
Chromium	ug/L	1.00	19.8	20.0		99.0	90 - 110)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	Re	ecovery	Accepta	nce Range
Chromium	ug/L	1.00	19.5	20.0		97.6	90 - 110)
Interference Check S	tandard A							
Parameter	Unit	DF	Result	Expected	Re	ecovery	Accepta	nce Range
Chromium	ug/L	1.00	ND	0				



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Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
808086-004 Iron	_	ug/L	05/23	/2013 12:28	1.00	9.50	20.0	ND
808086-005 Iron		ug/L	05/23	3/2013 13:09	1.00	9.50	20.0	ND
808086-008 Iron		ug/L	05/23	/2013 13:15	1.00	9.50	20.0	ND
808086-009 Iron		ug/L	05/23	/2013 13:21	1.00	9.50	20.0	ND
808086-010 Iron		ug/L	05/23	/2013 13:27	1.00	9.50	20.0	ND
808086-011 Iron		ug/L	05/23	/2013 13:34	1.00	9.50	20.0	ND
808086-012 iron		ug/L	05/23	/2013 13:40	1.00	9.50	20.0	ND
808086-013 Iron		ug/L	05/23	/2013 13:46	1.00	9.50	20.0	ND
808086-014 Iron		ug/L	05/23	/2013 13:52	1.00	9.50	20.0	ND
808086-015 Iron		ug/L	05/23	/2013 13:58	1.00	9.50	20.0	ND
808086-017 Iron		ug/L	05/23	/2013 14:05	1.00	9.50	20.0	ND
Method Blank			an dia da			and the B		
Parameter	Unit	DF	Result					
Iron	ug/L	1.00	ND					
Duplicate							Lab ID = I	308086-004
Parameter	Unit	DF	Result	Expected	ı	RPD	Accepta	nce Range
Iron	ug/L	1.00	ND	0		0	0 - 20	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	ſ	Recovery	Accepta	nce Range
Iron	ug/L	1.00	56.7	50.0		113	85 - 115	
Matrix Spike							Lab ID = i	808086-004
Parameter	Unit	DF	Result	Expected/Add	ded f	Recovery	Accepta	nce Range
Iron	ug/L	1.00	52.9	50.0(50.0)		106	75 - 125	
Matrix Spike Duplicate					Aku-é	A Balana	Lab ID = 8	308086-004
Parameter	Unit	DF	Result	Expected/Add	ded f	Recovery	Accepta	nce Range
Iron	ug/L	1.00	53.6	50.0(50.0)		107	75 - 125	
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected	ſ	Recovery	Accepta	nce Range
Iron	ug/L	1.00	5070	5000		101	90 - 110	
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	ſ	Recovery	Accepta	nce Range
Iron	ug/L	1.00	5210	5000		104	90 - 110	



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pH by SM 4500-H B			Batc	h 05PH13Q				
Parameter		Unit	Ana	alyzed	DF	MDL	RL	Result
808086-008 pH		рН	05/2	2/2013 10:30	1.00	0.0250	4.00	8.27
808086-009 pH		рН	05/2	2/2013 10:35	1.00	0.0250	4.00	8.27
808086-010 pH		pН	05/2	2/2013 10:37	1.00	0.0250	4.00	8.28
808086-011 pH		рН	05/2	2/2013 11:10	1.00	0.0250	4.00	8.23
808086-012 pH		рН	05/2	2/2013 11:07	1.00	0.0250	4.00	8.20
808086-013 pH		рН	05/2	2/2013 11:05	1.00	0.0250	4.00	8.09
Method Blank							al the contract	
Parameter	Unit	DF	Result					
pН	pН	1.00	ND					
Duplicate							Lab ID =	808086-011
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range
рН	pН	1.00	8.24	8.23		0.121	0 - 20	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
pH	pН	1.00	7.01	7.00		100	90 - 110)
Lab Control Sample D	Ouplicate							
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
pН	pН	1.00	7.02	7.00		100	90 - 110)
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
pН	рН	1.00	7.02	7.00		100	90 - 110	כ



Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 25 of 26

Project Number: 423575.MP.02.RM Printed 6/5/2013

pH by SM 4500-H B Parameter		Llait	^	lvaod	DE	MDi	ום	Dooult	
		Unit		lyzed	DF	MDL	RL	Result	-
808086-002 pH		pН		/2013 14:30	1.00	0.0250	4.00	7.42	J
808086-003 pH		pН	05/22	/2013 14:28	1.00	0.0250	4.00	7.50	J
808086-004 pH		pН	05/22	/2013 13:38	1.00	0.0250	4.00	8.26	J
808086-005 pH		pН	05/22	/2013 13:35	1.00	0.0250	4.00	8.27	J
808086-014 pH		рН	05/22	/2013 13:40	1.00	0.0250	4.00	8.30	J
808086-015 pH		рН	05/22	/2013 13:20	1.00	0.0250	4.00	8.23	J
808086-017 pH		рН	05/22	/2013 13:22	1.00	0.0250	4.00	8.19	J
Method Blank									_
Parameter	Unit	DF	Result						
pH	рН	1.00	ND						
Duplicate							Lab ID =	808085-001	ľ
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range	<u> </u>
рH	рН	1.00	8.28	8.28		0	0 - 20	_	
Duplicate							Lab ID =	808085-010)
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range	.
рH	рН	1.00	8.22	8.21		0.122	0 - 20		
Lab Control Sample									
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range)
рH	рН	1.00	6.98	7.00		99.7	90 - 110)	
Lab Control Sample [Duplicate			1977 Political Straws					
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range)
pН	рН	1.00	7.05	7.00		101	90 - 110	כ	
MRCVS - Primary									
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range)
pН	рН	1.00	7.03	7.00		100	90 - 110)	



Client: E2 Consulting Engineers, Inc.

Parameter

Total Suspended Solids

Project Name: PG&E Topock Project

Project Number: 423575.MP.02.RM

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Acceptance Range

90 - 110

Total Suspended Solids	by SM 25	40 D	Batch	05TSS13N				
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
808086-004 Total Suspended	d Solids	mg/L	05/28	/2013	1.00	0.349	10.0	ND
808086-005 Total Suspended	d Solids	mg/L	05/28	/2013	1.00	0.349	10.0	ND
808086-008 Total Suspended	d Solids	mg/L	05/28/2013		1.00	0.349	10.0	ND
808086-009 Total Suspended	d Solids	mg/L	05/28/2013		1.00	0.349	10.0	ND
808086-010 Total Suspended	d Solids	mg/L	05/28	/2013	1.00	0.349	10.0	ND
08086-011 Total Suspended Solids		mg/L	05/28	/2013	1.00	0.349	10.0	ND
08086-012 Total Suspended Solids		mg/L	05/28	/2013	1.00	0.349	10.0	ND
08086-013 Total Suspended Solids		mg/L	05/28/2013		1.00	0.349	10.0	ND
08086-014 Total Suspended Solids		mg/L	05/28	/2013	1.00	0.349	10.0	ND
08086-015 Total Suspended Solids		mg/L	05/28	/2013	1.00	0.349	10.0	ND
808086-017 Total Suspended	d Solids	mg/L	05/28	/2013	1.00	0.349	10.0	ND
Method Blank			a. Gazari					
Parameter	Unit	DF	Result					
Total Suspended Solids	mg/L	1.00	ND					
Duplicate							Lab ID =	808086-017
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	nce Range
Total Suspended Solids	mg/L	1.00	ND	0		0	0 - 10	
Lab Control Sample								
Parameter	Unit		Result	Expected	F	Recovery	Acceptance Range	
Total Suspended Solids	mg/L	1.00	97.0 100			97.0	90 - 110)
Lab Control Sample D	uplicate							

Result

96.0

DF

1.00

Unit

mg/L

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Recovery

96.0

for Mona Nassimi

Expected

100

Manager, Analytical Services



TRUESDAIL LABORATORIES INC.

Total Suspended Solids by SM 2540 D

Calculations

Batch: 05TSS13N 05/28/13

Date Analyzed:

Dish Number	Laboratory Number	Sample volume, ml	Initial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference , g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL, ppm	Reported Value, ppm
F52	BLK	1000	1.4252	1.4252	1.4252	0.0000	No	0.0000	0.0	2.5	ND
F55	808056	500	1,4273	1.4475	1,4475	0.0000	No	0.0202	40.4	5.0	40.4
F56	808079-1	1000	1.4348	1.4450	1.445	0.0000	No	0.0102	10.2	2.5	10.2
F57	808097	300	1.4297	1.4486	1.4486	0.0000	No	0.0189	63.0	8.3	63.0
F58	808100	1000	1.4383	1,4515	1.4515	0.0000	No	0.0132	13.2	2.5	13.2
F59	808113-1	300	1.4362	1.4546	1.4546	0.0000	No	0.0184	61.3	8.3	61,3
F60	808113-2	10	1,4290	1.4680	1.468	0.0000	No	0.0390	3900.0	250.0	3900.0
F61	808113-3	10	1.4389	1.4875	1.4875	0.0000	No	0.0486	4860.0	250.0	4860.0
F62	808113-4	10	1,4312	1.4907	1,4907	0.0000	No	0.0595	5950.0	250.0	5950.0
F63	808113-4D	10	1,4315	1.4913	1,4913	0.0000	No	0.0598	5980.0	250.0	5980.0
F64	808086-4	250	1.4397	1,4397	1,4397	0.0000	No	0.0000	0.0	10.0	ND
F65	808086-5	250	1.4426	1.4428	1,4428	0.0000	No	0.0002	8.0	10.0	ND
F66	808086-8	250	1,4335	1.4337	1.4337	0.0000	No	0.0002	8.0	10.0	ND
F67	808086-9	250	1.4295	1.4296	1.4296	0.0000	No	0.0001	0.4	10.0	ND
F68	808086-10	250	1.4348	1.4349	1.4349	0.0000	No	0.0001	0.4	10.0	ND
F69	808086-11	250	1.4272	1,4274	1,4274	0.0000	No	0.0002	8.0	10.0	ND
F70	808086-12	250	1.4423	1.4423	1,4423	0.0000	No	0.0000	0.0	10.0	ND
F71	808086-13	250	1,4306	1,4308	1.4308	0.0000	No	0.0002	8.0	10.0	ND
F72	808086-14	250	1.4295	1.4295	1.4295	0.0000	No	0.0000	0.0	10.0	ND
F73	808086-15	250	1,4281	1.4282	1.4282	0.0000	No	0.0001	0.4	10.0	ND
F74	808086-17	250	1.4357	1,4358	1.4358	0.0000	No	0.0001	0.4	10.0	ND
F75	808086-17D	250	1.4360	1.4361	1.4361	0.0000	No	0.0001	0.4	10.0	ND
				🗜 เลาะบาร์วิทย์เราะห์เก็บต่อง คือโดย ครื่	Production of the Confession	1		I I			

Calculation as follows:

Non-Filterable residue (TSS), mg/L =

1.4426

0.0097

0.0096

Where:

1,4283

1.4330

A = weight of dish + residue in grams.

1,438

1.4426

0.0000

0.0000

B = weight of dish in grams. C = mL of sample filtered.

RL= reporting limit.

ND = not detected (below the reporting limit)

97.0

96.0

25.0

25,0

97.0

96.0

Laboratory Control Sample (LCS) Summary

100

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	97	100	97.0%	90-110%	Yes
LCSD	96	100	96.0%	90-110%	Yes

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
808113-4	0.0595	0.0598	0.3%	≤5%	Yes
808086-17	0.0001	0,0001	0.0%	5%	Yes

Gautam S. Analyst Printed Name



LCS Recovery

$$P = \left(\frac{LC}{LT}\right) \times 100$$
% Difference =
$$\frac{\left|A \text{ or } B - C\right|}{C} \times 100$$

where
$$C = \frac{A+B}{2}$$

A = Weght of the first sample in (g).

B = Weght of the second sample in (g).

C = Average weight in (g).

Maksim G. Reviewer Printed Name



Alkalinity by SM 2320B

Analytical Batch: 05ALK131 Matrix: WATER Date of Analysis: 5/30/13

Lab ID	Sample pH	Sample Volume (ml)	N of HCL	Titrant Volume to reach pH 8.3	P Alkalinity as CaCO3	Titrant Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCO3 Conc. as CaCO ₃ (ppm)	CO3 Alkalinity as CaCO ₃ (ppm)	OH Alkalinity as CaCO ₃ (ppm)	Low Alkalinity as CaCO ₃
BLANK	7.01	50	0.02		0.0	0.00		0.0	5	ND	ND	ND	ND	1 -2 0 0 0 1 1 1
808086-4	8.17	50	0.02		0.0	6.60		132.0	5	132.0	132.0	ND	ND	140. 2013.
808086-5	8.21	50	0.02		0.0	6.75		135.0	5	135.0	135.0	ND	ND	
808086-8	8.25	50	0.02		0.0	6.60		132.0	5	132.0	132.0	ND	ND	
808086-9	8.23	50	0.02		0.0	6.55		131.0	5	131.0	131.0	ND	ND	
808086-10	8.22	50	0.02		0.0	6.35		127.0	5	127.0	127.0	ND	ND	
808086-11	8.25	50	0.02		0.0	6.45		129.0	5	129.0	129.0	ND	ND	
808086-11 DUP	8.26	50	0.02	- servenyojes	0.0	6.25	- mosson	125.0	5	125.0	125.0	ND	ND	· · · · · ·
808086-11 MS	9.46	50	0.02	2.45	49.0	11.35	and the second s	227.0	5	227.0	129.0	98	ND	
808086-12	8.24	50	0.02		0.0	6.35	l	127.0	5	127.0	127.0	ND	ND	
808086-13	8.23	50	0.02		0.0	6.15		123.0	5	123.0	123.0	ND ND	ND	
808086-14	8.27	50	0.02	C	0.0	6.30		126.0	5	126.0	126.0	ND	ND	
808086-15	8.31	50	0.02	0.0	0.0	6.35		127.0	5	127.0	127.0	0	ND	
808086-17	8.05	50	0.02		0.0	5.70	Constitution of the Consti	114.0	5	114.0	114.0	ND	ND	
LCS	10.26	50	0.02	2.4	48.0	5.05	MONEY STATE OF	101.0	5	101.0	5.0	96	ND	
LC9 D	10.28	50	0.02	2.5	49.0	5.00		100.0	5	100.0	2.0	98	ND	
		Control of the Contro		Andrew Control of the		-								
The state of the s				AND A TOPOGRAPHICAL CO.										
					İ									
							l I	1						

Calculations as follows:

Tor P=

Where:

 $A \times N \times 50000$

mL sample

T = Total Alkalinity, mg CaCO3/L P = Phenolphthalein Alkalinity, mg CaCO3/L

A = mL standard acid used

N = normality of standard acid

Low Alkalinity: = as mg/L CaCO3

 $(2 \times B - C) \times N \times 50000$ mL sample

Where: B = mL titrant to first recorded pH

C = Total mL titrant to reach pH 0.3 unit lower

N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate

MS/MSD = Matrix Spike/Duplicate

ND = Not Detected (below the reporting limit)

Laboratory Control Sample (LCS/LCSD) Summary

<5

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Accetance Limit	QC Within Control?
LCS	101	100	101.0%	90-110	Yes
LCSD	100	100	100.0%	90-110	Yes

Accept Limit QC Within

Control?

Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
808086-11	129	125	3.1%	20%	Yes

Sample Matrix Snike (MS/MSD) Summary

Ouripic matri	x Opine (i	110/11100/	Juli ili ilai y									
Lab Number	Conc of Unspk spl	Dil Factor	Added Spk Conc	MS/MSD Amt	Measrd Conc of Spk Spl	Theor Conc of Spk Spl	MS/MSD % Rec	MS Accept Limit	QC Within Control?	RPD	RPD Accept Limit	QC Within Control?
808086-11	129	1	100	100	227	229.00	98%	75-125	Yes	I		
000000-11		1	100	100				75-125				

Melissa S Analyst Printed Name

Blank Summary

Measured

Value, ppm

Reporting

Limit, RL

5 ppm

Maksim G. Reviewer Printed Name

CH2MHILL	CI	42	M	Н	П	1
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Page 2 OF 3

احل		_							OH		1 000		I ILLU	Page C	ノト	<u></u>
Pro	oject Name PG cation Topock oject Manager J imple Manager S	lay Piper	Pres		ml Poly (NH4)2S O4/NH4O H, 4°C	H, 4°C	Poly HNO3, 4°C	3x500 ml Poly HNO3, 4°C	3x500 ml Poly HNO3, 4°C	2x1 Liter 4°C	2x1 Liter 4°C	2x1 Liter 4°C	2x1 Liter 4°C	Rec'd 05/21/13		
Sai	impie ivianager s	nawn oun	*	Filtered: ling Time:	Field 28	NA 28	NA 180	Field	Field	NA 14	NA 14	NA 14	NA 14	S 808086		
Tas Pro Tui Sh	oject Number 4 sk Order oject 2013-RMF rnaround Time sipping Date: 5 DC Number: TL	P-191 10 Days /14/2013 JI-RMP191	02.RN	-	Cr6 (E218.6 - river) Field Filtered	Field QC Cr6 (E218.6-river)	Metals (6010B) Total Fe	Metals (SW6010B/SW6020Adis) Field Filtered As,Mn,Fe,Se,Mo	Metals (6020A) Field Filtered Chromium	Specific Conductance (E120.1)	Alkalinity (SM2320B)	14 PH (SM4500HB)	TSS (SM2540)	ALERT !! Level III QC	Number of Containers	COMMENTS
RM	IP-A81-191	5/20/2013	13:15	Water		Х									1	
SW	/1-191	5/20/2013	7:45	Water	Х				Х	X		Х			5	
SW	/2-191	5/20/2013	8:00	Water	Х				Х	Х		X		rora	5	(M=2)
C-0	CON-D-191	5/21/2013	9:57	Water	X		X	Х	X	Х	Х	Х	X	$\delta^{Q} \partial n$	9	160206
C-0	CON-S-191	5/21/2013	10:13	Water	Х		Х	Х	Х	Х	Х	Х	Х	366 × 1916 ×	9	60101
G-N	VVV-82-191	5/21/2013	8:40	Water		х								Orn Onde	1	
7 C-4	WW-83-191	5/21/2013	9:47	Water	<u></u>	X								Attaillon	1	
ar C-h	VR1-D-191	5/21/2013	10:42	Water	Х		Х	х	х	х	X	x	Х	"Idcha"/S	9	<u> </u>
C-V	NR1-S-191	5/21/2013	10:55	Water	х		×	X	Х	Х	Х	Х	Х	See Form Attached	9	
	NR3-D-191	5/21/2013	11:17	Water	Х		Х	х	х	х	Х	Х	x		9	
`\I	NR3-S-191	5/21/2013	11:30	Water	Х		Х	х	X	x	Х	Х	X		9	M=2
C-N	NR4-D-191	5/21/2013	11:53	Water	х		Х	X	Х	х	X	Х	х	·	9	GoraA
	NR4-S-191	5/21/2013	12:08	Water	х		х	X	Х	х	Х	X	Х		9	601013
Y R-1	19-191	5/21/2013	9:16	Water	Х		Х	х	×	Х	×	X	Х		9	

Approved by Sampled by

Relinquished by

Received by Relinquished by

Received by

Date/Time 5-21-13 1700

Signatures 8

Shipping Details

Method of Shipment: FedEx

On Ice: yes / no

Airbill No: Lab Name: Truesdail Laboratories, Inc.

23.00 Lab Phone: (714) 730-6239

ATTN:

Special Instructions:

May 22-23, 2013

Sample Custody

Report Copy to

Shawn Duffy (530) 229-3303

CH2MHILL

CHAIN OF CUSTODY RECORD

5/21/2013 3:12:18 PM

Page 3 OF 3

Project Name	PG&E Topoc	k C	ontainer:	3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter			
Location Tope	ock			(NH4)2S	(NH4)2S	HNO3,	HNO3,	HNO3,	4°C	4°C	4°C	4°C			-
Project Manage		Prese	ervatives:	04/NH40 H, 4°C	04/NH40 H, 4°C		4°C	4°C				, -		1	
Sample Manage	er Shawn Dul	fy	Filtered:	Field	NA	NA NA	Field	Field	NA NA	NA	NA	NA			
		Holdi	ing Time:	28	28	180	180	180	14	14	14	14			
Project Number Task Order Project 2013-F Turnaround Tin Shipping Date: COC Number:	MP-191 ne 10 Days 5/14/2013	5	Matrix	Cr6 (E218.6 - river) Field Filtered	Field QC Cr6 (E218.6-river)	Metals (6010B) Total Fe	Metals (SW6010B/SW6020Adis) Field Filtered As,Mn,Fe,Se,Mo	Metals (6020A) Field Filtered Chromium	Specific Conductance (E120.1)	Alkalinity (SM2320B)	PH (SM4500HB)	TSS (SM2540)	ALERT !! Level III QC	Number of Containers	COMMENTS
R-28-191	5/21/2013	8:56	Water	х		x	X	X	Х	X	Х	X		9	M=2
RMP-AB2-191	5/21/2013	12:16	Water		Х									1	60001
. RRB-191	5/21/2013	9:28	Water	Х		X	Х	х	Х	X	Х	Х		9	m-2
						·	-			·			TOTAL NUMBER OF CONTAINERS	223	60000

Approved by Sampled by

Relinquished by

Received by

Relinquished by Received by

Signatures

Date/Time 5-21-13 1700

Shipping Details

Method of Shipment:

FedEx

On Ice: yes / no

, Airbill No: OC Lab Name: Truesdail Laboratories, Inc.

23: 62 Phone: (714) 730-6239

ATTN:

Special Instructions: May 22-23, 2013

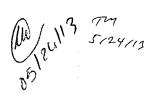
Sample Custody

Report Copy to

Shawn Duffy (530) 229-3303

Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

	nber	., ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Pii	Dulle!	Added (mL)	1 1110	PII	Time I	Initials		
808085	- 3	9.5	-	NA		NIA	Ĺ	N	4	Ta	7
	- 4	1									
	-5										
	-6										
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Turbidity/pH Check

			Turbio	dity/pH C	heck			
Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
808085 1-5 8-14) 41	12	5/22/13	ES	yes			- -
808086 (2,5,8-17		1	L	V	V			
808061 (10-12)	41	72	5/22/13	ES	NO	3:30		
808075 (1-3)	l	ì	1	i	1			
2040 77 (1-2 C-6)					1			
803098	J			1/	yes			
808093		DLID	SAMPLE	Sladia B	776			
808 107(1-3) To Tay	<1	<2	5-23-13	BE	xes			
303099-1,-6	7/	<2	5/24/13	ne	yee			
808116(1-2)	<1	>2	11/11/2	ВĿ	NO	13:00		
808161(1-2		1	5-29-13	35-	24/0	10:30		
808179			5-30-13	126	y «s	21.30		
	71	10		<u> </u>	yes	6.34		
308158(1-4)	/1	42	5/30/13.	n	- Jes			. :
808113(1.6)					i			
80 8 113								
808111 (1-3)								
803109	4				·			
808156					$ \downarrow$			
808157		.	4	<u>.</u>			-	
305175	71	< 2	5,30-13	BE	×ez			
808176(10-12)	<1	72'	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		~ 0	10:30		
808186	>1	42	Į Į	or	yu			
808188(1-3)	<\	72,	ا	30		14:30		
803195	21	_ >2	6/3/13	ES	yes			
808 196			<u> </u>					
808 20 3								
808215	71	< Z	614/13	Es	y-es		·	
216			1		1		· · · · · · · · · · · · · · · · · · ·	
217		\sim			ν			
808225 (17,24)	<1	72	6/4/13	ES	NO			
808568(1-5)	<1	ファ	6-5-13	BI	Xes	°8.13≎		after i.f
80826761-2)		1]		1		after l.f
808569		42				1/85		•
80827161-31	J.	L		Ţ		1		19 D
808268	<1	<2	6-5-13	BL	X 2-3		,	
808270			1			7		
808272 (1-8)	1							Plant
		.	¥					
				-				-
	•							
	}							
	l					<u> </u>		

- Notes:

 1. Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.

 2. All Total Recoverable Analytes must be pH adjusted and digested.

 3. Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

Sample Integrity & Analysis Discrepancy Form

1. Was a 2. Does 3. Are the 4. If a lett 5. Were a 6. Were s Tempel 7. Were si (i.e. bro 8. Were sa 9. Does the 10. Did samp Preserve 11. Were sai 11. Were sai 12. Were all a 13. Were all a 14. Have Pro Turn Arou	E2	Lab # 8080
2. Does 3. Are the 4. If a lett 5. Were a 6. Were s Tempel 7. Were s (i.e. bro 8. Were sa 9. Does the 10. Did samp Preserve 11. Were sal 11. Were sal 12. Were all 13. Were all 14. Have Pro Turn Arou 14.	livered 25/21/13 Time: 43:00 By: 0Mail 🕉	Field Service
3. Are the 4. If a lett 5. Were a 6. Were s Tempel 7. Were se (i.e. bro. 8. Were sa 9. Does the 10. Did samp Preserve 11. Were sai 11. Were sai 11. Have Pro Turn Arou	as a Chain of Custody received and signed?	ØYes □No □N/A
4. If a lett 5. Were a 6. Were a 7. Were si (i.e. bro. 8. Were sa 9. Does the 10. Did samp Preserve 11. Were sai 11. Were sai 11. Have Proj Turn Arou	es Customer require an acknowledgement of the COC?	□Yes □No ਐN/A
5. Were a 6. Were s Tempel 7. Were se (i.e. bro 8. Were se 9. Does the 10. Did samp Preserve 12. Were sall If not, not 14. Have Pro Turn Arou	e there any special requirements or notes on the COC?	□Yes □No PANA
6. Were same for the same for t	letter was sent with the COC, does it match the COC?	☐Yes ☐No ☐N/A
7. Were sa (i.e. bro. 8. Were sa 9. Does the 10. Did samperserve 12. Were said of the 13. Were all a finot, not 14. Have Proy Turn Arou	re all requested analyses understood and acceptable?	Yes ONO ONA
9. Does the 10. Did samp Preserve 12. Were sall 13. Were all 14. Have Proj Turn Arou	re samples received in a chilled condition? nperature (if yes)? <u>4 5 ° C</u>	Yes ONO ON/A
9. Does the 10. Did samp 11. Did samp Preserve 12. Were sail 13. Were all a If not, not 14. Have Prop Turn Arou	re samples received intact broken bottles, leaks, air bubbles, etc)?	ÓYes □No □N/A
 Did sample Preserve Were said of not, not Have Propromates 	e sample custody seals intact?	□Yes □No ÞĪNA
11. Did samp Preserve 12. Were sai 13. Were all a If not, not 14. Have Pro Turn Arou	sthe number of samples received agree with COC?	ØYes □No □N/A
Preserve 12. Were sail 13. Were all if not, not 14. Have Proj Turn Arou	ample labels correspond with the client ID's?	dYes ONO ONA
13. Were all of frot, not 14. Have Proj Turn Arou	ample labels indicate proper preservation? erved (if yes) by: ☑Truesdail □Client	AYes ONO ONA
If not, not 14. Have Pro Turn Arou	samples pH checked? pH = Sel C 0. C	Yes DNo DNA
Turn Arou	all analyses within holding time at time of receipt? notify Project Manager.	GYes ONO ON/A
15. Sample N	Project due dates been checked and accepted? Pround Time (TAT): D RUSH	Q ² Yes □No □N/A
	e Matrix:	later DWaste Water
□Sludge	ge □Soil □Wipe □Paint □Solid ∕ÓO	other <u>Nasla</u>
16. Comments	ents:	· · · · · · · · · · · · · · · · · · ·
17. Sample Cl	Check-In completed by Truesdail Log-In/Receiving:	duda

Established 1931



June 18, 2013

14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

E2 Consulting Engineers, Inc. Mr. Shawn Duffy 155 Grand Ave., Suite 1000 Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-EW-207, GROUNDWATER MONITORING

PROJECT, TLI No.: 808266

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-EW-207 groundwater-monitoring project for Total Dissolved and Hexavalent Chromium, Total Dissolved Solids, pH, and Specific Conductivity. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, wet chemistry raw data, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody on June 4, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Samples for Total Dissolved Chromium were analyzed by method EPA 200.8 with the approval of Mr. Shawn Duffy.

Samples for pH analysis by SM 4500-H B were received past the method specified holding time. Mr. Duffy approved the analysis of the samples.

No other violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services

Michael Ngo

Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

Client: E2 Consulting Engineers, Inc. 155 Grand Ave. Suite 1000 Oakland, CA 94612

Attention: Shawn Duffy

Sample: Two (2) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 456827.01.DM

Date: June 18, 2013 Collected: June 4, 2013 Received: June 4, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 4500-H B	рН	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
EPA 200.8	Metals by ICP/MS	Bita Emami
EPA 218.6	Hexavalent Chromium	Tom Martinez
SM 3500-CrB	Hexavalent Chromium	Jenny Tankunakorn



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Client: E2 Consulting Engineers, Inc.

155 Grand Ave. Suite 1000

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

Project No.: 456827.01.DM **P.O. No.:** 456827.01.DM

Laboratory No.: 808266
Date Received: June 4, 2013

Analytical Results Summary

Lab Sample II) Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
808266-001	PE-01-207	E120.1	NONE	6/4/2013	12:30	EC	4350	umhos/cm	2.00
808266-001	PE-01-207	E200.8	LABFLT	6/4/2013	12:30	Chromium	5.6	ug/L	1.0
808266-001	PE-01-207	E218.6	LABFLT	6/4/2013	12:30	Chromium, Hexavalent	5.1	ug/L	0.20
808266-001	PE-01-207	SM2540C	NONE	6/4/2013	12:30	Total Dissolved Solids	2650	mg/L	125
808266-001	PE-01-207	SM4500HB	NONE	6/4/2013	12:30	PH	7.47 J	рH	4.00
808266-002	TW-03D-207	E120.1	NONE	6/4/2013	12:30	EC	7630	umhos/cm	2.00
808266-002	TW-03D-207	E200.8	LABFLT	6/4/2013	12:30	Chromium	847	ug/L	2.0
808266-002	TW-03D-207	SM2540C	NONE	6/4/2013	12:30	Total Dissolved Solids	5030	mg/L	250
808266-002	TW-03D-207	SM3500-CrB	LABFLT	6/4/2013	12:30	Chromium, Hexavalent	846	ug/L	250
808266-002	TW-03D-207	SM4500HB	NONE	6/4/2013	12:30	PH	7.22 J	рH	4.00

ND: Non Detected (below reporting limit)

Note: The following "Significant Figures" rule has been applied to all results: Results below 0.01 will have two (2) significant figures.

Result above or equal to 0.01 will have three (3) significant figures. Quality Control data will always have three (3) significant figures.

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Page 1 of 8

14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

Printed 6/17/2013

Laboratory No. 808266

REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

Project Number: 456827.01.DM P.O. Number: 456827.01.DM

Release Number:

Samples Received on 6/4/2013 9:00:00 PM

Field ID		Lab ID	Collected	Matrix
PE-01-207		808266-001	06/04/2013 12:30	0 Water
TW-03D-207		808266-002	06/04/2013 12:30	0 Water
Specific Conductivity - EPA 120.1		Batch 06EC13C		
Parameter	Unit	Analyzed	DF MDL	RL Result

Parameter	oword, word (source weeks d)	Unit	An	alyzed	DF	MDL	RL	Result	
808266-001 Specific Conducti	vity	umhos/cr	umhos/cm 06/05/		1.00	0.606	2.00	4350	
808266-002 Specific Conducti	vity	umhos/cr	n 06/0	5/2013	1.00	0.606	2.00	7630	
Method Blank							14 f.A.		
Parameter	Unit	DF	Result						
Specific Conductivity	umhos	1.00	ND						
Duplicate							Lab ID =	808267-002	
Parameter	Unit	DF	Result	Expected	F	RPD		Acceptance Range	
Specific Conductivity	umhos	1.00	7000	7010		0.143	0 - 10		
Lab Control Sample									
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range	
Specific Conductivity	umhos	1.00	692	706		98.0	90 - 110		
MRCCS - Secondary		ang panahatat tanah panahan sa sa sa sa sa sa sa sa sa sa sa sa sa	State of the state	aan aan ah ah ah ah ah ah ah ah ah ah ah ah ah	nas asas ind helpajih	inggage weep or government assessment of the	otapis (A. gyessy pentyare) (yesanes	entheatopheurs enskagtneam	
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range	
Specific Conductivity	umhos	1.00	680	706		96.3	90 - 110	1	
MRCVS - Primary									
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range	
Specific Conductivity	umhos	1.00	945	998		94.7	90 - 110)	

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Chrome VI by EPA 218 Parameter		Unit		ı 06CrH13A ılyzed	DF	MDL	RL	Result
			,					
308266-001 Chromium, He	exavalent	ug/L	06/05	5/2013 08:56	1.00 0.00920 0.2		0.20	5.1
Method Blank								
Parameter	Unit	DF	Result					
Chromium, Hexavalent	ug/L	1.00	ND					
Duplicate							Lab ID =	808270-001
Parameter	Unit	DF	Result	Expected		RPD	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	2.33	2.35		0.812	0 - 20	
Low Level Calibration	on Verification							
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	0.204	0.200		102	70 - 130)
Lab Control Sample)							
Parameter	Unit	DF	Result	Expected	1	Recovery	Accepta	nce Range
Chromium, Hexavalent	ug/L	1.00	5.42	5.00		108	90 - 110)
Matrix Spike							Lab ID =	808266-001
Parameter	Unit	DF	Result	Expected/Add	led	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	15.3	15.1(10.0)		102	90 - 110)
Matrix Spike							Lab ID =	808267-001
Parameter	Unit	DF	Result	Expected/Add	led	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	5.00	5.12	5.16(5.00)		99.3	90 - 110)
Matrix Spike							Lab ID =	808267-001
Parameter	Unit	DF	Result	Expected/Add	led	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	1.20	1.19(1.00)		100	90 - 110)
Matrix Spike							Lab ID =	808267-002
Parameter	Unit	DF	Result	Expected/Add	led	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	1430	1420(750)		101	90 - 110)
Matrix Spike							Lab ID =	808268-001
Parameter	Unit	DF	Result	Expected/Add	led	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	8.45	8.36(5.00)		102	90 - 110)
Matrix Spike							Lab ID =	808270-001
Parameter	Unit	DF	Result	Expected/Add	led	Recovery	Accepta	ance Range
Chromium, Hexavalent	ug/L	1.00	7.28	7.35(5.00)		98.6	90 - 110	_

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Chromium, Hexavalent by SM 3500-Cr B Batch 06CrH13A Parameter DF MDL Unit Analyzed RL Result 808266-002 Chromium, Hexavalent 06/10/2013 12:38 25.0 110 250 ug/L 846 Method Blank Parameter Unit DF Result Chromium, Hexavalent ND ug/L 1.00 **Duplicate** Lab ID = 808266-002 Parameter Unit Result **RPD** DF Expected Acceptance Range 875 Chromium, Hexavalent ug/L 25.0 846 3.36 0 - 20Lab Control Sample Parameter Unit DF Result **Expected** Recovery Acceptance Range Chromium, Hexavalent 97.2 ug/L 1.00 100 97.2 90 - 110 Matrix Spike Lab ID = 808266-002 Parameter Unit DF Result Expected/Added Acceptance Range Recovery Chromium, Hexavalent ug/L 25.0 3340 3350(2500) 99.8 85 - 115 MRCCS - Secondary Parameter Unit DF Result **Expected** Recovery Acceptance Range Chromium, Hexavalent ug/L 1.00 97.2 100 97.2 90 - 110MRCVS - Primary Parameter Unit DF Result **Expected** Recovery Acceptance Range Chromium, Hexavalent 1.00 59.7 60.0 99.5 90 - 110 ug/L Batch 06PH13C pH by SM 4500-H B DF MDL Parameter Unit Analyzed RL Result 808266-001 pH 06/05/2013 08:47 1.00 0.0784 4.00 7.47 Hq 808266-002 pH Hq 06/05/2013 08:50 1.00 0.0784 4.00 7.22 Lab ID = 808266-002 Duplicate Unit DF Result **RPD** Parameter Expected Acceptance Range 7.23 7.22 0 - 20Hq 0.138Нα 1.00 Lab Control Sample Parameter Unit DF Result Expected Recovery Acceptance Range рH Ηq 1.00 7.03 7.00 100 90 - 110 MRCVS - Primary Parameter Unit DF Result Expected Recovery Acceptance Range

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7.00

101

90 - 110

7.05

1.00

Hq

pН



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

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Total Dissolved Solids I	Batc	h 06TDS13B						
Parameter	Unit	Ana	alyzed	DF	MDL	RL	Result	
808266-001 Total Dissolved Solids		mg/L	06/0	7/2013	1.00	1.76	125	2650
808266-002 Total Dissolved	Solids	mg/L_	06/0	06/07/2013		1.76	250	5030
Method Blank								
Parameter Total Dissolved Solids	Unit mg/L	DF 1.00	Result ND					
Duplicate							Lab ID =	808301-002
Parameter Total Dissolved Solids Lab Control Sample	Unit mg/L	DF 1.00	Result 2450	Expected 2410	F	RPD 1.56	Accepta 0 - 10	ance Range
Parameter Total Dissolved Solids	Unit mg/L	DF 1.00	Result 495	Expected 500	F	Recovery 99.0	Accepta 90 - 110	ance Range



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

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Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
808266-001 Chromium		ug/L	06/06	/2013 11:56 2	.00	0.184	1.0	5.6
808266-002 Chromium		ug/L	06/06	/2013 12:20 1	0.0	0.920	2.0	847
Method Blank				ru i			_	
Parameter	Unit	DF	Result					
Chromium	ug/L	1.00	ND					
Uranium	ug/L	1.00	ND					
Duplicate							Lab ID =	808268-001
Parameter	Unit	DF	Result	Expected	ı	RPD	Accepta	ance Range
Chromium	ug/L	2.00	3.68	3.75		2.02	0 - 20	
Uranium	ug/L	2.00	34.4	35.4		2.71	0 - 20	
Low Level Calibration	Verification							
Parameter	Unit	DF	Resuit	Expected	1	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	0.252	0.200		126	70 - 13	o
Uranium	ug/L	1.00	0.202	0.200		101	70 - 13)
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	١	Recovery	Accepta	ance Range
Chromium	ug/L	2.00	50.8	50.0		102	85 - 11	5
Uranium	ug/L	2.00	50.9	50.0		102	85 - 11	5
Matrix Spike							Lab ID =	808268-001
Parameter	Unit	DF	Result	Expected/Adde	ed l	Recovery	Accepta	ance Range
Chromium	ug/L	2.00	53.9	53.8(50.0)		100	75 - 12	5
Uranium	ug/L	2.00	91.8	85.4(50.0)		113	75 - 12	5
Matrix Spike Duplicate	e ,						Lab ID =	808268-001
Parameter	Unit	DF	Result	Expected/Adde	ed l	Recovery	Accepta	ance Range
Chromium	ug/L	2.00	59.6	53.8(50.0)		112	75 - 12	5
Uranium	ug/L	2.00	81.8	85.4(50.0)		92.8	75 - 12	5
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected		Recovery	Accepta	ance Range
Chromium	ug/L	1.00	18.4	20.0		92.1	90 - 11	0
Uranium	ug/L	1.00	19.4	20.0		97.0	90 - 11	0
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	1	Recovery	Accept	ance Range
Chromium	ug/L	1.00	20.4	20.0		102	90 - 11	0

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Interference Check Standard AB

Parameter Uranium	Unit ug/L	DF 1.00	Result ND	Expected 0	Recove	ry Acceptance Range
Serial Dilution						Lab ID = 808267-001
Parameter Chromium	Unit ug/L	DF 50.0	Result 677	Expected 666	RPD 1.70	Acceptance Range 0 - 10
Serial Dilution						Lab ID = 808268-001
Parameter Uranium	Unit ug/L	DF 10.0	Result 33.4	Expected 35.4	RPD 5.72	Acceptance Range 0 - 10

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services





Total Dissolved Solids by SM 2540 C

Calculations

Batch: 06TDS13B

Date Analyzed: 6/7/13

Laboratory Number	Sample volume, mi	Initial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	74.7337	74.7337	74.7337	0.0000	No	0.0000	0.0	25.0	ND	1
808266-1	20	51.8548	51.9083	51.9078	0.0005	No	0.0530	2650.0	125.0	2650.0	1
808266-2	10	51.3484	51.3988	51.3987	0.0001	No	0.0503	5030.0	250.0	5030.0	1
808267-1	20	72.636	72.7162	72.7158	0.0004	No	0.0798	3990.0	125.0	3990.0	1
808267-2	10	51.2493	51.2937	51.2934	0.0003	No	0.0441	4410.0	250.0	4410.0	1
808270	50	48.5356	48.5694	48.5691	0.0003	No	0.0335	670.0	50.0	670.0	11
808271-1	100	73.7935	73.8230	73.8230	0.0000	No	0.0295	295.0	25.0	295.0	1
808271-2	100	73.4398	73.472	73.4719	0.0001	No	0.0321	321.0	25.0	321.0	1_
808271-3	100	75.0188	75.053	75.0527	0.0003	No	0.0339	339.0	25.0	339.0	1
808301-1	100	68.7603	68.7920	68.7917	0,0003	No	0.0314	314.0	25.0	314.0	1
808301-2	50	49.8810	50.0017	50.0017	0.0000	No	0.1207	2414.0	50.0	2414.0	1
808301-2D	50	51.0476	51.1703	51.17	0.0003	No	0.1224	2448.0	50.0	2448.0	1
LCS	100	76.1820	76.2318	76.2315	0.0003	No	0.0495	495.0	25.0	495.0	1
"											

Calculation as follows:

Filterable residue (TDS), mg/L =

Where:

A = weight of dish + residue in grams. B = weight of dish in grams. C = mL of sample filtered.

$$\left(\frac{A-B}{C}\right) \times 10^6$$

RL= reporting limit. ND = not detected (below the reporting limit)

Laboratory Control Sample (LCS) Summary

QC Std I,D,	Measurd Value, ppm	Theoretical Value, ppm	ue, ppm Percent Rec		QC Within Control?	
LCS1	495	500	99.0%	90-110%	Yes	
LCSD						

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
808301-2	0.1207	0.1224	0.7%	≲5%	Yes

LCS Recovery

$$P = \left(\frac{LC}{LT}\right) \times 100$$

P = Percent recovery.

LC= Measured LCS value (ppm).

LT = Theoretical LCS value (ppm).

Duplicate Determination Difference

% Difference =
$$\frac{\begin{vmatrix} A & \text{or } B = C \end{vmatrix}}{C} \times 100$$

A = Weght of the first sample in (g).

B = Weght of the second sample in (g).

C = Average weight in (g).

Maksim G.

Reviewer Printed Name

020

Jenny T.

Analyst Printed Name

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 06TDS13B

Date Analyzed: 6/7/13

Laboratory Number	EC	TDS/EC Ratio: 0.559	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
808266-1	4350	0.61	2827.5	0.94
808266-2	7630	0.66	4959.5	1.01
808267-1	6600	0.60	4290	0.93
808267-2	7010	0.63	4556.5	0.97
808270	1020	0.66	663	1.01
808271-1	427	0.69	277.55	1.06
808271-2	487	0.66	316.55	1.01
808271-3	489	0.69	317.85	1.07
808301-1	471	0.67	306.15	1.03
808301-2	3380	0.71	2197	1.10
808301-2D	3380	0.72	2197	1.11
LCS				



ALE PARKET	TOWN SERVICE STREET
1-	
	12
1	1
	برندسث
- Marie	

TRUESDAIL LABORATORIES, INC. 14201 Franklin Avenue, Tustin, CA 92780-7008 (714)730-6239 FAX: (714) 730-6462 www.truesdail.com

CHAIN OF CUSTODY RECORD

[IM3Plant-EW-207] **808266**

TURNAROUND TIME DATE 06/04/13 10 Days PAGE 1 OF 1

	COMPANY PROJECT NAME PHONE ADDRESS P.O. NUMBER SAMPLERS (SIGNA	CH2M HILL /E2 PG&E Topock II 530-229-33 155 Grand Ave Oakland, CA 94 456827.01.DM	M3Plant-EV 303 Ste 1000 4612)-339-3303 		CNVII.	PH (15.00.Cr.B) (1.96 fillered	10S(1)	CMM1/2	(1<78.6)	/ //			<i> </i>			MER OF CO.	SWAINERS	7	COMN	IENTS	
	SAMPLE I.D.		DATE	TIME	DESCRIPTION	\'\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	\\rightarrow{\rightarrow{F}}{	Ha	/ Ř	\\{\bar{\bar{\bar{\bar{\bar{\bar{\b				 	/	_	<u> ₹</u>						
-1	PE-01-207		06/04/13	12:30	Ground water	х		Х	х	х							4		1	= 7	Z		
-2	TW-03D-20)7	06/04/13	12:30	Ground water	Х	х	Х	х								4		1 7	00.			
				-	AIEED																		
	,					-																	
				, sect	evelli		ル	7									8		TOTAL NU	MBER	OF CON	TAINERS	

Λ				
// //CH	IAIN OF CUSTODY SI	GNATURE RECORD		SAMPLE CONDITIONS
Signature (Relinquished)	Printed CHRIS LGMC	Company/ CH2A M/C	Date/ 6 - 4 - 13 Time	RECEIVED COOL ☑ WARM ☐ Ý./ °
Signature (Received)	Printed Name Les Pylan	Company/ Agency	Date/ 600	CUSTODY SEALED YES 🔲 NO 🖼
Signature (Relinquished)	Printed Name Les BRAD	Company/ Agency	Date/ 6-4-13 Time 2/00	SPECIAL REQUIREMENTS:
Signature Shabunina	Printed Name Luda	Company/ 「L」	Date/ 6/4//3 21:00	4
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	For Sample Condition
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	For Salliple Collabora
				See Form Attached

Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
512-3/13	308111-3	7.0	0.5 2 /25 ml	9.5	16:00	7~
5,30113	808179	7.0	2 nl/100 ol	9.5	7.'36	HAV
615113	808 266-1	7.0	2 ml / 100 ml	9.5	9:30	Nê
L.	-2	1	1	1		NÊ
	808267-1	7.0	2 ml/100 ml	9.5	9:30	NZ
	-2	V	V	\downarrow		NE
.	308268	9.5	N/4	Ni A	NIA	NÊ
	808270	9-5	N14	MIA	NIA	NB
	808271-1	:				NZ
	1 -2					NE
*	V ~3	<i>V</i>	J	V	<u> </u>	NE
	·					
					·	
			•			
						-
			·			



P4 615/13





Turbidity/pH Check

			luibic	lity/pH C	HECK			
Sample Number	Turbidity	рН	Date	Analyst	Need Digest	pH2- Adjusted Time	Date/Time of 2nd pH check	Comments
308085/1-5 8-14	1	12	5/22/13	ES	ues			
808086(2,5,8-17		1	312-113	V	yes			
808061 (10-12)	21	72	5/22/13	Eς	No	3:30		
808075 (1-3)	1	i -	1	i	1 ,			
204077 (1-2 C-6)					1			
803098	J		1.	1/	yes	-		· · · · · · · · · · · · · · · · · · ·
808093		OLID	SAMPLE	Sleella B	77LC			
808 107(1-3) To Tay	<1	12	5-23-13	BE	xc3			
308099-1,-6	71	<2	5/23/13	ne	yee			
808/16(1-2)	<1	>2	1/112	BE	0,0	13:00		
808161(1-2		1	5-29-13	B1-	24∕ 0	10:30		
808179	-		5-30-13	1	yes	81.30		
SOR158(1-4)	71	42	5/30/13	n	ijes			+
808113(1,6)	. 1		- <u> 7</u> 203,	1	0,-			•
80 & 112								
808111 (1-3)								
803109	41							
808122								
808157				J.	<u> </u>			
305175	71	<2	5-30-13	BE	xez			
808176(10-12)	<1	72		1	NO	10:30		
808186	>1	42	ì	or				
808188(1-3)	<\	72		30	yu No	14:30		
808195	21	72	6/3/13	ES	yes .			
808 196	1			i	<u> </u>			
80 4 20 3								
808215	71	< Z	614113	ES				
216			414112	3	y-es	-		
217		$\overline{\downarrow}$	 /					
808225 (17,24)	V	72	6/4/13	ES	NO			
808242 (11'5d)	<1	72	6-5-13	BE	xes	8 /30		after i-f
80826761-2)	7	1	1	1		1.		after l.f
808269		1 2	\			1/2		
808271(1-3)		1		1.	\	1/62		(1 e)
808268	<1	<u> </u>	6-5-13	BL	X 0-3			.,
908270	1		1	1				
808272 (1-8)								Plant
	•	ŀ	<u> </u>		<u> </u>			F = 4 ×1 ·4
		· · · · · · · · · · · · · · · · · · ·				·		
	•							
		<u> </u>	-					

- Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
 All Total Recoverable Analytes must be pH adjusted and digested.
 Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

Sample Integrity & Analysis Discrepancy Form

C	lient: <u>F2</u>	Lab # 8082
D	ate Delivered: <u>06 / 04</u> / 13 Time: <u>2/: 00</u> By: □Mail 🛕 F	ield Service
1.	Was a Chain of Custody received and signed?	AYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	☐Yes ☐No ÂN/A
3 .	Are there any special requirements or notes on the COC?	☐Yes ☐No ☑N/A
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No ☑N/A
5.	Were all requested analyses understood and acceptable?	ØYes □No □N/A
6.	Were samples received in a chilled condition? Temperature (if yes)? <u>\(\frac{\fir}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\fir}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\fir}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\fir}{\frac{\frac{\frac{\fir}{\frac{\frac{\frac{\fir}{\fir}\f{\f</u>	DYYes □No □N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	ØYes □No □N/A
8 .	Were sample custody seals intact?	□Yes □No ZN/A
9 .	Does the number of samples received agree with COC?	Ø∦es □No □N/A
10.	Did sample labels correspond with the client ID's?	dYes ONO ON/A
1 1.	Did sample labels indicate proper preservation? Preserved (if yes) by: □Truesdail □Client	□Yes □No ÆN/A
12.	Were samples pH checked? pH = See C. O.E.	Proves □No □N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager. Have Project due dates been checked and accepted?	RYes ONO ON/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): □ RUSH Ø Std	PYes ONO ONA
15.	Sample Matrix:	ater
	□Sludge □Soil □Wipe □Paint □Solid □O	ther
6.	Comments:	
7 .	Sample Check-In completed by Truesdail Log-In/Receiving:	Luda

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



E2 Consulting Engineers, Inc. PG&E Topock Project

Laboratory Number: 808568 Received: June 18, 2013

2013-GMP-192-Q2

Project No.: 423575.MP.07.TS P.O. No.: 423575.MP.07.TS



Prepared for:

E2 Consulting Engineers, Inc. Attn: Shawn Duffy 2525 Airpark Dr. Redding, CA 96001

Prepared by:

TRUESDAIL LABORATORIES, INC. TUSTIN, CALIFORNIA

Table of Contents TLI Laboratory Data Package

For Laboratory Number: 808568

<u>ITEM</u>	Section
Case Narrative and Analyst List	1.0
Summary Table of Final Results	2.0
Final Reports	3.0
Wet Chem Analysis/ Raw Data, Standard, Quality Control and Chain of Custody Records	4.0
Established Retention Time Window and Analytical Raw Data	5.0

Section 1.0

Case Narrative



14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

June 28, 2013

E2 Consulting Engineers, Inc. Mr. Shawn Duffy 155 Grand Ave., Suite 1000 Oakland, California 94612

Dear Mr. Duffy:

SUBJECT:

CASE NARRATIVE PG&E TOPOCK 2013-GMP-192-Q2, GROUNDWATER MONITORING

PROJECT, TLI NO.: 808568

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-192-Q2 groundwater-monitoring project for Hexavalent and Total Dissolved Chromium. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody June 18, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

No violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,

TRUESDAIL LABORATORIES, INC.

√ Mona Nassimi

Manager, Analytical Services

Michael Ngo

Quality Assurance/Quality Control Officer

Section 2.0

Summary Table of Final Results

TRUESDAIL LABORATORIES, INC.

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14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Laboratory No.: 808568

Date Received: June 18, 2013

Client: E2 Consulting Engineers, Inc. 155 Grand Ave. Suite 1000

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project Project No.: 423575.MP.07.TS P.O. No.: 423575.MP.07.TS

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
808568-001	MW-66BR-270-192	E218.6	FLDFLT	6/18/2013	10:56	Chromium, Hexavalent	ND	ug/L	1.0
808568-001	MW-66BR-270-192	SW6020	FLDFLT	6/18/2013	10:56	Chromium	ND	ug/L	1.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

Note: The following "Significant Figures" rule has been applied to all results:

Results below 0.01ppm will have two (2) significant figures.

Result above or equal to 0.01ppm will have three (3) significant figures. Quality Control data will always have three (3) significant figures.

Section 3.0

Final Reports

TRUESDAIL LABORATORIES, INC.

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Page 1 of 4

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Printed 6/28/2013

Laboratory No. 808568

REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Unit

ug/L

DF

1.00

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project
Project Number: 423575.MP.07.TS
P.O. Number: 423575.MP.07.TS

Release Number:

Parameter

Chromium, Hexavalent

Samples Received on 6/18/2013 9:30:00 PM

Lab ID Collected Field ID Matrix MW-66BR-270-192 808568-001 06/18/2013 10:56 Water Batch 06CrH13E Chrome VI by EPA 218.6 Unit DF Parameter Analyzed MDL RL Result 5.00 808568-001 Chromium, Hexavalent ug/L 06/24/2013 12:04 0.0460 1.0 ND Method Blank Parameter Unit DF Result Chromium, Hexavalent ug/L 1.00 ND Lab ID = 808567-001 Duplicate DF RPD Parameter Unit Result Expected Acceptance Range Chromium, Hexavalent 1.00 0.188 0.190 1.06 0 - 20ug/L Low Level Calibration Verification Parameter Unit DF Result Expected Acceptance Range Recovery 0.201 0.200 70 - 130 Chromium, Hexavalent ug/L 1.00 100 Lab Control Sample Unit DF Expected Parameter Result Recovery Acceptance Range 5.00 5.10 102 90 - 110 Chromium, Hexavalent ug/L 1.00 Lab ID = 808567-001 Matrix Spike DF Unit Result Expected/Added Parameter Recovery Acceptance Range Chromium, Hexavalent ug/L 1.00 1.20 1.19(1.00) 101 90 - 110Lab ID = 808568-001 Matrix Spike Parameter Unit DF Result Expected/Added Recovery Acceptance Range 5.00 5.07 5.00(5.00) 101 90 - 110 Chromium, Hexavalent ug/L Lab ID = 808568-001 Matrix Spike

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.

Expected/Added

1.00(1.00)

Recovery

104

Acceptance Range

90 - 110

Result

1.04



Client: E2 Consulting En	gineers, Ind		Project Name: Project Number:	Page 2 of 4 Printed 6/28/2013		
MRCCS - Secondary						
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 5.14	Expected 5.00	Recovery 103	Acceptance Range 90 - 110
Parameter Chromium, Hexavalent MRCVS - Primary	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105
Parameter Chromium, Hexavalent	Unit ug/L	DF 1.00	Result 10.1	Expected 10.0	Recovery 101	Acceptance Range 95 - 105



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 423575.MP.07.TS

Printed 6/28/2013

Page 3 of 4

Parameter		Unit	Ana	lyzed D	F MDL	RL	Result
808568-001 Chromium		ug/L	06/19	/2013 14:10 2.	000.184	1.0	ND
Method Blank							
Parameter	Unit	DF	Result				
Chromium	ug/L	1.00	ND				
Duplicate						Lab ID =	808568-001
Parameter	Unit	DF	Result	Expected	RPD	Accepta	ance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20	
Low Level Calibration	Verification	1					
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	0.150	0.200	74.8	70 - 130	
Lab Control Sample							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	ance Range
Chromium	ug/L	2.00	47.9	50.0	95.8	85 - 11	5
Matrix Spike						Lab ID =	808568-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Accepta	ance Range
Chromium	ug/L	2.00	48.9	50.0(50.0)	97.9	75 - 12	5
Matrix Spike Duplicate	е					Lab ID =	808568-001
Parameter	Unit	DF	Result	Expected/Added	l Recovery	Accepta	ance Range
Chromium	ug/L	2.00	47.1	50.0(50.0)	94.3	75 - 12	5
MRCCS - Secondary							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	19.7	20.0	98.6	90 - 110	ס
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	19.2	20.0	96.2	90 - 110	כ
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	•	ance Range
Chromium	ug/L	1.00	19.2	20.0	96.2	90 - 110)
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Accepta	ance Range
Chromium	ug/L	1.00	19.9	20.0	99.4	90 - 110	כ



Client: E2 Consulting Engineers, Inc.			Project Name: PG&E Topock Project Project Number: 423575.MP.07.TS			Page 4 of 4 Printed 6/28/2013	
Interference Check Sta	andard A						
Parameter Chromium Interference Check Sta	Unit ug/L andard A	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range	
Parameter Chromium Interference Check Sta	Unit ug/L andard AB	DF 1.00	Result ND	Expected 0	Recovery	Acceptance Range	
Parameter Chromium Interference Check Sta	Unit ug/L andard AB	DF 1.00	Result 18.4	Expected 20.0	Recovery 91.8	Acceptance Range 80 - 120	
Parameter Chromium	Unit ug/L	DF 1.00	Result 19.3	Expected 20.0	Recovery 96.6	Acceptance Range 80 - 120	

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

to - Mona Nassimi

Manager, Analytical Services

Section 4.0

Wet Chem Analysis/ Raw Data, Standard, Quality Control and Chain of Custody Records

QCBatch 06CrH13E

Chrome VI by EPA 218.6

Analyzed: 6/24/2013

Date: 6/24/2013 Page 1 of 1

	F	Result	Unit	DF	RL		Analyzed Da	te + Time
808567-001 Chromium, Hex 808568-001 Chromium, Hex Chromium, Hex	kavalent N	.190 ID ID	ug/L ug/L ug/L	1.00 1.00 5.00	0.200 0.200 1.00		6/24/2013	11:22:00 AM 11:53:00 AM 12:04:00 PM
Method Blank			a a	. + 10//				
Chromium, Hexavalent	Result ND	Unit ug/L	DF 1.00	Added 0	Lower	Upper	Recovery	RPD
Duplicate 808567-001					,			
Chromium, Hexavalent	Result 0.1880	Unit ug/L	DF 1.00	Added 0	Lower 0	Upper 20	Recovery	RPD 1.06
Low Level Calibration Verifica	ation							
Chromium, Hexavalent	Result 0.2008	Unit ug/L	DF 1.00	Added 0.200	Lower 70	Upper 130	Recovery 100	RPD
Lab Control Sample								
Chromium, Hexavalent	Result 5.0953	Unit ug/L	DF 1.00	Added 5.00	Lower 90	Upper 110	Recovery 102	RPD
Matrix Spike 808567-001								
Chromium, Hexavalent	Result 1.2042	Unit ug/L	DF 1.00	Added 1.00	Lower 90	Upper 110	Recovery 101	RPD
Matrix Spike 808568-001								
Chromium, Hexavalent Chromium, Hexavalent	Result 5.0739 1.0447	Unit ug/L ug/L	DF 5.00 1.00	Added 5.00 1.00	Lower 90 90	Upper 110 110	Recovery 101 104	RPD
MRCCS - Secondary								
Chromium, Hexavalent	Result 5.1387	Unit ug/L	DF 1.00	Added 5.00	Lower 90	Upper 110	Recovery 103	RPD
MRCVS - Primary					***************************************			A CONTRACTOR OF THE PARTY OF TH
Chromium, Hexavalent Chromium, Hexavalent	Result 10.0963 10.0708	Unit ug/L ug/L	DF 1.00 1.00	Added 10.0 10.0	Lower 95 95	Upper 105 105	Recovery 101 101	RPD



Metals by EPA 6020A, Dissolved

Analyzed: 6/19/2013

Date: 6/28/2013 Page 1 of 1

	Result ND		Unit	DF	RL		Analyzed Date + Time 6/19/2013 2:10:00 PM		
808568-001 Chromium			ug/L	2.00	1.00				
Method Blank								·	
Chromium	Result ND	Unit ug/L	DF 1.00	Added 0	Lower	Upper	Recovery	RPD	
Duplicate 808568-001									
Chromium	Result ND	Unit ug/L	DF 2.00	Added 0	Lower 0	Upper 20	Recovery	RPD 0	
Low Level Calibration Verifica	ntion								
Chromium	Result 0.1497	Unit ug/L	DF 1.00	Added 0.200	Lower 70	Upper 130	Recovery 74.8	RPD	
Lab Control Sample									
Chromium	Result 47.88	Unit ug/L	DF 2.00	Added 50.0	Lower 85	Upper 115	Recovery 95.8	RPD	
Matrix Spike 808568-001									
Chromium	Result 48.93	Unit ug/L	DF 2.00	Added 50.0	Lower 75	Upper 125	Recovery 97.9	RPD	
Matrix Spike Duplicate 80856	8-001								
Chromium	Result 47.13	Unit ug/L	DF 2.00	Added 50.0	Lower 75	Upper 125	Recovery 94.3	RPD 3.75	
MRCCS - Secondary									
Chromium	Result 19.71	Unit ug/L	DF 1.00	Added 20.0	Lower 90	Upper 110	Recovery 98.6	RPD	
MRCVS - Primary		, , , , , , , , , , , , , , , , , , , ,							
Chromium Chromium Chromium	Result 19.25 19.23 19.87	Unit ug/L ug/L ug/L	DF 1.00 1.00 1.00	Added 20.0 20.0 20.0	Lower 90 90 90	Upper 110 110 110	Recovery 96.2 96.2 99.4	RPD	
Interference Check Standard	Α	<u>, , , , , , , , , , , , , , , , , , , </u>	***************************************						
Chromium Chromium	Result ND ND	Unit ug/L ug/L	DF 1.00 1.00	Added 0 0	Lower	Upper	Recovery	RPD	
Interference Check Standard	AB								
Chromium Chromium	Result 18.35 19.31	Unit ug/L ug/L	DF 1.00 1.00	Added 20.0 20.0	Lower 80 80	Upper 120 120	Recovery 91.8 96.6	RPD	

5-6128/13

208568

CH2MHILL

CHAIN OF CUSTODY RECORD

6/18/2013 10:37:42 AM

Page 1 OF 1

			0/10/2013 10.37.42 All	_ `' .	· · · · · · · · · · · · · · · · · · ·
Project Name PG&E Topock Contain	Poly	500 ml Poly			
Location Topock Preservativ	(NH4)2S s: O4/NH4O	HNO3, 4°C			
Project Manager Jay Piper	H, 4°C				
Sample Manager Shawn Duffy Filten	d: Field	Field			
Holding Tir	e: 28	180			
Project Number 423575.MP.07.TS		_			
Task Order	Cr6	Metals		a production of the second	
Project 2013-GMP-192-Q2		ıls (ı	produces a resident and a resident a	Z	
Turnaround Time 10 Days	1 218.	602 CI		Numbei	
Shipping Date: 4/11/2013	(6) F	OA)		er o	
COC Number: TLI-192-Q2	(E218.6) Field Filtered	(6020A) Field Chromium	Level III QC	fC	
	∏	d Fil		ont	
	ered	Filtered		ıtaine	
DATE TIME Matr	1	ă.		SJ6	COMMENTS
MW-66BR-270-192 6/18/2013 10:56 Water	r x	X		2	DH-2
			TOTAL NUMBER OF CONTAINERS		60201

For Sample Conditions See Form Attached

Approved by	Signatures	Date/Time	Shipping Details		Special Instructions:
mpled by		6-18-13	Method of Shipment: FedEx	ATTN:	April 15 to May 9, 2013
Relinquished by	0/2	(1.0/12.14)	On Ice: yes / no	Sample Custody	
Received by Relinquished by	and Lavila	6/18/13	્રી(ab) Name: Truesdail Laboratories, Inc.		Report Copy to Shawn Duffy
Received by	fact soo the	W/ 10 (12 ×	Lab Phone: (714) 730-6239		(530) 2 29-3303

Hexavalent Chromium Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
5/23/13	308111-3	7.0	0.5 N 125 ml	9.5	16:00	Ton
5/30/13	808179	7.0	2 ml/100 ol	9.5	7.'36	HAV
615113	808 266-1	7.0	2 ml / 100 ml	9-5	9:30	NÉ
L	-2	1	1	1		NE
	808267-1	7.0	2 ml/100 ml	9.5	9:30	NE
	~2	1	V		V	NE
	308268	9.5	N/4	NI A	NIA	NE
	808270	9.5	N ₁ 4	MIA	NIA	NB
	808271-1)				NZ
	1 -2					NE
4	V ~3	V	V	V	<i>V</i> .	NE
46117	8-33-01-1	9.5	N1.4	NA	NiA	NE
J	\$08 272-1	Ţ	j	L L	J	NE
6/4/13	808 272-1	7.0	2 ml/100 mc	9.5	12:80	M
	2					
	- 3					
	_ 4					
	- 5					
	-6					
	- 7					
V	V -8			1		
6/12/13	808407	7.0	2 ml/100ml	9.5	8:30	NE
7 7 7	808567	7.0	2 ml/local	9.5	8:00	NE
	808 568	9.5	MA	WIA	NIA	NE
6/20/13	80.8596-1	7-0	2 m L / 100 m L	a.5	B: 40	TH
	-2				8:46	
	-3				8:45	
V	J -4		<u> </u>		8: 45	1

(M) (125) 13

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Turbidity/pH Check

808 490 21 22 61(11) E5 4-15 808 491 \$08 492 \$08 492 \$08 492 \$08 85361-274 \$08 85361-10 \$08 8536				Turbic	dity/pH C	HECK			
808 491 \$08 492 \$0852961-274) <1 72 6-18-13 BE NO 8:40 \$08537 T (1) 72 6-19-13 BE X = 5:30 \$08537 71 >2 6 19 13 DV 44 15:30 \$08537 71 >2 6 19 13 DV 44 15:30 \$08542	Sample Number		-	Date	Analyst	Need Digest	Adjusted		Comments
808 491 \$08 492 \$08587 T	sv8490	21	L2	6/14/12	ES	y-es			
\$98529(1-2)4) \$1 72 6-12-13 BL NO 8:40 \$08536(1-14) \$2 \$08536(1-14) \$2 \$08558(1-3) \$2 \$08587 71 72 6 10 13 PV 44 15:70 \$08545 \$2 \$08545 \$2 \$08545 \$2 \$08545 \$2 \$08546 \$2 \$085586 \$2 \$0866		1	ı	1	1	1			
マのを分です (1) 72 (-19-13 BE X = 5 を130	508 492		-	L		U			
マのを分です (1) 72 (-19-13 BE X es を130	9.0852911-274)	< 1	72	6-18-13	BE	NO.	8:40		
80 8536(1-4) \$0 85 85 (\$\frac{1}{2} \cdot \) \$0 85 85 1 - 3 \ \) \$0 85 85 1 - 3 \ \) \$0 85 85 2 \ \ \$0 85 85 1 - 3 \ \) \$0 85 85 1 - 3 \ \ \$0 85 85 1 - 3 \ \) \$0 85 85 1 - 3 \ \ \$0 85 85 1 - 3 \ \) \$0 85 85 1 - 3 \ \ \$0 85 85 1 - 3 \ \) \$0 85 85 1 - 3 \ \ \$0 85 85 1 - 3 \ \)	508567 T		72	6-19-13	BZ	xes	8:30		
\$0.8558(\frac{1.2}{2.6}) 72 \$0.8587 71 72 \$[10]13 \$[10]13 \$[10]13 \$[10]14 \$[10]15	80853661-41	ļ	12	1	1			-	
\$08582 \\ \frac{1}{2}	808568	J	J	,	1	J			
\$08587 71 72 6 9 13 15:30 80842 21 22 20 20 20 20 20 20	808558(1-21		72	Ī	7	~e	11:40	8.51	<2
\$08587 71 72 6 9 1 3 pv y 1 15:30 80872 41 42 808743 808745 808846 808846 808846 \$08876 1 72 6-20-13 Bt No 7:00 6-21 <2 808597(1-6) <1 <2 J Yes 808619 <1 >2 6-21-13 Bt No 7:00 6.25 <2 808619 <1 >2 6-21-13 Bt No 7:00 6.25 <2 808592 <1 >2 808592 <1 >2 No 9:30 808611 <1 >2 No 9:30 10:30	80856561-31			J	J	J	6	J	ų į
808642	808587	71	72	6/19/13	or		15:30		
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808592 <1 >2 NO 9100 6.25 <2 808592 <1 >2 NO 9100 6.25 <2 808611 <1 >2 NO 9100 6.25	808597(1-6)	<1	42	Ţ	7	yes			
808592 <1 >2 NO 9100 6.25 <2 808592 <1 >2 NO 9100 6.25 <2 808611 <1 >2 NO 9100 6.25		· < 1	72	6-21-13	BE	NO	7:00	6,25	12
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Notes:

- Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
 All Total Recoverable Analytes must be pH adjusted and digested.
 Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.



Sample Integrity & Analysis Discrepancy Form

Clie	ent: E2	Lab # <u>808568</u>
Date	e Delivered: <u>06 / 18</u> / 13 Time: <u>2/:′</u> 3 [©] By: □Mail <i>⊠</i> (F	ield Service □Client
1.	Was a Chain of Custody received and signed?	AYes □No □N/A
2.	Does Customer require an acknowledgement of the COC?	□Yes □No ÆN/A
3.	Are there any special requirements or notes on the COC?	□Yes □No □N/A
4.	If a letter was sent with the COC, does it match the COC?	□Yes □No ДN/A
5 .	Were all requested analyses understood and acceptable?	☑Yes □No □N/A
<i>6</i> .	Were samples received in a chilled condition? Temperature (if yes)? <u>₹ • • • • • • • • • • • • • • • • • • </u>	⊒Yes □No □N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc)?	ØYes □No □N/A
8.	Were sample custody seals intact?	□Yes □No ÆN/A
9.	Does the number of samples received agree with COC?	✓Yes □No □N/A
10.	Did sample labels correspond with the client ID's?	Axes □No □N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☐ Truesdail ☐ Client	Yes INO IN/A
12.	Were samples pH checked? pH = <u>\$CLC</u> , O, C	ŽÍVes □No □N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	dyes and ana
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): □ RUSH Ď Std	ØYes □No □N/A
15.	Sample Matrix: □Liquid □Drinking Water □Ground \□Sludge □Soil □Wipe □Paint □Solid ☑	<i>Water</i> □ <i>Waste Water</i> Other <i>Wa LCR</i>
16.	Comments:	·
17.	Sample Check-In completed by Truesdail Log-In/Receiving: _	S. Mabunin

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ANALYTICAL REPORT

For:

PGE Topock

ASL Report #: M1714

Project ID: 423575.MP.07.TS

Attn: Jay Piper

cc:

Data Center/RDD

Authorized and Released By:

Laboratory Project Manager

Kothy Mckincey

Kathy McKinley

(541) 758-0235 ext.23144

May 16, 2013

This data package meets standards requested by client and is not intended or implied to meet any other standard.

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

ASL Report #: M1714

Sample Receipt Comments

We certify that the test results meet all standard ASL requirements.

Sample Cross-Reference

ASL		Date/Time	Date
Sample ID	Client Sample ID	Collected	Received
M171401	MW-122-192	04/15/13 17:15	04/23/13
M171402	MW-27-020-192	04/15/13 11:20	04/23/13
M171403	MW-27-060-192	04/15/13 12:41	04/23/13
M171404	MW-30-030-192	04/15/13 15:27	04/23/13
M171405	MW-124-192	04/16/13 06:50	04/23/13
M171406	MW-34-100-192	04/16/13 13:27	04/23/13
M171407	MW-125-192	04/18/13 06:25	04/23/13
M171408	MW-28-025-192	04/18/13 08:24	04/23/13
M171409	MW-28-090-192	04/18/13 09:15	04/23/13
M171410	MW-29-192	04/18/13 10:39	04/23/13
M171411	MW-44-125-192	04/18/13 16:10	04/23/13

CASE NARRATIVE GENERAL CHEMISTRY ANALYSIS

Lab Nar	ne: <u>(</u>	CH2M HILL/LAB/CVO	ASL SDG#:	<u>M1714</u>	
Project:	<u>PG</u>	E Topock	Project #:	423575.MP.	.07.TS
I.		od(s): vsis: E353.2			
II.		pt/Holding Times: eceptance criteria were met.			
III.	Analy	vsis:			
	A.	Initial Calibration(s): All acceptance criteria were met.			
	B.	Calibration Verification(s): All acceptance criteria were met.			
	C.	Blanks: All acceptance criteria were met.			
	D.	<u>Laboratory Control Sample(s):</u> All acceptance criteria were met.			
	E.	Matrix Spike/Matrix Spike Duplicate S Analyzed in accordance with standard		edure.	
	F.	Analytical Exception(s): None.			
IV.	<u>Docu</u> None	mentation Exception(s):			
v.	CH2N the da	ify that this data package is in compliance M HILL, both technically and for complete at a contained in this hardcopy data package nee, as verified by the following signatures	eness, except for e has been author	r the conditio	ons detailed above. Release of
Prepare	d by:	2/1/2:		Date: _	5/1/2013
Review	ed by:	Kashy moknie	و1	Date:	514/13

Field Sample ID:

MW-122-192

SDG No.: M1714

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M171401

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	บ	mg/L	1	2 ML	E353.2	04/26/13
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Field Sample ID:

MW-27-020-192

SDG No.: M1714 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M171402

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	04/26/13
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Field Sample ID:

MW-27-060-192

SDG No.: M1714 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M171403

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	บ	mg/L	1	2 ML	E353.2	04/26/13
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Field Sample ID:

MW-30-030-192

SDG No.: M1714 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M171404

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	04/26/13
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Field Sample ID:

MW-124-192

SDG No.: M1714

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M171405

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	ט	mg/L	1	2 ML	E353.2	04/26/13
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Field Sample ID:

MW-34-100-192

SDG No.: M1714

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M171406

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	04/26/13
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Field Sample ID:

MW-125-192

SDG No.: M1714 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M171407

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	04/26/13

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Field Sample ID:

MW-28-025-192

SDG No.: M1714

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M171408

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	Ū	mg/L	1	2 ML	E353.2	04/26/13

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Field Sample ID:

MW-28-090-192

SDG No.: M1714 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M171409

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	ŭ	mg/L	1	2 ML	E353.2	04/26/13
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Field Sample ID:

MW-29-192

SDG No.: M1714 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M171410

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	04/26/13
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Field Sample ID:

MW-44-125-192

SDG No.: M1714 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M171411

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	ט	mg/L	1	2 ML	E353.2	04/26/13
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Field	Sample	ID:
WE	3-0426	

SDG No.: M1714 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: WB3-0426

Date Received: __/_/

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	บ	mg/L	1	2 ML	E353.2	04/26/13

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7-WC

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1714 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2 LCS ID: BS3W0426

Initial Calibration ID: 042613NO23Cal Date Analyzed: 04/26/13

Matrix: (Soil/Water) WATER Time Analyzed: 1647

Instrument: <u>LACH8500</u> Concentration Units: <u>MG/L</u>

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.876	0.830	95	90-110	
					1
					1
					1
		**************************************			1
			1		
					†
			†		

^{*} Values outside of QC limits

Comments	:

CH2MHII	LL				CHAIN OF CUSTODY RECORD 4/16/2013 4:10:04 PM Page 1	OF	1_
Project Name Project Name Project Manager	ck	, , , , , , , , , , , , , , , , , , ,	Container servatives:	Poly H2SO4.	m1714		
Sample Manager	r Shawn Du		Filtered: ding Time:				
Project Number Task Order Project 2013-GN Turnaround Time Shipping Date: COC Number: 3	MP-192-Q2 e 10 Day 4/16/2013	s	Matrix	Nitrate/Nitrite (SM4500NO3) Nitrate		Number of Containers	COMMENTS
MW-122-192	4/15/2013	17:15	Water	х		1	1
MW-27-020-192	4/15/2013	11:20	Water	х		1	2
MW-27-060-192	4/15/2013	12:41	Water	х		1	3
MW-30-030-192	4/15/2013	15:27	Water	х		1	4
WW-124-192	4/16/2013	6:50	Water	х		1	S
MW-34-100-192	4/16/2013	13:27	Water	х		1	6
	•			•	TOTAL NUMBER OF CONTAINERS	6	

Bignatures Approved by Sampled by Relinquished by Receivedby Relinquished by Receivedby

Shipping Details Method of Shipment: On Ice: (yes

Airbill No:

Lab Name: CH2M HILL Applied Sciences Lab Lab Phone: (541) 752-4271

ATTN:

Special Instructions: April 15 to May 9, 2013

Sample Custody

and Kathy McKinley **Report Copy to** Shawn Duffy (530) 229-3303

CH2MHIL	_L				CHAIN OF CUSTODY RECORD 4/18/2013 4:21:01 PM Page 1	OF .	1
Project Name Po Location Topod Project Manager	k		Container:	Poly H2SO4,	m1714		
Sample Manager	Shawn Du	•	Filtered: ding Time:				
Project Number Task Order Project 2013-GN Turnaround Time Shipping Date: COC Number: 6	IP-192-Q2 • 10 Day 4/18/2013	rs	Matrix	Nitrate/Nitrite (SM4500NO3) Nitrate		Number of Containers	COMMENTS
MW-125-192	4/18/2013	6:25	Water	х		1	7
MW-28-025-192	4/18/2013	8:24	Water	х		1	8
MW-28-090-192	4/18/2013	9:15	Water	х		1	9
MW-29-192	4/18/2013	10:39	Water	х		1	10
MW-44-125-192	4/18/2013	16:10	Water	х		1	1/
					TOTAL NUMBER OF CONTAINERS	5	

Signatures Date/Time 4~18-13 1645 **Shipping Details Special Instructions:** Approved by ATTN: April 15 to May 9, 2013 Method of Shipment: Sampled by On Ice: PS no 2.4 IR Relinquished by Sample Custody Received by Airbill No: and **Report Copy to** Relinquished by Lab Name: CH2M HILL Applied Sciences Lab Kathy McKinley **Shawn Duffy** (530) 229-3303 1848 Lab Phone: (541) 752-4271 Receive&by

FELLW QUEHED



Sample Receipt Record

Batch Number: MT (4 Client/Project: Topock		Date received: Checked by:	4-2	3-13 MS	
		Checked by:		_	
VERIFICATION OF SAMPLE CONDITIONS (verify a	ill items), HD = Client Hand delivered S	Samples	NA	YES	NO
Radiological Screening for DoD			V		
Were custody seals intact and on the outside of th	e cooler?			V	
Type of packing material Ice Blue Ice Bubble w	rap				
Checked by RIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples diological Screening for DoD are custody seals intact and on the outside of the cooler? are of packing material De Blue Ice (Bubble wrap) as a Chain of Custody (CoC) Provided? as the CoC correctly filled out (If No, document in the SRER) at the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC) are the sample containers in good condition (broken or leaking)? Intainers supplied by ASL? y sample with < 1/2 holding time remaining? If so contact LPM mples have multi-phase? If yes, document on SRER as there ice in the cooler? Enter temp. If >6°C contact client/SRER VOCs free of air bubbles? No, document on SRER of all samples checked and met requirements? No, then document in SRER d sample labels agree with COC? No, document in SRER d sample labels agree with COC? No, document in SRER ssolved/Soluble metals filtered in the field? ssolved/Soluble metals have sediment in bottom of container? Document in SRER				\ \	
Was the CoC correctly filled out (If No, document i			\ \		
Did the CoC list a correct bottle count and the pres	-Corrected on CoC)		\	l	
Checked b RIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples diological Screening for DoD ere custody seals intact and on the outside of the cooler? De of packing material Blue Ice Bubble wrap as a Chain of Custody (CoC) Provided? as the CoC correctly filled out (If No, document in the SRER) If the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC ere the sample containers in good condition (broken or leaking)? Intainers supplied by ASL? If y sample with < 1/2 holding time remaining? If so contact LPM Imples have multi-phase? If yes, document on SRER as there ice in the cooler? Enter temp. If >6°C contact client/SRER I Could sample sheeked and met requirements? No, then document in SRER ough sample volume provided for analysis? No, document in SRER as sample labels agree with COC? No, document in SRER as solved/Soluble metals filtered in the field? solved/Soluble metals have sediment in bottom of container? Document in SRER				\ \	
Containers supplied by ASL?					
Any sample with < 1/2 holding time remaining? If	so contact LPM				V
the custody seals intact and on the outside of the cooler? Blue Ice Blue Ice Bubble wrap Is a Chain of Custody (CoC) Provided? Is the CoC correctly filled out (If No, document in the SRER) Ithe CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC) For the sample containers in good condition (broken or leaking)? Intainers supplied by ASL? If y sample with < 1/2 holding time remaining? If so contact LPM Imples have multi-phase? If yes, document on SRER Is there ice in the cooler? Enter temp. If >6°C contact client/SRER If yes and the cooler in SRER If yes and the cooler in					/
Was there ice in the cooler? Enter temp. If >6°C of	contact client/SRER	1.6 ℃		~	
All VOCs free of air bubbles? No. document on Si	RFR		V		
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	in SRER	V			
Vere the sample containers in good condition (broken or leaking)? Containers supplied by ASL? In y sample with < 1/2 holding time remaining? If so contact LPM Camples have multi-phase? If yes, document on SRER Vas there ice in the cooler? Enter temp. If >6°C contact client/SRER If you will VOCs free of air bubbles? No, document on SRER H of all samples checked and met requirements? No, then document in SRER Inough sample volume provided for analysis? No, document in SRER Inough sample labels agree with COC? No, document in SRER Dissolved/Soluble metals filtered in the field? Dissolved/Soluble metals have sediment in bottom of container? Document in SRER		Peagent Lot Number	Volume	Addod	Initials
Jampie ID	Neagent	Reagent Lot Number	Volume	Auueu	IIIILIGIS
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ACTION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples iological Screening for DoD e custody seals intact and on the outside of the cooler? e of packing material De Blue Ice Bubble wrap e a Chain of Custody (CoC) Provided? e the CoC correctly filled out (If No, document in the SRER) the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC e the sample containers in good condition (broken or leaking)? tainers supplied by ASL? sample with < 1/2 holding time remaining? If so contact LPM sples have multi-phase? If yes, document on SRER e there ice in the cooler? Enter temp. If >6°C contact client/SRER OCS free of air bubbles? No, document on SRER of all samples checked and met requirements? No, then document in SRER sample labels agree with COC? No, document in SRER solved/Soluble metals filtered in the field? solved/Soluble metals have sediment in bottom of container? Document in SRER					
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ANALYTICAL REPORT

For:

PGE Topock

ASL Report #: M1765_AZ

Project ID: 423575.MP.07.TS

Attn: Jay Piper

cc:

Data Center/RDD

Authorized and Released By:

Laboratory Project Manager

Kothy Mckincey

Kathy McKinley

(541) 758-0235 ext.23144

July 11, 2013

This data package meets standards requested by client and is not intended or implied to meet any other standard.

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

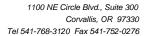
ASL Report #: M1765

Sample Receipt Comments

We certify that the test results meet all standard ASL requirements.

Sample Cross-Reference

ASL		Date/Time	Date
Sample ID	Client Sample ID	Collected	Received
M176501	MW-240-192	04/25/13 14:30	04/30/13
M176502	MW-54-085-192	04/25/13 11:52	04/30/13
M176503	MW-54-140-192	04/25/13 13:00	04/30/13
M176504	MW-54-195-192	04/25/13 10:37	04/30/13
M176505	MW-90-195-192	04/25/13 10:38	04/30/13





CASE NARRATIVE METALS ANALYSIS

Lab Name: CH2M HILL ASL ASL SDG#: M1765

Project: PGE Topock **Project #:** 423575.MP.07.TS

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):

SW6020: FLDFLT

Analytical Exception(s):

SW6020: Client samples required dilution due to high dissolved solids.

Field Sample ID:

MW-54-085-192

SDG No.: M1765 Lab Name: CH2M HILL ASL

Matrix: WATER Lab Sample ID: M176502

Percent Moisture: 100 Date Received: 04/30/13

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	С	Q	М
7440-38-2	Arsenic	07/03/13	2	0.0600	0.200	2.64			MS
7440-47-3	Chromium	07/03/13	2	0.0877	1.00	1.28			MS
7439-96-5	Manganese	07/03/13	2	0.0500	0.500	49.4			MS

Comments:			
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Field Sample ID:

MW-54-140-192

SDG No.: M1765 Lab Name: CH2M HILL ASL

Matrix: WATER Lab Sample ID: M176503

Percent Moisture: 100 Date Received: 04/30/13

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	С	Q	М
7440-38-2	Arsenic	07/03/13	2	0.0600	0.200	1.42			MS
7440-47-3	Chromium	07/03/13	2	0.0877	1.00	1.00	U		MS
7439-96-5	Manganese	07/03/13	2	0.0500	0.500	4.65			MS
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Comments:			

Field Sample ID:

MW-54-195-192

SDG No.: M1765 Lab Name: CH2M HILL ASL

Matrix: WATER Lab Sample ID: M176504

Percent Moisture: 100 Date Received: 04/30/13

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	С	Q	M
7440-38-2	Arsenic	07/03/13	2	0.0600	0.200	0.200	U		MS
7440-47-3	Chromium	07/03/13	2	0.0877	1.00	1.00	U		MS
7439-96-5	Manganese	07/03/13	2	0.0500	0.500	13.7			MS
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Comments:			
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Field Sample ID:

MW-90-195-192

SDG No.: M1765 Lab Name: CH2M HILL ASL

Matrix: WATER Lab Sample ID: M176505

Percent Moisture: 100 Date Received: 04/30/13

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	С	Q	М
7440-38-2	Arsenic	07/03/13	2	0.0600	0.200	0.200	U		MS
7440-47-3	Chromium	07/03/13	2	0.0877	1.00	1.00	U		MS
7439-96-5	Manganese	07/03/13	2	0.0500	0.500	47.7			MS

Comments:			

Field Sample ID:

MW-90-195-192MS

SDG No.: M1765 Lab Name: CH2M HILL ASL

Matrix: WATER Lab Sample ID: M176505MS

Percent Moisture: 100 Date Received: 04/30/13

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	С	Q	М
7440-38-2	Arsenic	07/03/13	2	0.0600	0.200	35.2			MS
7440-47-3	Chromium	07/03/13	2	0.0877	1.00	37.6			MS
7439-96-5	Manganese	07/03/13	2	0.0500	0.500	85.2			MS

Comments:			
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Field Sample ID:

MW-90-195-192MSD

SDG No.: M1765 Lab Name: CH2M HILL ASL

Matrix: WATER Lab Sample ID: M176505MSD

Percent Moisture: 100 Date Received: 04/30/13

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	С	Q	М
7440-38-2	Arsenic	07/03/13	2	0.0600	0.200	36.9			MS
7440-47-3	Chromium	07/03/13	2	0.0877	1.00	37.8			MS
7439-96-5	Manganese	07/03/13	2	0.0500	0.500	84.3			MS
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Comments:			
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Field Sample ID:

WB1-0703	

SDG No.: M1765 Lab Name: CH2M HILL ASL

Matrix: WATER Lab Sample ID: WB1-0703

Percent Moisture: 100 Date Received: / /

Preparation: Total Concentration Units: ug/L

Analyte	Date Analyzed	DF	DL	PQL	Result	С	Q	М
Arsenic	07/03/13	1	0.0300	0.100	0.100	U		MS
Chromium	07/03/13	1	0.0439	0.500	0.500	U		MS
Manganese	07/03/13	1	0.0250	0.250	0.250	U		MS
	Arsenic Chromium	Analyte Analyzed Arsenic 07/03/13 Chromium 07/03/13	Analyte Analyzed DF Arsenic 07/03/13 1 Chromium 07/03/13 1	Analyte Analyzed DF DL Arsenic 07/03/13 1 0.0300 Chromium 07/03/13 1 0.0439	Analyte Analyzed DF DL PQL Arsenic 07/03/13 1 0.0300 0.100 Chromium 07/03/13 1 0.0439 0.500	Analyte Analyzed DF DL PQL Result Arsenic 07/03/13 1 0.0300 0.100 0.100 Chromium 07/03/13 1 0.0439 0.500 0.500	Analyte Analyzed DF DL PQL Result C Arsenic 07/03/13 1 0.0300 0.100 0.100 U Chromium 07/03/13 1 0.0439 0.500 0.500 U	Analyte Analyzed DF DL PQL Result C Q Arsenic 07/03/13 1 0.0300 0.100 0.100 U Chromium 07/03/13 1 0.0439 0.500 0.500 U

Comments:			

SDG No.: M1765 Lab Name: CH2M HILL ASL

Matrix: Water Concentration Units:ug/L

Native Sample ID: MS Sample ID: MSD Sample ID: MW-90-195-192 MW-90-195-192MS MW-90-195-192MSD

		Native	MS			MSD				QC	QC		
		Sample	Spike	MS	MS	Spike	MSD	MSD		Limits	Limits		
Analyte	Method	Result	Added	Result	%R	Added	Result	%R	%RPD	%R	%RPD	Q	М
Arsenic	SW6020	0.200U	40.0	35.2	88	40.0	36.9	92	4.7	80-120	20		MS
Chromium	SW6020	1.00U	40.0	37.6	92	40.0	37.8	93	0.6	80-120	20		MS
Manganese	SW6020	47.7	40.0	85.2	94	40.0	84.3	92	1.0	80-120	20		MS
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Comments:

Dissolved Metals

Result values >MDL in the native sample are used in the MS/MSD recovery calculation.

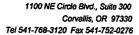
7 LABORATORY CONTROL SAMPLE

SDG No.: M1765 Lab Name: CH2M HILL ASL

Aqueous LCS ID: BS1W0703 Solid LCS ID:

Chromium SW6020 50.0 49.6 99 85-115			Aqueous (ug/L)			Sol	id (mg/Kg)			
Chromium SW6020 50.0 49.6 99 85-115	Analyte	Method	True	Found	%R	True	Found	%R	Limits	С
	Arsenic	SW6020	50.0	49.5	99				85-115	
Manganese SW6020 50.0 48.6 97 80-120	Chromium	SW6020	50.0	49.6	99				85-115	
	Manganese	SW6020	50.0	48.6	97				80-120	
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Comments:			





CASE NARRATIVE GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: M1765

Project: Project #: 423575.MP.07.TS

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Fie	1đ	Sample	ID:

MW-240-192

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M176501

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.120	0.200			ug/L	1	1000 UL	E218.6	06/26/2013
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Field Sample ID:

MW-240-192MS

SDG No.: M1765

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M176501MS

Date Received: <u>04/30/2013</u>

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.120	0.200	1.83		ug/L	1	1000 UL	E218.6	06/26/2013
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Field Sample ID:

MW-54-085-192

SDG No.: M1765

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M176502

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.120	0.200	0.200	Ū	ug/L	1	1000 UL	E218.6	06/26/2013
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Field Sample ID:

MW-54-085-192MS

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M176502MS

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.120	0.200	0.990		ug/L	1	1000 UL	E218.6	06/26/2013
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Field Sample ID:

MW-54-140-192

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M176503

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.120	0.200			ug/L	1	1000 UL	E218.6	06/26/2013
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Field Sample ID:

MW-54-140-192MS

SDG No.: M1765

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M176503MS

Date Received: <u>04/30/2013</u>

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.120	0.200	0.964		ug/L	1	1000 UL	E218.6	06/26/2013
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Field Sample ID:

MW-54-195-192

SDG No.: M1765 Lab Name: CH2M_HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M176504

Date Received: <u>04/30/2013</u>

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.601	1.00	1.00	ט	ug/L	5	1000 UL	E218.6	06/26/2013
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Field Sample ID:

MW-54-195-192MS

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M176504MS

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.601	1.00	5.03		ug/L	5	1000 UL	E218.6	06/26/2013
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Field Sample ID:

MW-90-195-192

SDG No.: M1765

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M176505

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.601	1.00	1.00	Ū	ug/L	5	1000 UL	E218.6	06/26/2013
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Field Sample ID:

MW-90-195-192MS

SDG No.: M1765

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M176505MS

Date Received: <u>04/30/2013</u>

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.601	1.00	4.64		ug/L	5	1000 UL	E218.6	06/26/2013
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Field	Sample	ID:	
WI	31-0626		

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: WB1-0626

Date Received: //

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.120				ug/L	1	1000 UL	E218.6	06/26/2013
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GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1765

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E218.6

LCS ID: BS1W0626

Initial Calibration ID: HexCr062513

Date Analyzed: 06/26/2013

Matrix: (Soil/Water) WATER

Time Analyzed: 1122

Instrument: ICJ

Concentration Units: ug/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Chromium, Hexavalent	11.9	11.9	100	90-110	
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^{*} Values outside of QC limits

Comments	:

CASE NARRATIVE GENERAL CHEMISTRY ANALYSIS

Lab Nar	ne: <u>CI</u>	H2M HILL/LAB/CVO	ASL SDG#	: <u>M1765</u>	
Project:	PGE	Topock	Project #:	423575.N	<u>MP.07.TS</u>
I.	Method Analysi	l <u>(s):</u> s: E120.1			
II.		/Holding Times: eptance criteria were met.			
III.	Analysi	<u>s:</u>			
	A.	Initial Calibration(s): All acceptance criteria were met.			
	В.	Calibration Verification(s): All acceptance criteria were met.			
	C.	Blanks: All acceptance criteria were met.			
	D.	Laboratory Control Sample(s): All acceptance criteria were met.			
	E.	Matrix Spike/Matrix Spike Duplicate Sar Analyzed in accordance with standard op	• •	edure.	
	F.	Analytical Exception(s): Samples were filtered upon arrival to exte	end holding t	ime to 28 d	ays.
IV.	Docum None.	entation Exception(s):			
V.	CH2M the data	that this data package is in compliance wi HILL, both technically and for completene contained in this hardcopy data package he, as verified by the following signatures.	ess, except for	r the condit	ions detailed above. Release of
Prepare	d by: $<$	The state of the s		Date:	5-13-13
Reviewe	ed by:	"Kastry mokente	1	Date:	5/14/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-085-192

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M176502

Conductivity		PQL	Result	Q	Units	DF	Amount	Method	Analyzed
-	N/A	10.0	9170		umhos/	1	25 ML	E120.1	04/30/13
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Field Sample ID:

MW-54-140-192

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M176503

CAS No.	Analyte	DĽ	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	11800		umhos/	1	25 ML	E120.1	04/30/13
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1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-54-195-192

SDG No.: <u>M1765</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M176504

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	18300		umhos/	1	25 ML	E120.1	04/30/13
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1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-90-195-192

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M176505

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	18200		umhos/	1	25 ML	E120.1	04/30/13

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-0430	
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SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: WB1-0430

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	10.0	U	umhos/	1	25 ML	E120.1	04/30/13
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GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: $\underline{\texttt{E120.1}}$ LCS ID: $\underline{\texttt{BS1W0430}}$

Initial Calibration ID: $\underline{\text{NONE}}$ Date Analyzed: $\underline{\text{O4/30/13}}$

Matrix: (Soil/Water) WATER Time Analyzed: 1555

Instrument: NONE Concentration Units: umhos/cm

7	Them a shee 3	D	9.n	QC Limits %R	
Analyte	Expected	Found	%R		Q
Conductivity	384	377	98	80-120	
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^{*} Values outside of QC limits

Comments:		

4,9°C m1765

CH2MHILL

CHAIN OF CUSTODY RECORD

4/25/2013 4:02:19 PM

Page 1 OF 1

CARAMI III	L							4/20/20/15 4.02.75 TW	OI _	<u>'</u>
Project Name P Location Topo Project Manager	ck		tainer: atives:	2x250 ml Poly (NH4)2S O4/NH4O	500 ml Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	1 Liter Poly 4°C			
Sample Manage		fy fi	ltered:	H, 4°C Field	Field	Field	NA NA			
		Holding	Time:	28	180	180	14			
Project Number Task Order Project 2013-Gl Turnaround Tim Shipping Date: COC Number:	MP-192-AZ ne 12 Days 4/30/2013 1		atrix	Cr6 (E218.6R) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered As,Mn	Metals (6020A) Field Filtered • Chromium	Specific Conductance (E120.1)		Number of Containers	COMMENTS
MW-240-192	4/25/2013	14:30 W	/ater	χД	: ا	shoreth.			1	1] BEC
MW-54-085-192	4/25/2013	11:52 W	later	х	x t	хì	x١		4	2
MW-54-140-192	4/25/2013	13:00 W	/ater	х	х	x	x j		4	3
MW-54-195-192	4/25/2013	10:37 W	/ater	х	х	х	х		4	4
MW-90-195-192	4/25/2013	10:38 W	/ater	х	х	х	х		4	5
					1		-	TOTAL NUMBER OF CONTAINERS	28	
										R61

Approved by

Sampled by Relinquished by

Receired by

Relinquished by

Receiged by RELINGUISED:

Signatures

Shipping Details Method of Shipment:

courier

On Ice: yes / no

4/25/100 1637 Airbill No:

Lab Name: CH2M HILL Applied Sciences Lab

4/30/13 10:22ab Phone: (541) 752-4271

4/29/13 10:50

ATTN:

Special Instructions:

April 15 to May 9, 2013

Sample Custody

and

Kathy McKinley

Report Copy to Shawn Duffy

(530) 229-3303

ANALYTICAL REPORT

For:

PGE Topock

ASL Report #: M1765_Q2

Project ID: 423575.MP.07.TS

Attn: Jay Piper

cc:

Data Center/RDD

Authorized and Released By:

Laboratory Project Manager

Kothy Mckincey

Kathy McKinley

(541) 758-0235 ext.23144

May 21, 2013

This data package meets standards requested by client and is not intended or implied to meet any other standard.

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

Sample Receipt Comments

We certify that the test results meet all standard ASL requirements.

Sample Cross-Reference

ASL		Date/Time	Date
Sample ID	Client Sample ID	Collected	Received
M176507	MW-21-192	04/24/13 09:55	04/30/13
M176508	MW-36-100-192	04/24/13 15:20	04/30/13
M176509	MW-44-115-192	04/24/13 13:50	04/30/13
M176510	MW-46-175-192	04/24/13 11:08	04/30/13
M176511	MW-63-065-192	04/25/13 09:40	04/30/13
M176512	MW-70-105-192	04/25/13 11:45	04/30/13
M176513	MW-72-080-192	04/25/13 13:29	04/30/13
M176514	MW-33-040-192	04/22/13 11:07	04/30/13
M176515	MW-33-090-192	04/22/13 13:37	04/30/13
M176516	MW-33-150-192	04/22/13 15:03	04/30/13
M176517	MW-33-210-192	04/23/13 09:24	04/30/13
M176518	MW-35-060-192	04/23/13 14:15	04/30/13
M176519	MW-57-185-192	04/23/13 15:26	04/30/13

CASE NARRATIVE GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: M1765 Project: PGE Topock Project #: 423575.MP.07.TS I. Method(s): Analysis: E353.2 II. Receipt/Holding Times: All acceptance criteria were met. III. Analysis: A. Initial Calibration(s): All acceptance criteria were met. B. Calibration Verification(s): All acceptance criteria were met. C. Blanks: All acceptance criteria were met. D. Laboratory Control Sample(s): All acceptance criteria were met. E. Matrix Spike/Matrix Spike Duplicate Sample(s): Analyzed in accordance with standard operating procedure. Analytical Exception(s): F. None. IV. Documentation Exception(s): None. V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures. Prepared by: Date: 5/12/2013

Reviewed by: Courtury McKinley Date: 57/3/13

Field Sample ID:

MW-21-192

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M176507

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0152				mg/L	5	2 ML		05/08/2013
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Field Sample ID:

MW-36-100-192

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M176508

Date Received: <u>04/30/2013</u>

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML		05/08/2013
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Field Sample ID:

MW-44-115-192

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M176509

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
иозио2и	Nitrate/Nitrite-N	0.00303				mg/L	1	2 ML	E353.2	05/08/2013
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Field Sample ID:

MW-46-175-192

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M176510

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500			mg/L	1	2 ML		05/08/2013
NOSKOZN	THE STATE OF THE S		0.500			57.2		2 .111	3333.2	05/00/2015
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Field Sample ID:

MW-63-065-192

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M176511

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
N03N02N	Nitrate/Nitrite-N	0.00303				mg/L	1	2 ML		05/08/2013
NO3NO2N	Niciace/Niciite-N	0.00303	0.500	0.631		11971	<u> </u>	2 ML	E353.2	05/08/2013
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Field Sample ID:

MW-70-105-192

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M176512

Date Received: <u>04/30/2013</u>

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0152	2.50	4.50		mg/L	5	2 ML	E353.2	05/08/2013

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Field Sample ID:

MW-72-080-192

SDG No.: M1765

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M176513

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
	Nitrate/Nitrite-N	0.00303			_~	mg/L	1	2 ML		05/08/2013
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Field Sample ID:

MW-33-040-192

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M176514

Date Received: <u>04/30/2013</u>

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
иозиози	Nitrate/Nitrite-N	0.00303	0.500	0.500	Ū	mg/L	1	2 ML	E353.2	05/08/2013
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Field Sample ID:

MW-33-090-192

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

 ${\tt Matrix:} \ \ \underline{{\tt WATER}} \qquad \qquad {\tt Lab \ Sample \ ID:} \ \underline{{\tt M176515}}$

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	1.53		mg/L	1	2 ML	E353.2	05/08/2013
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Field Sample ID:

MW-33-150-192

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M176516

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303				mg/L	1	2 ML	E353.2	05/08/2013

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Field Sample ID:

MW-33-210-192

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M176517

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500			mg/L	1	2 ML	E353.2	05/08/2013
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Field Sample ID:

MW-35-060-192

SDG No.: M1765

Lab Name: CH2M HILL/LAB/CVO

 ${\tt Matrix:}\ \underline{{\tt WATER}}$

Lab Sample ID: M176518

CAS No.	Analyte	DĿ	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
иозио2и	Nitrate/Nitrite-N	0.0303	5.00	11.4		mg/L	10	2 ML	E353.2	05/08/2013
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Field Sample ID:

MW-57-185-192

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M176519

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	05/08/2013
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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field	Sample	ID:	
WE	31-0508		

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: WB1-0508

Date Received: __/_/

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	Ū	mg/L	1	2 ML	E353.2	05/08/2013
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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field	Sample	ID:
WI	33-0508	

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: WB3-0508

Date Received: __/_/

110 1 7 11 3110								Sample	Analysis	Date
CAS No.	Analyte	DI	PQL	Result	Q	Units	DF	Amount	Method	Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	05/08/2013
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7-WC

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2 LCS ID: BS1W0508

Initial Calibration ID: <u>042613NO23Cal</u> Date Analyzed: <u>05/08/2013</u>

Matrix: (Soil/Water) WATER Time Analyzed: 1425

Instrument: <u>LACH8500</u> Concentration Units: <u>mg/L</u>

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.876	0.851	97	90-110	
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^{*} Values outside of QC limits

Comments:			

7-WC

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1765 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2 LCS ID: BS3W0508

Initial Calibration ID: 042613NO23Cal Date Analyzed: 05/08/2013

Matrix: (Soil/Water) WATER Time Analyzed: 1550

Instrument: <u>LACH8500</u> Concentration Units: <u>mg/L</u>

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.876	0.940	107	90-110	1
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^{*} Values outside of QC limits

Comments:				

4.9°C M 1765

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CH2MHILL CHAIN OF CUSTODY RECORD Page 1 OF 1 4/25/2013 4:05:47 PM 250 ml Container Project Name PG&E Topock Poly Location Topock H2SO4. Preservatives: pH<2, Project Manager Jay Piper Sample Manager Shawn Duffy Filtered: NA **Holding Time:** 28 Project Number 423575,MP.07.TS Nitrate/Nitrite (SM4500NO3) Nitrate Task Order Project 2013-GMP-192-Q2 Number of Containers Turnaround Time 10 Days Shipping Date: 4/25/2013 COC Number: 11 COMMENTS DATE TIME Matrix χĪ MW-21-192 1 4/24/2013 9:55 Water MW-36-100-192 4/24/2013 15:20 Water Х MW-44-115-192 4/24/2013 13:50 Water Х MW-46-175-192 4/24/2013 11:08 Water Х MW-63-065-192 4/25/2013 9:40 Water 1 Х MW-70-105-192 4/25/2013 11:45 Water Х 13

Approved by Sampled by

MW-72-080-192

4/25/2013

13:29

Water

Signatures

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Relinquished by

Received by

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RELINGUISHED:

Shipping Details

Method of Shipment:

On Ice: yes / no

Airbill No:

Lab Name: CH2M HILL Applied Sciences Lab

13 |0:25 Lab Phone: (541) 752-4271

ATTN:

Special Instructions:

TOTAL NUMBER OF CONTAINERS

April 15 to May 9, 2013

Sample Custody

and

Report Copy to

Kathy McKinley Shawn Duffy (530) 229-3303

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6

CH2MHILL **CHAIN OF CUSTODY RECORD** 4/23/2013 4:13:23 PM 250 ml Project Name PG&E Topock Container: Poly Location Topock H2SO4. Preservatives: pH<2, Project Manager Jay Piper Sample Manager Shawn Duffy Filtered: NA Holding Time: 28 Project Number 423575.MP.07.TS Nitrate/Nitrite (SM4500NO3)
Nitrate Task Order Project 2013-GMP-192-Q2 Number of Containers Turnaround Time 10 Days Shipping Date: 4/23/2013 COC Number: 8 DATE TIME Matrix COMMENTS MW-33-040-192 4/22/2013 11:07 Water Jх MW-33-090-192 13:37 4/22/2013 Water MW-33-150-192 4/22/2013 15:03 Water MW-33-210-192 9:24 4/23/2013 Water

Approved by Sampled by Relinquished by Received by

MW-35-060-192

MW-57-185-192

Relinduished by

Received by PELINAVISHED

4/23/2013

4/23/2013

14:15

15:26

Water

Water

X

Shipping Details

Method of Shipment:

On Ice: (S) no 3.6 171

Lab Name: CH2M HILL Applied Sciences Lab

Lab Phone: (541) 752-4271

ATTN:

Special Instructions:

April 15 to May 9, 2013

Sample Custody and

Kathy McKinley

Report Copy to Shawn Duffy

(530) 229-3303

TOTAL NUMBER OF CONTAINERS



Sample Receipt Exception Report

Sample Batch Number: M1765	Client/Project PGE TO POCK
The following exceptions were noted:	Comments (write number of exception description and the impacted sample numbers)
No custody seal as required by project	NO3/NO2 method on coo
2. No chain-of-custody provided	SMUSOD ASI will report
Analysis, description, date of collection not provided	NO3/NO2 Method on COO SM 4500 ASL will report Using £383.2
Samples broken or leaking on receipt.	
Temperature of samples inappropriate for analysis requested	
Container inappropriate for analysis requested	
7. Inadequate sample volume.	
Preservation inappropriate for analysis requested	
Samples received out of holding time for analysis requested	
10. Discrepancies between COC form and container labels.	
11. Other.	
ACTION TAKEN:	
1201	5//
Originator: / / / / / / / / / / / / / / / / / / /	Date: 2/2//> Client Contact:

Client Services:



Sample Receipt Record

Batch Number: M1765	-	Date received:	4/30/	13					
Client/Project: 1000CM	-	Oncoked by:	ed on CoC) A 9 °C L A 9 °C						
·		Checked by:			1111111111				
VERIFICATION OF SAMPLE CONDITIONS (verify a	all items), HD = Client Hand delivered	Samples	NA	YES	NO				
Radiological Screening for DoD			1						
Were custody seals intact and on the outside of the	Screening for DoD y seals intact and on the outside of the cooler? ing material: (Ce) Blue Ice Gubble wrap of Custody (CoC) Provided? Correctly filled out (If No, document in the SRER) list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC) inple containers in good condition (broken or leaking)? upplied by ASL? with < 1/2 holding time remaining? If so contact LPM e multi-phase? If yes, document on SRER e in the cooler? Enter temp. If >6°C contact client/SRER e of air bubbles? No, document on SRER ples checked and met requirements? No, then document in SRER ble volume provided for analysis? No, document in SRER ubbels agree with COC? No, document in SRER luble metals filtered in the field? luble metals have sediment in bottom of container? Document in SRER								
Type of packing material: (ce) Blue Ice Bubble	vrap								
Was a Chain of Custody (CoC) Provided?				V					
Was the CoC correctly filled out (If No, document	in the SRER)			<i>L</i>					
Did the CoC list a correct bottle count and the pre-	servative types (Y=OK, N	=Corrected on CoC)		V					
Were the sample containers in good condition (bro	oken or leaking)?			V					
Containers supplied by ASL?				V					
Any sample with < 1/2 holding time remaining? If	so contact LPM				V				
Samples have multi-phase? If yes, document on S	RER				V				
Was there ice in the cooler? Enter temp. If >6°C of	contact client/SRER	4.9 °C		V					
All VOCs free of air bubbles? No, document on S	RER		V						
pH of all samples checked and met requirements?	No, then document in S	RER		V					
Enough sample volume provided for analysis? No	, document in SRER		2	V					
Did sample labels agree with COC? No, documen	t in SRER	<u> </u>	ndo	V					
Dissolved/Soluble metals filtered in the field?		orb orb	6	v					
Dissolved/Soluble metals have sediment in bottom	of container? Documen	t in SRER	17		V				
Sample ID	Reagent	Reagent Lot Number	Volume	Added	Initials				
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ANALYTICAL REPORT

For:

PGE Topock

ASL Report #: M1814

Project ID: 423575.MP.07.TS

Attn: Jay Piper

cc:

Data Center/RDD

Authorized and Released By:

Laboratory Project Manager

Kothy Mckincey

Kathy McKinley

(541) 758-0235 ext.23144

May 23, 2013

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.



Accredited in accordance with NELAP: Oregon (100022) Arizona (0771) Louisiana (05031)

ASL Report #: M1814

Sample Receipt Comments

We certify that the test results meet all NELAP requirements.

Sample Cross-Reference

ASL		Date/Time	Date
Sample ID	Client Sample ID	Collected	Received
M181401	MW-72BR-200-192	04/29/13 14:09	05/07/13
M181402	MW-37D-192	04/30/13 13:57	05/07/13
M181403	MW-71-035-192	04/30/13 07:32	05/07/13
M181404	MW-40D-192	05/01/13 15:20	05/07/13
M181405	MW-65-160-192	05/01/13 13:52	05/07/13
M181406	MW-73-080-192	05/01/13 10:22	05/07/13
M181407	MW-127-192	05/02/13 16:25	05/07/13
M181408	MW-61-110-192	05/02/13 15:06	05/07/13
M181409	MW-65-225-192	05/02/13 13:16	05/07/13
M181410	MW-66-165-192	05/02/13 11:14	05/07/13
M181411	MW-74-240-192	05/02/13 08:21	05/07/13

CASE NARRATIVE **GENERAL CHEMISTRY ANALYSIS**

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: M1814 Project: PGE Topock Project #: 423575.MP.07.TS I. Method(s): Analysis: E353.2 II. Receipt/Holding Times: All acceptance criteria were met. III. Analysis: A. Initial Calibration(s): All acceptance criteria were met. B. Calibration Verification(s): All acceptance criteria were met. C. Blanks: All acceptance criteria were met. D. Laboratory Control Sample(s): All acceptance criteria were met. E. Matrix Spike/Matrix Spike Duplicate Sample(s): Analyzed in accordance with standard operating procedure. F. Analytical Exception(s): None. IV. Documentation Exception(s): None. V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures. Date: $\frac{5/21/20/3}{5/22/3}$ Prepared by:

Reviewed by:

Field Sample ID:

MW-72BR-200-192

SDG No.: M1814 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M181401

Date Received: <u>05/07/2013</u>

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500			mg/L	1	2 ML	E353.2	05/08/2013
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Field Sample ID:

MW-37D-192

SDG No.: M1814 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M181402

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
N03N02N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1.	2 ML	E353.2	05/08/2013
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Field Sample ID:

MW-71-035-192

SDG No.: M1814 Lab Name: CH2M HTLL/LAB/CVO

Matrix: WATER Lab Sample ID: M181403

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500			mg/L	1.	2 ML	E353.2	05/08/2013
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Field Sample ID:

MW-40D-192

SDG No.: M1814

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M181404

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0152	2.50	3.16		mg/L	5	2 ML	E353.2	05/16/13
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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-65-160-192

SDG No.: M1814 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M181405

	CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
	NO3NO2N		0.0303	5.00	12.1		mg/L	10	2 ML	E353.2	05/08/2013
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Field Sample ID:

MW-73-080-192

SDG No.: M1814 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M181406

Date Received: <u>05/07/2013</u>

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0152	2.50	5.96		mg/L	5	2 ML	E353.2	05/08/2013
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Field Sample ID:

MW-127-192

SDG No.: M1814 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M181407

Date Received: <u>05/07/2013</u>

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0303	5.00	9.61		mg/L	10	. 2 ML	E353.2	05/08/2013
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Field Sample ID:

MW-61-110-192

SDG No.: M1814 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M181408

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.753		mg/L	1	2 ML	E353.2	05/08/2013
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Field Sample ID:

MW-65-225-192

SDG No.: M1814 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M181409

Date Received: <u>05/07/2013</u>

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0303	5.00			mg/L	10	2 ML	E353.2	05/08/2013
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Field Sample ID:

MW-66-165-192

SDG No.: M1814 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M181410

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Analyzed
иозио2и	Nitrate/Nitrite-N	0.152	25.0	37.9		mg/L	50	2 ML	E353.2	05/08/2013
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Field Sample ID:

MW-74-240-192

SDG No.: <u>M1814</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M181411

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.854		mg/L	1	2 ML	E353.2	05/08/2013
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WB2-0508	

SDG No.: M1814 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: WB2-0508

Date Received: __/_/

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	ı	2 ML	E353.2	05/08/2013
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Field	Sample	ID:	
WE	33-0508		

SDG No.: M1814 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: WB3-0508

Date Received: __/_/

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	Ü	mg/L	1.	2 ML	E353.2	05/08/2013
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Field	Sample	ID:
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L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	Lб	L6	L6	Lб	L6	L6	L6	L6	L6	L6	L6	L6	L6	L6	Le	L	L	L	L	ı	
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16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	1	1	1	1	1	1
16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	1	1	1	1	1	1
16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	1	1	1	1	1	1
16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	1	1	1	1	1	1
16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	1	1	1	1	1	1
16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	10	1	1	1	1	1
16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	10	1	1	1	1	1
16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	10	1	1	1	1	:1
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SDG No.: M1814 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: WB2-0516

Date Received: __/_/

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	Ū	mg/L	1	2 ML	E353.2	05/16/13
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GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1814 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: $\underline{E353.2}$ LCS ID: $\underline{BS2W0508}$

Tnitial Calibration ID: 042613NO23Cal Date Analyzed: 05/08/2013

Matrix: (Soil/Water) WATER Time Analyzed: 1511

Instrument: <u>LACH8500</u> Concentration Units: <u>mg/L</u>

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.875	0.908	104	90-110	
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^{*} Values outside of QC limits

Comments:	

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GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1814 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2 LCS ID: BS3W0508

Initial Calibration ID: <u>042613NO23Cal</u> Date Analyzed: <u>05/08/2013</u>

Matrix: (Soil/Water) WATER Time Analyzed: 1550

Instrument: <u>LACH8500</u> Concentration Units: <u>mg/L</u>

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.876	0.940	107	90-110	
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^{*} Values outside of QC limits

Comments:				
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GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1814 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2 LCS ID: BS2W0516

Initial Calibration ID: 051613NO23 Date Analyzed: 05/16/13

Matrix: (Soil/Water) WATER Time Analyzed: 1646

Instrument: <u>LACH8500</u> Concentration Units: <u>mg/L</u>

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.876	0.863	98	90-110	
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^{*} Values outside of QC limits

Comments:		

3

TOTAL NUMBER OF CONTAINERS

CHAIN OF CUSTODY RECORD CH2MHILL 4/30/2013 3:50:12 PM Page 1 OF 1 250 ml Project Name PG&E Topock Container 171814 Poly Location Topock H2SO4, Preservatives: pH<2, Project Manager Jay Piper 4°C Sample Manager Shawn Duffy Filtered NΑ Holding Time 28 Project Number 423575.MP.07.TS Nitrate/Nitrite (SM4500NO3) Nitrate Task Order Project 2013-GMP-192-Q2 Number of Containers Turnaround Time 10 Days Shipping Date: 4/30/2013 COC Number: 13 DATE TIME Matrix COMMENTS MW-72BR-200-192 4/29/2013 14:09 Water Х 1 MW-37D-192 4/30/2013 13:57 Water Х 1 MW-71-035-192 4/30/2013 7:32 Water 1 Х

Approved by Sampled by

Relinquished by Received by

Relinquished by

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fullwarished; 5

Signatures

Shipping Details

Method of Shipment: courier

ATTN:

Special Instructions:

April 15 to May 9, 2013

On Ice: (yes) no 4.6 4-30-13 1605 Airbill No:

9-30-13 185 Lab Phone: (541) 752-4271

Lab Name: CH2M HILL Applied Sciences Lab

Sample Custody

and

Report Copy to

Kathy McKinley

Shawn Duffy (530) 229-3303

5-4-13 0927 Rom En 5/7/13 10:25

CH2MHI	LL				CHAIN OF CUSTODY RECORD 5/2/2013 4:05:45 PM Page 1	OF	1_
Project Name F Location Topo Project Manage	ck	••	Container: ervatives:	250 ml Poly H2SO4, pH<2, 4°C	m1814		
Sample Manage	r Shawn Dui	ffy	Filtered:	NA]	ļ
		Holo	ling Time:	28		1	<u> </u>
Project Number Task Order Project 2013-G Turnaround Tim Shipping Date: COC Number:	MP-192-Q2 e 10 Days 5/2/2013	6	Matrix	Nitrate/Nitrite (SM4500NO3) Nitrate		Number of Containers	COMMENTS
MW-40D-192	5/1/2013	15:20	Water	ж		1	4
MW-65-160-192	5/1/2013	13:52	Water	х		1	Š
MW-73-080-192	5/1/2013	10:22	Water	х		1	6
MW-127-192	5/2/2013	16:25	Water	х		1	7
MW-61-110-192	5/2/2013	15:06	Water	Х		1	8
MW-65-225-192	5/2/2013	13:16	Water	ж		1	9
MW-66-165-192	5/2/2013	11:14	Water	х		1	10
MW-74-240-192	5/2/2013	8:21	Water	х		1	11
	-1		1		TOTAL NUMBER OF CONTAINERS	8	ĺ

Approved by

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CONSUMED.

Signatures

ATTN:

Special Instructions:

Sample Custody

April 15 to May 9, 2013

Date/Time
5-2-13
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Method of Shipment: courier
On Ice: (yes / no 4-8 | R |
5-2-13 | (e| U) Airbill No:

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Report Copy to

Kathy McKinley

Shawn Duffy (530) 229-3303

Lab Name: CH2M HILL Applied Sciences Lab

Kathy Mc

5-4/3 | 84 | Lab Phone: (541) 752-4271 | 206

5-4-13 0927 | Rams Fry 5/17/13 | 10:25



Sample Receipt Record

Batch Number:	Date received: Checked by: Checked by:	5.7 C Rq	-13 3		
VERIFICATION OF SAMPLE CONDITIONS (verify a	all items), HD = Client Hand deliv	rered Samples	NA	YES	NO
Radiological Screening for DoD			<u></u>		
Were custody seals intact and on the outside of the	ne cooler?			1	
Type of packing material: (Ice Blue Ice Bubble w		L-			
Temp OK? (<6C) Therm ID_TH173_Exp.	113	5. S °C		L	
Was a Chain of Custody (CoC) Provided?				-	
Was the CoC correctly filled out (If No, document	in the SRER)			L	
Did the CoC list a correct bottle count and the pre-	servative types (Y=Oł	(, N=Corrected on CoC)		مسسية	
Were the sample containers in good condition (bro		V			
Containers supplied by ASL?				<i></i>	
Any sample with < 1/2 holding time remaining? If	so contact LPM				6
Samples have multi-phase? If yes, document on S	SRER				
All VOCs free of air bubbles? No, document on S	RER		V		
pH of all samples checked and met requirements?		n SRER		V	
Enough sample volume provided for analysis? No				V.	
Did sample labels agree with COC? No, documen				1	
Dissolved/Soluble metals filtered in the field?					
Dissolved/Soluble metals have sediment in bottom	n of container? Docun	nent in SRER			
Comple ID	Pagant	December of Number	Valuesa	الما ما ما	luitinin
Sample ID	Reagent	Reagent Lot Number	volume	Added	Initials
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Sample Receipt Exception Report

Sample Batch Number: 사시생년	Client/Project TopoCK
The following exceptions were noted:	
The following exceptions were ficied.	Comments (write number of exception description and the impacted sample numbers)
No custody seal as required by project	COC requested method 5 m 4 soc Will report E353.Z.
No chain-of-custody provided	- Will report E385. C.
Analysis, description, date of collection not provided	-
Samples broken or leaking on receipt.	-
Temperature of samples inappropriate for analysis requested	
Container inappropriate for analysis requested	
7. Inadequate sample volume.	-
Preservation inappropriate for analysis requested	
Samples received out of holding time for analysis requested	
Discrepancies between COC form and container labels.	
11. Other.	
ACTION TAKEN:	
Opinion of the state of the sta	Du. 5/5/
Originator: / D. M. Bell Client was notified on: (Date/Time)	Date: 97/3 Client Contact: 73
Client Services:	

ANALYTICAL REPORT

For:

PGE Topock

ASL Report #: M1860

Project ID: 423575.MP.07.TS

Attn: Jay Piper

cc:

Data Center/RDD

Authorized and Released By:

Laboratory Project Manager

Kothy Mckincey

Kathy McKinley

(541) 758-0235 ext.23144

May 30, 2013

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.



Accredited in accordance with NELAP: Oregon (100022) Arizona (0771) Louisiana (05031)

Sample Receipt Comments

We certify that the test results meet all NELAP requirements except those listed below:

• Samples were received at a temperature of 7.7C.

Sample Cross-Reference

ASL		Date/Time	Date
Sample ID	Client Sample ID	Collected	Received
M186001	MW-62-110-192	05/08/13 14:39	05/14/13
M186002	MW-62-190-192	05/08/13 14:52	05/14/13
M186003	MW-68-240-192	05/08/13 11:46	05/14/13
M186004	MW-68BR-280-192	05/08/13 10:28	05/14/13
M186005	MW-12-192	05/09/13 11:22	05/14/13
M186006	MW-128-192	05/09/13 06:42	05/14/13
M186007	MW-20-070-192	05/09/13 13:08	05/14/13
M186008	MW-20-100-192	05/09/13 14:23	05/14/13
M186009	MW-67-185-192	05/09/13 10:08	05/14/13
M186010	MW-67-225-192	05/09/13 09:11	05/14/13
M186011	MW-67-260-192	05/09/13 08:23	05/14/13
M186012	MW-60-125-192	05/06/13 11:30	05/14/13
M186013	MW-69-195-192	05/06/13 14:50	05/14/13
M186014	MW-26-192	05/07/13 10:57	05/14/13
M186015	MW-60BR-245-192	05/07/13 08:38	05/14/13
M186016	MW-70BR-225-192	05/07/13 13:55	05/14/13

CASE NARRATIVE GENERAL CHEMISTRY ANALYSIS

Lab N	ame: <u>C</u>	CH2M HILL/LAB/CVO	ASL SDG#: <u>M1860</u>	
Projec	t: <u>PGI</u>	E Topock	Project #: 423575.MP.07.TS	_
I.	Metho Analy	od(s): sis: E353.2		-
II.	Recei	pt/Holding Times:		
	All ac	ceptance criteria were met.		
III.	<u>Analy</u>	sis:		
	A.	Initial Calibration(s): All acceptance criteria were met.	•	
	В.	<u>Calibration Verification(s):</u> All acceptance criteria were met.		
	C.	Blanks: All acceptance criteria were met.		
	D.	Laboratory Control Sample(s): All acceptance criteria were met.		
	E.	Matrix Spike/Matrix Spike Duplicate Sa Analyzed in accordance with standard o		
	F.	Analytical Exception(s): None.		
IV.	<u>Docur</u> None.	nentation Exception(s):		
V.	CH2N the da	I HILL, both technically and for completen	with the terms and conditions agreed to by the client and the conditions detailed above. Release has been authorized by the Laboratory Manager or .	
Prepar	ed by:	2 1/h;	Date: 5/29/2013	<u>.</u>
Revie	wed by:	Dough A. Augl	Date: <u>5/3</u> 6/13	-

Field Sample ID:

MW-62-110-192

SDG No.: M1860

Lab Name: CH2M HILL/LAB/CVO

 ${\tt Matrix:}\ \underline{{\tt WATER}}$

Lab Sample ID: M186001

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0152	2.50	3.56		mg/L	5	2 ML	E353.2	05/22/13
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Field Sample ID:

MW-62-190-192

SDG No.: <u>M1860</u>

Lab Name: CH2M HILL/LAB/CVO

 ${\tt Matrix: \ \underline{WATER}}$

Lab Sample ID: M186002

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	05/22/13
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Field Sample ID:

MW-68-240-192

SDG No.: M1860

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M186003

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0152	2.50	4.83		mg/L	5	2 ML	E353.2	05/22/13
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Field Sample ID:

MW-68BR-280-192

SDG No.: M1860 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M186004

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	Ū	mg/L	1	2 ML	E353.2	05/22/13
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Field Sample ID:

MW-12-192

SDG No.: M1860

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M186005

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0303	5.00	13.2		mg/L	10	2 ML	E353.2	05/22/13
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Field Sample ID:

MW-128-192

SDG No.: M1860 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M186006

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	1.39		mg/L	1	2 ML	E353.2	05/22/13
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Field Sample ID:

MW-20-070-192

SDG No.: M1860

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M186007

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0303	5.00	10.1		mg/L	10	2 ML	E353.2	05/22/13
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Field Sample ID:

MW-20-100-192

SDG No.: M1860

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M186008

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
иозиоги	Nitrate/Nitrite-N	0.0303	5.00	14.0		mg/L	10	2 ML	E353.2	05/22/13
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Field Sample ID:

MW-67-185-192

SDG No.: M1860 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M186009

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
иозио2и	Nitrate/Nitrite-N	0.0606	10.0	29.5		mg/L	20	2 ML	E353.2	05/22/13
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Field Sample ID:

MW-67-225-192

SDG No.: M1860 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M186010

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0606	10.0	22.4		mg/L	20	2 ML	E353.2	05/22/13
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Field Sample ID:

MW-67-260-192

SDG No.: M1860

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M186011

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	1.40		mg/L	1	2 ML	E353.2	05/22/13
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Field Sample ID:

MW-60-125-192

SDG No.: <u>M1860</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M186012

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0152	2.50	4.46		mg/L	5	2 ML	E353.2	05/22/13
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Field Sample ID:

MW-69-195-192

SDG No.: M1860 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M186013

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0303	5.00	16.7		mg/L	10	2 ML	E353.2	05/22/13
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Field Sample ID:

MW-26-192

SDG No.: M1860 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M186014

CAS No.	Analyte	DL		Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0303	5.00	17.7		mg/L	10	2 ML	E353.2	05/22/13
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Field Sample ID:

MW-60BR-245-192

SDG No.: M1860

Lab Name: CH2M HILL/LAB/CVO

Matrix: <u>WATER</u>

Lab Sample ID: $\underline{\text{M186015}}$

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	05/22/13
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Field Sample ID:

MW-70BR-225-192

SDG No.: M1860

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M186016

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0152	2.50	4.25		mg/L	5	2 ML	E353.2	05/22/13
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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-0522

SDG No.: M1860

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB3-0522

Date Received: _/_/

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
N03N02N	Nitrate/Nitrite-N	0.00303	0.500	0.500	υ	mg/L	1	2 ML	E353.2	05/22/13
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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB4-0522

SDG No.: <u>M1860</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: <u>WATER</u>

Lab Sample ID: WB4-0522

Date Received: __/_/

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	ט	mg/L	1	2 ML	E353.2	05/22/13
										
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Field	Sample	ID:
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WB5-0522

SDG No.: M1860 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: WB5-0522

Date Received: __/_/

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	ט	mg/L	1	2 ML	E353.2	05/22/13
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GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1860 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2 LCS ID: BS3W0522

Initial Calibration ID: 052213NO23Cal Date Analyzed: 05/22/13

Matrix: (Soil/Water) WATER Time Analyzed: 1643

Instrument: <u>LACH8500</u> Concentration Units: <u>mg/L</u>

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.876	0.887	101	85-115	1
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^{*} Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: <u>M1860</u>

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS4W0522

Initial Calibration ID: 052213NO23Cal

Date Analyzed: 05/22/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1720

Instrument: <u>LACH8500</u>

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.876	0.922	105	85-115	
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^{*} Values outside of QC limits

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GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1860 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2 LCS ID: BS5W0522

Initial Calibration ID: 05/22/13 Date Analyzed: 05/22/13

Matrix: (Soil/Water) WATER Time Analyzed: 1759

Instrument: LACH8500 Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.876	0.931	106	85-115	+
MICIACO/MICIICO M	0.070	0.752	100	03 113	
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^{*} Values outside of QC limits

Comments:		

5A-WC

WATER GENERAL CHEMISTRY MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SDG No.: M1860

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

Concentration Units: mg/L

Native Sample ID:

Matrix Spike ID:

Matrix Spike Duplicate ID:

MW-62-190-192

MW-62-190-192MS

MW-62-190-192MSD

Analyte	Native Sample Result	MS Spike Added	MS Result	MS %R	MSD Spike Added	MSD Result	MSD %R	%RPD	QC Limits %R	QC Limits %RPD	Q
Nitrate/Nitrite-N	0.0302	1.00	1.05	102	1.00	1.06	103	1	75-125	20	
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* Values outside of QC limits

Comments:

Result values >MDL in the native sample are used in the MS/MSD recovery calculation.

					7.7°C M1860		
CH2MHIL	.L				M 106 P CHAIN OF CUSTODY RECORD 5/9/2013 3:56:57 PM Page 1	OF	1
Project Name Po Location Topod Project Manager	k Jay Piper	Pres	Container: ervatives:	250 ml Poly H2SO4, pH<2, 4°C	· · · · · · · · · · · · · · · · · · ·		
Sample Manager	Shawn Du	_	Filtered: ling Time:				
Project Number Task Order Project 2013-GM Turnaround Time Shipping Date: 6 COC Number: 2	P-192-Q2 10 Days	°.07.TS		Nitrate/Nitrite (SM4500NO3) Nitrate		Number of Containers	COMMENTS
MW-62-110-192	5/8/2013	14:39	Water	х		1	1
MW-62-190-192	5/8/2013	14:52	Water	х		1	2
MW-68-240-192	5/8/2013	11:46	Water	х		1	3
MW-68BR-280-192	5/8/2013	10:28	Water	х		1	4
MW-12-192	5/9/2013	11:22	Water	х		1	5
MW-128-192	5/9/2013	6:42	Water	х		1	6
MW-20-070-192	5/9/2013	13:08	Water	х		1	7
MW-20-100-192	5/9/2013	14:23	Water	X		1	8
MW-67-185-192	5/9/2013	10:08	Water	х		1	9
MW-67-225-192	5/9/2013	9:11	Water	Х		1	10
MW-67-260-192	5/9/2013	8:23	Water	Х		1	11
		,			TOTAL NUMBER OF CONTAINERS	11	

A	Signatures	Date/Time	Shipping Details		Special Instructions:
Approved by Sampled by		5-9-13	Method of Shipment: courier	ATTN:	April 15 to May 9, 2013
Relinquished by			On Ice: (FS) / no 3.2 (P)	Sample Custody	
Received by		09MH.413 1630		and	Parad Carry to
Relinguished by	171	- 09mmy13-1840	Lab Name: CH2M HILL Applied Sciences Lab	Kathy McKinley	Report Copy to Shawn Duffy
Received by			Lab Phone: (541) 752-4271	,,	(530) 229-3303
RECINGUATED:	1	13MAY 13 095	1 Pray 6- 5/14/13	10:000.	

CH2MHIL	L				CHAIN OF CUSTODY RECORD 5/7/2013 3:37:15 PM Page 1	OF .	1_
Project Name PG Location Topocl Project Manager Sample Manager S	k Jay Piper	Pres	Container: ervatives; Filtered:	Poly H2SO4, pH<2, 4°C			-
Project Number 4 Task Order Project 2013-GMI Turnaround Time Shipping Date: 5 COC Number: 18	423575.MF P-192-Q2 10 Day: 5/7/2013	Hold P.07.TS	ling Time:	1		Number of Containers	
	DATE	TIME	Matrix	3)		Szer	COMMENTS
MW-60-125-192	5/6/2013	11:30	Water	х	·	1	12
MW-69-195-192	5/6/2013	14:50	Water	х		1	13
MW-26-192	5/7/2013	10:57	Water	х		1	14
MW-60BR-245-192	5/7/2013	8:38	Water	х		1	15
MW-70BR-225-192	5/7/2013	13:55	Water	х		1	16
					TOTAL NUMBER OF CONTAINERS	5	

Approved by	Signatures	Date/Time	Shipping Details		Special Instructions:
Sampled by	K	C-7-/2	Method of Shipment: courier	ATTN:	April 15 to May 9, 2013
Relinquished by	() de-	1	On Ice: (P) no 3.4 /P1	Sample Custody	
Recenved by	7/MA	\$/7/13/10/0	Airbill No:	and	Parant Counts
Relinguished by	ラbD	/2/12 180h	Lab Name: CH2M HILL Applied Sciences Lab	Kathy McKinley	Report Copy to Shawn Duffy
Received by	Sper	5/7/13 1800	Lab Phone: (541) 752-4271	of	6 (530) 229-3303
ZELIN QUISHED : Th	and a	05/13/13 695	Rum kan	5/13/13	5,4/13 5/14/13 In:00



Sample Receipt Record

Batch Number: M1860		Date received:	_>/_	19/1	5
Batch Number: M1860 Client/Project: Topock	 .	Checked by:	P	E '	
- V		Checked by:	······································		
VERIFICATION OF SAMPLE CONDITIONS (verification)	fy all items), HD = Client Hand deli	vered Samples	NA	YES	NO
Radiological Screening for DoD	· · · · · · · · · · · · · · · · · · ·	<u> </u>	V		
Were custody seals intact and on the outside of	the cooler?			V	
Type of packing material: Ice Blue Ice Bubble				17	
Temp OK? (<6C) Therm IDTH173 Exp	•	7.7 ℃			1
	<u> </u>			1./	
Was a Chain of Custody (CoC) Provided?	at in the CDCD			\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
Was the CoC correctly filled out (If No, documer		(N=0 t-d 0-0)		V	
Did the CoC list a correct bottle count and the pr		K, N=Corrected on CoC)		V	
Were the sample containers in good condition (k	oroken or leaking)'?			V /	
Containers supplied by ASL?				<i>V</i>	_
Any sample with < 1/2 holding time remaining?			<u> </u>	1	1/
Samples have multi-phase? If yes, document on	SRER			<u> </u>	V
All VOCs free of air bubbles? No, document on	SRER				
pH of all samples checked and met requirement	s? No, then document i	n SRER		V	
Enough sample volume provided for analysis? N	lo, document in SRER			V	***
Did sample labels agree with COC? No, docume	ent in SRER			1	
Dissolved/Soluble metals filtered in the field?			V		
Dissolved/Soluble metals have sediment in botto	om of container? Docum	nent in SRER	V		
Sample ID	Reagent	Reagent Lot Number	Volum	e Added	Initials



Sample Receipt Exception Report

Sample Batch Number: MS60	Client/Project Topock
The following eventions were noted:	
The following exceptions were noted:	Comments (write number of exception description and the impacted sample numbers)
· · ·	<u> </u>
No custody seal as required by project	Jamples received at 7.7°C
2. No chain-of-custody provided	coc requests Nitrate/Nitrite smys.
Analysis, description, date of collection not provided	Jamples received at 7.7°C Coc requests Nitrate/Nitrite smys. Will report E3S2.2.
Samples broken or leaking on receipt.	·
Temperature of samples inappropriate for analysis requested	
Container inappropriate for analysis requested	
7. Inadequate sample volume.	·
Preservation inappropriate for analysis requested	
Samples received out of holding time for analysis requested	
Discrepancies between COC form and container labels.	
11. Other.	
ACTION TAKEN:	
	·
Originator: VG + a + A - F- 11	Date: \$ /(U/L\]
Originator: (Wy non Sell Client was notified on:	Client Contact!
(Date/Time) 5/14/13	
per attached	email proceed with analysis
Client Services:	

Bell, Carmen/CVO

From:

McKinley, Kathy/CVO

Sent:

Tuesday, May 14, 2013 10:30 AM

To:

Bell, Carmen/CVO

Subject:

FW: Topock samples recd today

From: Duffy, Shawn/RDD

Sent: Tuesday, May 14, 2013 10:28 AM **To:** McKinley, Kathy/CVO; Kidd, Bernice/RDD **Subject:** RE: Topock samples recd today

Yes.

Shawn

From: McKinley, Kathy/CVO

Sent: Tuesday, May 14, 2013 10:06 AM **To:** Kidd, Bernice/RDD; Duffy, Shawn/RDD **Subject:** Topock samples recd today

Recd at high temp of 7.7 Shall we proceed with analysis?

Kathy McKinley
ASL Laboratory Customer Services Manager/Inorganics Laboratory Manager
CH2M HILL Inc.

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From: Bell, Carmen/CVO

Sent: Tuesday, May 14, 2013 10:04 AM

To: McKinley, Kathy/CVO

Subject:

Carmen Bell

CH2M HILL Inc. Applied Sciences Laboratory Phone: 541.768.3106 | FAX: 541.766.2852



Find us on Facebook



ANALYTICAL REPORT

For:

PGE Topock - 2013-GMP-192-Q2

ASL Report #: M1914

Project ID: 423575.MP.07.TS

Attn: Jay Piper

cc:

Data Center/RDD

Authorized and Released By:

Laboratory Project Manager

Kothy Mckincey

Kathy McKinley

(541) 758-0235 ext.23144

June 03, 2013

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.



Accredited in accordance with NELAP: Oregon (100022) Arizona (0771) Louisiana (05031) ASL Report #: M1914

Sample Receipt Comments

We certify that the test results meet all NELAP requirements.

Sample Cross-Reference

ASL		Date/Time	Date
Sample ID	Client Sample ID	Collected	Received
M191401	MW-51-192	05/13/13 15:05	05/21/13
M191402	MW-59-100-192	05/13/13 12:52	05/21/13
M191403	MW-66-230-192	05/13/13 09:05	05/21/13
M191404	MW-68-180-192	05/13/13 10:56	05/21/13
M191405	MW-10-192	05/14/13 11:11	05/21/13
M191406	MW-20-130-192	05/14/13 08:20	05/21/13
M191407	TW-01-192	05/14/13 13:52	05/21/13

CASE NARRATIVE GENERAL CHEMISTRY ANALYSIS

Lab Nar	ne: <u>C</u>	H2M HILL/LAB/CVO	ASL SDG#:	<u>M1914</u>	
Project:	<u>PGE</u>	Topock	Project #:	423575.MP.07	<u>'.TS</u>
I.	Metho Analys	<u>d(s):</u> sis: E353.2			
II.	_	ot/Holding Times: ceptance criteria were met.			
III.	Analy:	sis:			
	A.	Initial Calibration(s): All acceptance criteria were met.			
	В.	Calibration Verification(s): All acceptance criteria were met.			
	C.	Blanks: All acceptance criteria were met.			
	D.	Laboratory Control Sample(s): All acceptance criteria were met.			
	E.	Matrix Spike/Matrix Spike Duplicate Sar Analyzed in accordance with standard op		lure.	
	F.	Analytical Exception(s): None.			
IV.	Docum None.	nentation Exception(s):			
V.	CH2M the dat	fy that this data package is in compliance with HILL, both technically and for completened a contained in this hardcopy data package hee, as verified by the following signatures.	ess, except for	the conditions	detailed above. Release of
Prepare	d by:	2012:	<u></u>	Date:	5/29/2013
Review	ed by:	Douglas A. Hund	5	Date:	5/20/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-51-192

SDG No.: <u>M1914</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M191401

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyze
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103NO2N	Nitrate/Nitrite-N	0.0303	5.00	11.8		mg/L	10	2 ML	E353.2	05/22/13
										
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1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-59-100-192

SDG No.: M1914

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: $\underline{\text{M191402}}$

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
иозио2и	Nitrate/Nitrite-N	0.0152	2.50	3.95		mg/L	5	2 ML	E353.2	05/22/13
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Field Sample ID:

MW-66-230-192

SDG No.: M1914

Lab Name: CH2M HILL/LAB/CVO

 $\mathtt{Matrix:}\ \underline{\mathtt{WATER}}$

Lab Sample ID: M191403

CAS No.	Analyte	DĿ	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
иозио2и	Nitrate/Nitrite-N	0.0303	5.00	14.7		mg/L	10	2 ML	E353.2	05/22/13
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Field Sample ID:

MW-68-180-192

SDG No.: <u>M1914</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M191404

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0303	5.00	12.2		mg/L	10	2 ML	E353.2	05/22/13
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Field Sample ID:

MW-10-192

SDG No.: M1914 Lab Name: CH2M HILL/LAB/CVO

 ${\tt Matrix:} \ \ \underline{{\tt WATER}} \qquad \qquad {\tt Lab \ Sample \ ID:} \ \underline{{\tt M191405}}$

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0303	5.00	11.7		mg/L	10	2 ML	E353.2	05/22/13
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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-20-130-192

SDG No.: <u>M1914</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M191406

CAS No.	Analyte	DL		Result	Q	Units	DF	Sample ' Amount	Analysis Method	Date Analyze
103110211	Nitrate/Nitrite-N	0.0303	5.00	13.0		mg/L	10	2 ML	E353.2	05/22/13
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Field Sample ID:

TW-01-192

SDG No.: <u>M1914</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M191407

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0303	5.00	15.8		mg/L	10	2 ML	E353.2	05/22/13
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Field	Sample	TD.
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WB4-0522

SDG No.: <u>M1914</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: $\underline{WB4-0522}$

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500		mg/L	1	2 ML	E353.2	05/22/13
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GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1914 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2 LCS ID: BS4W0522

Initial Calibration ID: $\underline{052213N023Cal}$ Date Analyzed: $\underline{05/22/13}$

Matrix: (Soil/Water) WATER Time Analyzed: 1720

Instrument: <u>LACH8500</u> Concentration Units: <u>mg/L</u>

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.876	0.922	105	85-115	
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^{*} Values outside of QC limits

Comments:	•	

Tracking 8026 6847 7010

m1914

CH2MHIL	L.				CHAIN OF CUSTODY RECORD 5/14/2013 3:26:41 PM Page 1	OF .	1
Project Name Project Name Project Manager	:k		Container:	H2SO4,			
Sample Manager	Shawn Du	ffy	Filtered:	NA			
			ding Time:	28		1	
Project Number Task Order Project 2013-GN Turnaround Time Shipping Date: COC Number: 2	IP-192-Q2 • 10 Day: 5/14/2013	S	Matrix .	Nitrate/Nitrile (SM4500NO3) Nitrate		Number of Containers	COMMENTS
MW-51-192	5/13/2013	15:05	Water	х		1	7
MW-59-100-192	5/13/2013	12:52	Water	х		1	2
MW-66-230-192	5/13/2013	9:05	Water	х		1	3
MW-68-180-192	5/13/2013	10:56	Water	х		1	4
MW-10-192	5/14/2013	11:11	Water	х		1	5
MW-20-130-192	5/14/2013	8:20	Water	х		1	6
TW-01-192	5/14/2013	13:52	Water	х		1	7
			•		TOTAL NUMBER OF CONTAINERS	7	

232

Annual of his	Signatures	Date/Time	Shipping Details		Special Instructions:
Approved by Sampled by		<u> </u>	Method of Shipment: courier	ATTN:	April 15 to May 9, 2013
Relinquished by	Dla -		On Ice: 1 no 30 17	Sample Custody	
Received by	all and the second	14MH413 1635	Airbill No:	and	
Relinquished by		1141113 1900	Lab Name: CH2M HILL Applied Sciences Lab	Kathy McKinley	Report Copy to Shawn Duffy
Received by	Hal	120 mg 13-1190	Lab Phone: (541) 752-4271	Nathy WCNIney	(530) 229-3303
RELINGOINCHEIN		20MAYI3 0941	Ram Sn 5/21/13	1080*	



Sample Receipt Record

WERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples NA YES NO Radiological Screening for DoD Were custody seals intact and on the outside of the cooler? Type of packing material: De Blue Ice Bubble wrap Temp OK? (<6C) Therm ID_TH173_Exp. 6/13 °C Was a Chain of Custody (CoC) Provided? Was the CoC correctly filled out (If No, document in the SRER) Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC) Were the sample containers in good condition (broken or leaking)?
Were custody seals intact and on the outside of the cooler? Type of packing material: Ice Blue Ice (Bubble wrap) Temp OK? (<6C) Therm ID_TH173_Exp. 4/13 2.3 °C Was a Chain of Custody (CoC) Provided? Was the CoC correctly filled out (If No, document in the SRER) Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC) Were the sample containers in good condition (broken or leaking)?
Type of packing material: Ice Blue Ice Bubble wrap Temp OK? (<6C) Therm ID_TH173_Exp. 6/13 7.3 °C Was a Chain of Custody (CoC) Provided? Was the CoC correctly filled out (If No, document in the SRER) Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC) Were the sample containers in good condition (broken or leaking)?
Temp OK? (<6C) Therm ID_TH173_Exp. 6/13 7.3 °C Was a Chain of Custody (CoC) Provided? Was the CoC correctly filled out (If No, document in the SRER) Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC) Were the sample containers in good condition (broken or leaking)?
Temp OK? (<6C) Therm ID_TH173_Exp. 6/13 7.3 °C Was a Chain of Custody (CoC) Provided? Was the CoC correctly filled out (If No, document in the SRER) Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC) Were the sample containers in good condition (broken or leaking)?
Was a Chain of Custody (CoC) Provided? Was the CoC correctly filled out (If No, document in the SRER) Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC) Were the sample containers in good condition (broken or leaking)?
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC) Were the sample containers in good condition (broken or leaking)?
Were the sample containers in good condition (broken or leaking)?
Containers supplied by ASL?
Any sample with < 1/2 holding time remaining? If so contact LPM
Samples have multi-phase? If yes, document on SRER
All VOCs free of air bubbles? No, document on SRER
pH of all samples checked and met requirements? No, then document in SRER
Enough sample volume provided for analysis? No, document in SRER
Did sample labels agree with COC? No, document in SRER
Dissolved/Soluble metals filtered in the field?
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER
Sample ID Reagent Reagent Lot Number Volume Added Initials



Sample Receipt Exception Report

Sample Batch Number: MIQIU	Client/Project To Pock
The following exceptions were noted:	
The following exceptions were therea.	Comments (write number of exception description and the impacted sample numbers)
No custody seal as required by project	Noz/Nos by SM4500 requested. ASL will report by E 353.2
2. No chain-of-custody provided	ASL WILL PEPOPH BY & 353.2
Analysis, description, date of collection not provided	
Samples broken or leaking on receipt.	
Temperature of samples inappropriate for analysis requested	
Container inappropriate for analysis requested	
7. Inadequate sample volume.	
Preservation inappropriate for analysis requested	
Samples received out of holding time for analysis requested	
Discrepancies between COC form and container labels.	
11. Other.	
ACTION TAKEN:	
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Originator: When Jally	Date: 9-21-13.
Client was notified on: (Date/Time)	Client Contact:
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Client Services:	

ANALYTICAL REPORT

For:

PGE Topock - 2013-GMP-192-AZ

ASL Report #: M1915

Project ID: 423575.MP.07.TS

Attn: Jay Piper

cc:

Data Center/RDD

Authorized and Released By:

Laboratory Project Manager

Kothy Mckincey

Kathy McKinley

(541) 758-0235 ext.23144

July 11, 2013

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.



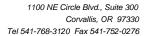
Accredited in accordance with NELAP: Oregon (100022) Arizona (0771) Louisiana (05031) ASL Report #: M1915

Sample Receipt Comments

We certify that the test results meet all NELAP requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
M191501	MW-56D-192	05/15/13 10:01	05/21/13
M191502	MW-56M-192	05/15/13 08:55	05/21/13
M191503	MW-56S-192	05/15/13 08:39	05/21/13





CASE NARRATIVE METALS ANALYSIS

Lab Name: CH2M HILL ASL ASL SDG#: M1915

Project: PGE Topock **Project #:** 423575.MP.07.TS

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):

SW6020: FLDFLT

Analytical Exception(s):

SW6020: Client samples were diluted due to high sodium concentrations.

Field Sample ID:

MW-56D-192	
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SDG No.: M1915 Lab Name: CH2M HILL ASL

Matrix: WATER Lab Sample ID: M191501

Percent Moisture: 100 Date Received: 05/21/13

Preparation: Dissolved Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	С	Q	М
7440-47-3	Chromium	07/03/13	2	0.0877	1.00	1.00	U		MS

Comments:			

Field Sample ID:

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SDG No.: M1915 Lab Name: CH2M HILL ASL

Matrix: WATER Lab Sample ID: M191502

Percent Moisture: 100 Date Received: 05/21/13

Preparation: Dissolved Concentration Units: ug/L

7440-47-3 Chromium 07/03/13 2 0.0877 1.00 1.10	Q	Q	Q	ľ
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Comments:			

Field Sample ID:

MW-56S-192

SDG No.: M1915 Lab Name: CH2M HILL ASL

Matrix: WATER Lab Sample ID: M191503

Percent Moisture: 100 Date Received: 05/21/13

Preparation: Dissolved Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	С	Q	М
7440-47-3	Chromium	07/03/13	2	0.0877	1.00	1.42			MS
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Comments:			

Field Sample ID:

WB1-0703	

SDG No.: M1915 Lab Name: CH2M HILL ASL

Matrix: WATER Lab Sample ID: WB1-0703

Percent Moisture: 100 Date Received: / /

Preparation: Total Concentration Units: ug/L

CAS No.	Analyte	Date Analyzed	DF	DL	PQL	Result	С	Q	М
7440-47-3	Chromium	07/03/13	1	0.0439	0.500	0.500	U		MS
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Comments:			

7 LABORATORY CONTROL SAMPLE

SDG No.: M1915 Lab Name: CH2M HILL ASL

Aqueous LCS ID: BS1W0703 Solid LCS ID:

		Aqueo	us (ug/L)		Sol	id (mg/Kg)			
Analyte	Method	True	Found	%R	True	Found	%R	Limits	С
Chromium	SW6020	50.0	49.6	99				85-115	

Comments:			





CASE NARRATIVE GENERAL CHEMISTRY ANALYSIS

Lab Name: <u>CH2M HILL/LAB/CVO</u> ASL SDG#: <u>M1915</u>

Project: PGE Topock Project #: 423575.MP.07.TS

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):

E218.6

Holding Time(s):

E218.6: Client requested samples re-analysis. Therefore, samples were reanalyzed outside of holding time on a different instrument.

Calibration Verification(s):

E218.6: All acceptance criteria were met.

Blanks:

E218.6: All acceptance criteria were met.

Laboratory Control Sample(s):

E218.6: ICV-0614 also was used as BS1W0614.

Matrix Spike/Matrix Spike Duplicate(s):

E218.6: All acceptance criteria were met.

Analytical Exception(s):

E218.6: Retention time of each spiked sample is attached with this report.

Field Sample ID:

MW-56D-192

SDG No.: M1915 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M191501

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.601	1.00	1.00	υ	ug/L	5	1000 UL	E218.6	06/26/2013
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Field Sample ID:

MW-56D-192MS

SDG No.: <u>M1915</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M191501MS

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyze
.8540-29-9	Chromium, Hexavalent	0.601	1.00	4.64		ug/L	5	1000 UL	E218.6	06/26/201
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Field Sample ID:

MW-56M-192

SDG No.: M1915

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M191502

Date Received: <u>05/21/2013</u>

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
8540-29-9	Chromium, Hexavalent	0.601	1.00	1.00	U	ug/L	5	1000 UL	E218.6	06/26/2013
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Field Sample ID:

MW-56M-192MS

SDG No.: M1915

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M191502MS

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.601	1.00	5.26		ug/L	5	1000 UL	E218.6	06/26/2013
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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56S-192

SDG No.: M1915 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M191503

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.120	0.200	0.200	U	ug/L	1	1000 UL	E218.6	06/25/2013
										
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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-56S-192MS

SDG No.: <u>M1915</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M191503MS

Date Received: <u>05/21/2013</u>

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.120	0.200	1.07		ug/L	1	1000 UL	E218.6	06/25/2013
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Field Sample	ID:
WB1-0625	

SDG No.: M1915

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB1-0625

Date Received: __/_/

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.120	0.200	0.200	บ	ug/L	1	1000 UL	E218.6	06/25/2013
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Field	Sample	ID:	
WI	31-0626		

SDG No.: M1915 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: WB1-0626

Date Received: _/_/

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
18540-29-9	Chromium, Hexavalent	0.120	0.200	0.200	U	ug/L	1	1000 UL	E218.6	06/26/2013
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GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1915 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E218.6 LCS ID: BS1W0625

Initial Calibration ID: HexCr062513
Date Analyzed: 06/25/2013

Matrix: (Soil/Water) WATER Time Analyzed: 1650

Instrument: ICJ Concentration Units: ug/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Chromium, Hexavalent	11.9	11.7	98	90-110	
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^{*} Values outside of QC limits

Comments:	;
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GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1915 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E218.6 LCS ID: BS1W0626

Initial Calibration ID: HexCr062513 Date Analyzed: Decoration ID: HexCr062513

Matrix: (Soil/Water) WATER Time Analyzed: 1122

Instrument: ICJ Concentration Units: ug/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Chromium, Hexavalent	11.9	11.9	100	90-110	
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^{*} Values outside of QC limits

Comments:

CASE NARRATIVE GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: M1915 Project: PGE Topock Project #: 423575.MP.07.TS I. Method(s): Analysis: E120.1 П. Receipt/Holding Times: All acceptance criteria were met. III. Analysis: A. Initial Calibration(s): All acceptance criteria were met. В. Calibration Verification(s): All acceptance criteria were met. C. Blanks: All acceptance criteria were met. D. Laboratory Control Sample(s): All acceptance criteria were met. E. Matrix Spike/Matrix Spike Duplicate Sample(s): Analyzed in accordance with standard operating procedure. F. Analytical Exception(s): None. IV. Documentation Exception(s): None. V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures. Date: 5-29-13Date: 6-3-13· Prepared by: Reviewed by:

Field Sample ID:

MW-56D-192

SDG No.: M1915 Lab Name: CH2M HTLL/LAB/CVO

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	19800		umhos/	1	10 ML	E120.1	05/28/13
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Field Sample ID:

MW-56M-192

SDG No.: M1915

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M191502

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	n/a	10.0	13800		umhos/	1	10 ML	E120.1	05/28/13
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Field Sample ID:

MW-56S-192

SDG No.: <u>M1915</u>

Lab Name: CH2M HILL/LAB/CVO

 ${\tt Matrix:}\ \underline{{\tt WATER}}$

Lab Sample ID: M191503

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	6000		umhos/	1	10 ML	E120.1	05/28/13
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Field Sample ID	:
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WB1-0528

SDG No.: M1915 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: WB1-0528

Date Received: __/_/

CAS No.	Analyte	DI	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
COND	Conductivity	N/A	10.0	10.0	U	umhos/	1	10 ML	E120.1	05/28/13
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7-WC

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1915 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E120.1 LCS ID: BS1W0528

Initial Calibration ID: NONE Date Analyzed: 05/28/13

Matrix: (Soil/Water) WATER Time Analyzed: 1549

Instrument: NONE Concentration Units: umhos/cm

Analyte	Expected	Found	%R	QC Limits %R	Q
Conductivity	384	403	105	80-120	+
conductivity	304	403	105	00-120	+
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^{*} Values outside of QC limits

Comments:		

TOTAL NUMBER OF CONTAINERS

CH2MHILL	•					•	CHAIN OF CUSTODY RECORD 5/15/2013 11:38:28 AM Page 1	OF	1_
Project Name PG&E Location Topock	Topock	, ,	Container	mi Poly	500 ml Poly	1 Liter Poly 4°C			
Project Manager Jay	Piper	Pres	ervatives:	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	4°C 			
Sample Manager Sha	wn Duf	fy	Filtered:	Field	Field	NA		1	
		Holo	ling Time:	28	180	14		ı	
Project Number 4239 Task Order Project 2013-GMP-19 Turnaround Time 12 Shipping Date: 5/16/ COC Number: 2	92-AZ 2 Days /2013		Matrix	Cr6 (E218.6R) Field Filtered	Metals (6020A) Field Filtered Chromium	Specific Conductance (E120.1)		Number of Containers	Cyfa Naments
MW-56D-192 5/1	15/2013	10:01	Water	χľ	x \	x \		4	BI
MW-56M-192 5/1	15/2013	8:55	Water	x²	χĺ	x \		4	7 2
MW-56S-192 5/1	15/2013	8:39	Water	χl	χ\	χ\		4	163

2.300

	Signatures	Date/Time	Shipping Details		Special Instructions:
Approved by		5-16-13	5	ATTN:	April 15 to May 9, 2013
Sampled by		1545	Method of Shipment: courier		April 10 to may 9, 2010
Relinquished by		,	On Ice: (es) / no 42 12	Sample Custody	
Received by		14/1/3 1545	Airbill No:	and	December 1
Relinquished by	—	· · · · · · · · · · · · · · · · · · ·	Lab Name: CH2M HILL Applied Sciences Lab	Kathy McKinley	Report Copy to Shawn Duffy
Received by		16mmy13 1549	Lab Phone: (541) 752-4271	Ratily McRisney	(530) 229-3303
PEUMONICHED:	>	20m4413 094L	Ryan San 5/21/13	InilD	



Sample Receipt Record

Batch Number: MQS Client/Project: Topick	-	Date received:	S-21	-13	
Client/Project: Topick	_	Checked by:	OB	<u></u>	
O CONTRACTOR OF THE CONTRACTOR		Checked by:			
VERIFICATION OF SAMPLE CONDITIONS (verify a	all items). HD = Client Hand deliv	vered Samples	NA	YES	NO :
Radiological Screening for DoD			1	120	110
Were custody seals intact and on the outside of the	· .		V		
Type of packing material: (Ce Blue Ice Bubble w		C			
Temp OK? (<6C) Therm ID_TH173_ Exp. 2/1		L			
Was a Chain of Custody (CoC) Provided?				V	
Was the CoC correctly filled out (If No, document			V		
Did the CoC list a correct bottle count and the pre-	servative types (Y=Ok	(, N=Corrected on CoC)		1	
Were the sample containers in good condition (bro	oken or leaking)?			<u></u>	
Containers supplied by ASL?					
Any sample with < 1/2 holding time remaining? If	so contact LPM				1 L
Samples have multi-phase? If yes, document on S	SRER		<u> </u>		
All VOCs free of air bubbles? No, document on S	RER				
pH of all samples checked and met requirements?		n SRER		V	
Enough sample volume provided for analysis? No				2	
Did sample labels agree with COC? No, documen	t in SRER			1/	
Dissolved/Soluble metals filtered in the field?			1		
Dissolved/Soluble metals have sediment in botton	n of container? Docum	nent in SRER			
Sample ID	Reagent	Reagent Lot Number	Volume	Added	Initials
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ANALYTICAL REPORT

For:

PGE Topock - 2013-RMP-191

ASL Report #: M1941

Project ID: 423575.MP.02.RM

Attn: Jay Piper

cc:

Data Center/RDD Shawn Duffy/RDD

Authorized and Released By:

Laboratory Project Manager

Kothy Mckincey

Kathy McKinley

(541) 758-0235 ext.23144

June 12, 2013

This data package meets standards requested by client and is not intended or implied to meet any other standard.

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

Sample Receipt Comments

We certify that the test results meet all standard ASL requirements.

Sample Cross-Reference

ASL		Date/Time	Date
Sample ID	Client Sample ID	Collected	Received
M194101	C-BNS-D-191	05/20/13 11:43	05/28/13
M194102	C-I-3-D-191	05/20/13 10:10	05/28/13
M194103	C-I-3-S-191	05/20/13 10:25	05/28/13
M194104	C-MAR-D-191	05/20/13 12:51	05/28/13
M194105	C-MAR-S-191	05/20/13 13:05	05/28/13
M194106	C-R22A-D-191	05/20/13 11:03	05/28/13
M194107	C-R22A-S-191	05/20/13 11:21	05/28/13
M194108	C-R27-D-191	05/20/13 12:13	05/28/13
M194109	C-R27-S-191	05/20/13 12:29	05/28/13
M194110	C-TAZ-D-191	05/20/13 09:30	05/28/13
M194111	C-TAZ-S-191	05/20/13 09:45	05/28/13
M194112	R63-191	05/20/13 10:45	05/28/13
M194113	C-CON-D-191	05/21/13 09:57	05/28/13
M194114	C-CON-S-191	05/21/13 10:13	05/28/13
M194115	C-NR1-D-191	05/21/13 10:42	05/28/13
M194116	C-NR1-S-191	05/21/13 10:55	05/28/13
M194117	C-NR3-D-191	05/21/13 11:17	05/28/13
M194118	C-NR3-S-191	05/21/13 11:30	05/28/13
M194119	C-NR4-D-191	05/21/13 11:53	05/28/13
M194120	C-NR4-S-191	05/21/13 12:08	05/28/13
M194121	R-19-191	05/21/13 09:16	05/28/13
M194122	R-28-191	05/21/13 08:56	05/28/13
M194123	RRB-191	05/21/13 09:28	05/28/13

CASE NARRATIVE GENERAL CHEMISTRY ANALYSIS

Lab Na	me: <u>C</u>	H2M HILL/LAB/CVO	ASL SDG#:	<u>M1941</u>	
Project:	PGE	Topock	Project #:	423575.MP.0	2.RM
I. II.	Holdin	d(s): is: E353.2 g Times: ceptance criteria were met.			
III.	Analys				
	A.	Initial Calibration(s): All acceptance criteria were met.			
	B.	Calibration Verification(s): All acceptance criteria were met.			
	C.	Blanks: All acceptance criteria were met.			
	D.	Laboratory Control Sample(s): All acceptance criteria were met.			
	E.	Matrix Spike/Matrix Spike Duplicate San Analyzed in accordance with standard op	•	dure.	
	F.	Analytical Exception(s): None.			
IV.	Docum None.	entation Exception(s):			
V.	CH2M the data	y that this data package is in compliance wi HILL, both technically and for completene a contained in this hardcopy data package hee, as verified by the following signatures.	ss, except for	the condition	s detailed above. Release of
Prepared	d by:	31/:		Date:	6/10/2013
Reviewe	ed by:	Kattey malancy		Date:	6/10/2013

Field Sample ID:

C-BNS-D-191

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M194101

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	06/03/13
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Field Sample ID:

C-I-3-D-191

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M194102

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	06/03/13
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Field Sample ID:

C-I-3-S-191

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M194103

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	06/03/13
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Field Sample ID:

C-I-3-S-191MS

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M194103MS

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	1.21		mg/L	1	2 ML	E353.2	06/03/13
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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-I-3-S-191MSD

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M194103MSD

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	1.22		mg/L	1	2 ML	E353.2	06/03/13
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Field Sample ID:

C-MAR-D-191

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M194104

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	06/03/13
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Field Sample ID:

C-MAR-S-191

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M194105

CAS No.	Analyte	DF	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500			mg/L	1	2 ML	E353.2	06/03/13
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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-R22A-D-191

SDG No.: <u>M1941</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M194106

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	06/03/13
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Field Sample ID:

C-R22A-S-191

SDG No.: <u>M1941</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M194107

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
иозио2и	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	06/03/13
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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-R27-D-191

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M194108

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	Ū	mg/L	1.	2 ML	E353.2	06/03/13
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Field Sample ID:

C-R27-S-191

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M194109

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	06/03/13
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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-TAZ-D-191

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M194110

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
N03N02N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	06/03/13
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Field Sample ID:

C-TAZ-S-191

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M194111

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	Ū	mg/L	1	2 ML	E353.2	06/03/13
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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

R63-191

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M194112

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	06/03/13
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Field Sample ID: .

C-CON-D-191

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M194113

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	06/03/13
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Field Sample ID:

C-CON-D-191MS

SDG No.: M1941

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: $\underline{\text{M194113MS}}$

CAS No.	Analyte	DL	PQL	Result		Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	1.31		mg/L	1	2 ML	E353.2	06/03/13
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Field Sample ID:

C-CON-D-191MSD

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M194113MSD

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	1.30		mg/L	1	2 ML	E353.2	06/03/13
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Field Sample ID:

C-CON-S-191

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M194114

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
N03N02N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	06/03/13
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Field Sample ID:

C-NR1-D-191

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M194115

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	υ	mg/L	1	2 ML	E353.2	06/03/13
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Field Sample ID:

C-NR1-S-191

SDG No.: M1941 Lab Name: CH2M HILL:/LAB/CVO

Matrix: WATER Lab Sample ID: M194116

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
иозио2и	Nitrate/Nitrite-N	0.00303	0.500	0.500	ט	mg/L	1	2 ML	E353.2	06/03/13
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Field Sample ID:

C-NR3-D-191

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M194117

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500			mg/L	1	2 ML	E353.2	06/03/13
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Field Sample ID:

C-NR3-S-191

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M194118

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	06/03/13
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Field Sample ID:

C-NR4-D-191

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M194119

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	06/03/13

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GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

C-NR4-S-191

SDG No.: <u>M1941</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M194120

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	IJ	mg/L	1	2 ML	E353.2	06/03/13
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181 1										

Field Sample ID:

R-19-191

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
иозиози	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	06/03/13
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Field Samp	le	ID:
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R-28-191

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M194122

CAS No.	Analyte	DĽ	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303				mg/L	1	2 ML	E353.2	06/03/13
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		.								
	-					_				

Field	Sample	ID:
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RRB-191

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M194123

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	06/03/13
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Field Sample ID:

RRB-191MS

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: M194123MS

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
N03N02N	Nitrate/Nitrite-N	0.00303	0.500	1.28		mg/L	1	2 ML	E353.2	06/03/13
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Field Sample ID:

RRB-191MSD

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

 ${\tt Matrix:} \ \ {\tt WATER} \\ \ \ {\tt Lab \ Sample \ ID:} \ \ {\tt \underline{M194123MSD}}$

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	1.27		mg/L	1	2 ML	E353.2	06/03/13

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Field	Sample	ID:
7.77	22 0602	

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER Lab Sample ID: WB2-0603

Date Received: __/_/

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500	U	mg/L	1	2 ML	E353.2	06/03/13
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							:			

Field Sample ID:

WB3-0603

SDG No.: <u>M1941</u>

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB3-0603

Date Received: __/_/

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00303	0.500	0.500		mg/L	1	2 ML	E353.2	06/03/13
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WATER GENERAL CHEMISTRY MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2 Concentration Units: mg/L

Native Sample ID: Matrix Spike ID: Matrix Spike Duplicate ID:

					1.00			1		1	í
	Native	MS			MSD				QC	QC	
	Sample	Spike	MS	MS	Spike	MSD	MSD		Limits	Limits	
Analyte	Result	Added	Result	%R	Added	Result	%R	%RPD	%R	%RPD	Q
Nitrate/Nitrite-N	0.362	1.00	1.31	95	1.00	1.30	94	1	75-125	20	
									= ****		

^{*} Values outside of QC limits

Comments:

Result values >MDL in the native sample are used in the MS/MSD recovery calculation.

WATER GENERAL CHEMISTRY MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: $\underline{E353.2}$ Concentration Units: $\underline{mg/L}$

Native Sample ID: Matrix Spike ID:

Matrix Spike Duplicate ID:

	Native	MS			MSD				QC	QC	
	Sample	Spike	MS	MS	Spike	MSD	MSD		1	Limits	'
Analyte	Result	Added	Result	%R	Added	Result	%R	%RPD	%R	%RPD	Q
Nitrate/Nitrite-N	0.340	1.00	1.21	87	1.00	1.22	88	0	75-125	20	

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^{*} Values outside of QC limits

Comments:

Result values >MDL in the native sample are used in the MS/MSD recovery calculation.

WATER GENERAL CHEMISTRY MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SDG No.: M1941 Lab Name: CH2M HTLL/LAB/CVO
Analysis Method: E353.2 Concentration Units: mg/L

Native Sample ID: Matrix Spike ID: Matrix Spike Duplicate ID:

RRB-191 RRB-191MSD RRB-191MSD

	Native Sample	MS Spike	MS	MS	MSD Spike	MSD	MSD		QC Limits	QC Limits	
Analyte	Result	Added	Result	%R	Added	Result	%R	%RPD	%R	%RPD	Q
Nitrate/Nitrite-N	0.326	1.00		L	1.00		i	1	75-125	20	
Michael Michae	0.320	4.00	1.20		1.00	1.27	7=		73 123	20	
-											
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* Values outside of QC limits

Comments:

Result values >MDL in the native sample are used in the MS/MSD recovery calculation.

7-WC

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2 LCS ID: BS2W0603

Initial Calibration ID: $\underline{060313N023CalA}$ Date Analyzed: $\underline{06/03/13}$

Matrix: (Soil/Water) WATER Time Analyzed: 1453

Instrument: <u>LACH8500</u> Concentration Units: <u>mg/L</u>

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.876	0.827	94	85-115	
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^{*} Values outside of QC limits

Comment	S	
COMMICALE	_	

7-WC

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M1941 Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2 LCS ID: BS3W0603

Initial Calibration ID: $\underline{060313N023CalB}$ Date Analyzed: $\underline{06/03/13}$

Matrix: (Soil/Water) WATER Time Analyzed: 1556

Instrument: <u>LACH8500</u> Concentration Units: <u>mg/L</u>

				QC Limits	
Analyte	Expected	Found	%R	%R	Q
Nitrate/Nitrite-N	0.876	0.867	99	85-115	
				~	
mount **					
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					-
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					┼──
Tallitus -					
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^{*} Values outside of QC limits

Comments:	;
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CH2MHILL

CHAIN OF CUSTODY RECORD

5/21/2013 3:12:50 PM

					0/2//2010 d. 12.00 f M	-	
Project Name Po	3&E Topoc	k (Container:	125 ml Poly			
Location Topod	k			H2SO4,			
Project Manager	Jay Piper	Pres	ervatīves:	pH<2. 4°C			
Sample Manager	Shawn Du	ffy	Filtered:	NA			:
		Hold	ing Time:	28			
Project Number	423575.WF	.02.RI	1				
Task Order				Sitra			
Project 2013-Riv				Nitrate/Nitrite (SM4500NO3) Nitrate		Number	
Turnaround Time		3				nbe	
Shipping Date:	5/14/2013			Nitra		er of	
COC Number: C	HMC-RMP	191		ate 4			
-				500		Containers	
				Į į	·	aine	
	DATE	TIME	Matrix	3)		SJS	COMMENTS
C-BNS-D-191	5/20/2013	11:43	Water	ж		1	1
C-I-3-D-191	5/20/2013	10:10	Water	ж		1	2
C-I-3-S-191	5/20/2013	10:25	Water	х		1	3
C-MAR-D-191	5/20/2013	12:51	Water	ж		1	4
C-MAR-S-191	5/20/2013	13:05	Water	ж		1	3
C-R22A-D-191	5/20/2013	11:03	Water	х		1	Ç
C-R22A-S-191	5/20/2013	11:21	Water	ж		1	7
C-R27-D-191	5/20/2013	12:13	Water	ж		1	8
C-R27-S-191	5/20/2013	-	Water	х		1	9
C-TAZ-D-191	5/20/2013	9:30	Water	х		1	(6
C-TAZ-S-191	5/20/2013	9:45	Water	ж		1	U
R63-191	5/20/2013	10:45	Water	ж		1	17
C-CON-D-191	5/21/2013	9:57	Water	ж		1	13
C-CON-S-191	5/21/2013	10:13	Water	ж		1	iú

Approved by Sampled by Relinquished by Received by

Received by

5-23-13 1100 1015 Relinguished by

)Signatures

Date/Time

Shipping Details

Method of Shipment:

On Ice:/ Airbill No:

Lab Name: CH2M HILL Applied Sciences Lab

Lab Phone: (541) 752-4271

ATTN:

Special Instructions:

May 22-23, 2013

Sample Custody

and Kathy McKinley

Report Copy to Shawn Duffy (530) 229-3303

23

CH2MHIL	.L				CHAIN OF CUSTODY RECORD 5/21/2013 3:12:51 PM Page 2	OF	2
Project Name Po	S&E Topoc	k	Container:	125 ml Poly		Γ	
Location Topoc	k			H2SO4,			
Project Manager	Jay Piper	Pres	ervatives:	ρΗ<2, 4°C			
Sample Manager	Shawn Du	ffy	Filtered:	NA			
		Holo	ding Time:	28			
Project Number	423575.MF	.02.RN	Л	_			
Task Order				Nitrate/Nitrite (SM4500NO3) Nitrate			
Project 2013-RM	P-191			ite/i		Z	
Turnaround Time	10 Days	S		<u> </u>		Number	
Shipping Date: 5	5/14/2013			he (S		er c	
COC Number: C	HMC-RMP	191		SM4 ate		of C	
				500		Containers	
				NO.		ain	
	DATE	TIME	Matrix	<u> </u>		ers	COMMENTS
C-NR1-D-191	5/21/2013	10:42	Water	х		1	15
C-NR1-S-191	5/21/2013	10:55	Water	х		1	16
C-NR3-D-191	5/21/2013	11:17	Water	х		1	13
C-NR3-S-191	5/21/2013	11:30	Water	х		1	188
C-NR4-D-191	5/21/2013	11:53	Water	х		1	[9
C-NR4-S-191	5/21/2013	12:08	Water	х		1	20
R-19-191	5/21/2013	9:16	Water	х		1	77/
R-28-191	5/21/2013	8:56	Water	х		14	8 22
RRB-191	5/21/2013	9:28	Water	х		10	4 23

Approved by Sampled by Relinquished by

Received by Relinquished by Received by

Date/Time 5 23-13 1100 Signatures

5-25-13 1015

Shipping Details

Method of Shipment: On Ice: yes I no

Airbill No:

Lab Name: CH2M HILL Applied Sciences Lab

Lab Phone: (541) 752-4271

ATTN:

Special Instructions: May 22-23, 2013

TOTAL NUMBER OF CONTAINERS

Sample Custody

and Kathy McKinley

Report Copy to Shawn Duffy

(530) 229-3303



Sample Receipt Record

SDG ID: MIGUI			Date F	Received:	5-2	<u>8-13</u>
Client/Project: Topack				ecked By:		45
Packing Material: (Ce Blue Ice Box K						
Shipping ID:		or On File COC	HD U	JSPS (ci	rcle one)	
VERIFICATION OF SAMPLE CONDITIONS (ver	ify all items), HD = Client Hand	delivered Samples		NA	YES	NO
Were custody seals intact and on the outside or	f the cooler?				V	
Radiological Screening for DoD				V		
Temp OK? (<6C) Therm IDTH173 Exp(² /13		1.8°C		<u> </u>	
Was a Chain of Custody (CoC) Provided?					<u> </u>	
Was the CoC correctly filled out (If No, docume	nt in the SRER)				<u> </u>	
Did sample labels agree with COC? No, docum	ent in SRER				$\overline{\nu}$	
Did the CoC list a correct bottle count and the p	reservative types (Y	OK, N=Corrected on Co	C)			
Were the sample containers in good condition (broken or leaking)?				/	
Was enough sample volume provided for analy	sis? No, document ir	SRER				
Containers supplied by ASL?						
Any sample with < 1/2 holding time remaining?						
Samples have multi-phase? If yes, document or	n SRER					
All VOCs free of air bubbles? No, document on	SRER					
pH of all samples met criteria on receipt? If "No			/	·		
Dissolved/Soluble metals filtered in the field?				/		
Dissolved/Soluble metals have sediment in bott	om of container? Do	cument in SRER		V		
Sample ID	Reagent	Reagent Lot Num	ıber	Volume	Added	Initials
The second secon		, , , , , , , , , , , , , , , , , , , ,				



Sample Receipt Exception Report

Sample Batch Number: M\ペリ	Client/Project TODOCK	
The following exceptions were noted:		
	Comments (write number of exception description and the impacted sample numbers)	
No custody seal as required by project	Nitrate Nitrite requested : ASL will report E383. ?	5 MYSO
No chain-of-custody provided	ASL will report E383.?	
Analysis, description, date of collection not provided		
Samples broken or leaking on receipt.		
Temperature of samples inappropriate for analysis requested		
Container inappropriate for analysis requested		
7. Inadequate sample volume.		
Preservation inappropriate for analysis requested		
Samples received out of holding time for analysis requested		
Discrepancies between COC form and container labels.		
11. Other.		
ACTION TAKEN:		
Originator: (amm Bell	D	
Originator: (AMM BEU Client was notified on:	Date: 5/78/13 . Client Contact:	
(Date/Time)		
		
Client Services:		

May 01, 2013

Shawn P. Duffy CA-ELAP No.: 2676

CH2M HILL NV Cert. No.: NV-009222007A

155 Grand Avenue, Suite 1000

Oakland, CA 94612 TEL: (530) 229-3303

FAX: (530) 339-3303 Workorder No.: N010025

RE: PG&E Topock, 423575.MP.07.TS

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on April 16, 2013 by Advanced Technology Laboratories, Inc. . 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,

Jose Tenorio Jr.

Laboratory Director

5 grogermundo

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



CH2M HILL CLIENT:

PG&E Topock, 423575.MP.07.TS Project: **CASE NARRATIVE**

Date: 01-May-13

Lab Order: N010025

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.



CLIENT: CH2M HILL

Work Order Sample Summary Project: PG&E Topock, 423575.MP.07.TS

Date: 01-May-13

N010025 Lab Order:

Contract No: 2013-GMP-192-

Lab Sample ID Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N010025-001A MW-121-192	Water	4/15/2013 7:10:00 AM	4/16/2013	5/1/2013
N010025-001B MW-121-192	Water	4/15/2013 7:10:00 AM	4/16/2013	5/1/2013
N010025-002A MW-122-192	Water	4/15/2013 5:15:00 PM	4/16/2013	5/1/2013
N010025-002B MW-122-192	Water	4/15/2013 5:15:00 PM	4/16/2013	5/1/2013
N010025-003A MW-27-020-192	Water	4/15/2013 11:20:00 AM	4/16/2013	5/1/2013
N010025-003B MW-27-020-192	Water	4/15/2013 11:20:00 AM	4/16/2013	5/1/2013
N010025-004A MW-27-060-192	Water	4/15/2013 12:41:00 PM	4/16/2013	5/1/2013
N010025-004B MW-27-060-192	Water	4/15/2013 12:41:00 PM	4/16/2013	5/1/2013
N010025-005A MW-27-085-192	Water	4/15/2013 1:52:00 PM	4/16/2013	5/1/2013
N010025-005B MW-27-085-192	Water	4/15/2013 1:52:00 PM	4/16/2013	5/1/2013
N010025-006A MW-30-030-192	Water	4/15/2013 3:27:00 PM	4/16/2013	5/1/2013
N010025-006B MW-30-030-192	Water	4/15/2013 3:27:00 PM	4/16/2013	5/1/2013
N010025-007A MW-124-192	Water	4/16/2013 6:50:00 AM	4/16/2013	5/1/2013
N010025-007B MW-124-192	Water	4/16/2013 6:50:00 AM	4/16/2013	5/1/2013
N010025-008A MW-34-080-192	Water	4/16/2013 10:06:00 AM	4/16/2013	5/1/2013
N010025-008B MW-34-080-192	Water	4/16/2013 10:06:00 AM	4/16/2013	5/1/2013
N010025-009A MW-34-100-192	Water	4/16/2013 1:27:00 PM	4/16/2013	5/1/2013
N010025-009B MW-34-100-192	Water	4/16/2013 1:27:00 PM	4/16/2013	5/1/2013
N010025-010A MW-42-055-192	Water	4/16/2013 3:28:00 PM	4/16/2013	5/1/2013
N010025-010B MW-42-055-192	Water	4/16/2013 3:28:00 PM	4/16/2013	5/1/2013



Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-121-192

Lab Order: N010025 **Collection Date:** 4/15/2013 7:10:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010025-001

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130417A
 QC Batch:
 R88472
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 13000
 0.10
 umhos/cm
 1
 4/17/2013

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



Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-122-192

Lab Order: N010025 **Collection Date:** 4/15/2013 5:15:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010025-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130417A
 QC Batch:
 R88472
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 8800
 0.10
 0.10
 umhos/cm
 1
 4/17/2013

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



Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-27-020-192

Lab Order: N010025 **Collection Date:** 4/15/2013 11:20:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010025-003

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130417A
 QC Batch:
 R88472
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 1000
 0.10
 umhos/cm
 1
 4/17/2013

Qualifiers: B Analyte d

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



Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-27-060-192

Lab Order: N010025 **Collection Date:** 4/15/2013 12:41:00 PM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010025-004

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130417A
 QC Batch:
 R88472
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 1100
 0.10
 umhos/cm
 1
 4/17/2013

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



Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-27-085-192

Lab Order: N010025 **Collection Date:** 4/15/2013 1:52:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010025-005

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130417A
 QC Batch:
 R88472
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 13000
 0.10
 umhos/cm
 1
 4/17/2013

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



Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-30-030-192

Lab Order: N010025 **Collection Date:** 4/15/2013 3:27:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010025-006

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130417A
 QC Batch:
 R88472
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 9000 0.10 0.10 umhos/cm
 1 4/17/2013

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



Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-124-192

Lab Order: N010025 **Collection Date:** 4/16/2013 6:50:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010025-007

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130417A
 QC Batch:
 R88472
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 18000
 0.10
 0.10
 umhos/cm
 1
 4/17/2013

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



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-34-080-192

Lab Order: N010025 **Collection Date:** 4/16/2013 10:06:00 AM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010025-008

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130417A
 QC Batch:
 R88472
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 7800
 0.10
 umhos/cm
 1
 4/17/2013

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



Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-34-100-192

Lab Order: N010025 **Collection Date:** 4/16/2013 1:27:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010025-009

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130417A
 QC Batch:
 R88472
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 18000
 0.10
 0.10
 umhos/cm
 1
 4/17/2013

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



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-42-055-192

Lab Order: N010025 **Collection Date:** 4/16/2013 3:28:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010025-010

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130417A
 QC Batch:
 R88472
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 2500
 0.10
 0.10
 umhos/cm
 1
 4/17/2013

Qualifiers: B Analyte de

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



Date: 01-May-13

TestCode: 120.1_WPGE

ANALYTICAL QC SUMMARY REPORT CH2M HILL CLIENT:

PG&E Topock, 423575.MP.07.TS

N010025

Work Order:

Project:

Qual %RPD RPDLimit SeqNo: 1557916 RunNo: 88472 %REC LowLimit HighLimit RPD Ref Val Analysis Date: 4/17/2013 115 Prep Date: 85 106 TestCode: 120.1_WPGE Units: umhos/cm 0 SPK value SPK Ref Val TestNo: EPA 120.1 9992 PQL 0.10 Batch ID: R88472 Result 10580.000 SampType: LCS Sample ID: LCS-R88472 Specific Conductance Client ID: LCSW Analyte

Sample ID: N010025-003B-DUP SampType: DUP	SampType: DUP	TestCoc	de: 120.1_WPG	TestCode: 120.1_WPGE Units: umhos/cm	٦ ا	Prep Date:			RunNo: 88472	72	
Client ID: ZZZZZZ	Batch ID: R88472	TestN	TestNo: EPA 120.1		4	Analysis Date: 4/17/2013	: 4/17/201	13	SeqNo: 1557920	7920	
Analyte	Result	PQL	SPK value SPK Ref Val		%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit	Qual
Specific Conductance	1010.000	0.10						1008	0.198	10	
Sample ID: N010025-006B MS	SampType: MS	TestCoo	de: 120.1_WPG	TestCode: 120.1_WPGE Units: umhos/cm	٦	Prep Date:			RunNo: 88472	72	
Client ID: ZZZZZZ	Batch ID: R88472	TestN	TestNo: EPA 120.1		4	Analysis Date: 4/17/2013	: 4/17/201	13	SeqNo: 1557924	7924	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit	Qual
Specific Conductance	20400.000	0.20	8992	0006	114	75	125				
Sample ID: N010025-006B MSD SampType: MSD	SampType: MSD	TestCoc	de: 120.1_WPG	TestCode: 120.1_WPGE Units: umhos/cm	۴	Prep Date:			RunNo: 88472	72	
Client ID: ZZZZZZ	Batch ID: R88472	TestN	TestNo: EPA 120.1		4	Analysis Date: 4/17/2013	: 4/17/201	13	SeqNo: 1557925	7925	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	√lighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit	Qual
Specific Conductance	20500.000	0.20	9992	0006	115	75	125	20400	0.489	10	

Qualifiers:

Analyte detected in the associated Method Blank В

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

Advanced Technology

Laboratories, Inc.

Value above quantitation range

RPD outside accepted recovery limits Calculations are based on raw values ы к

Spike/Surrogate outside of limits due to matrix interference H Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix inte

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-121-192

Lab Order: N010025 **Collection Date:** 4/15/2013 7:10:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010025-001

Analyses Result MDL PQL Qual Units DF Date Analyzed

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

 RunID:
 IC2_130417A
 QC Batch:
 R88491
 PrepDate:
 Analyst:
 QBM

 Fluoride
 ND 0.060
 2.5
 mg/L
 5
 4/17/2013 04:31 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



Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-27-060-192

Lab Order: N010025 **Collection Date:** 4/15/2013 12:41:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010025-004

Analyses Result MDL PQL Qual Units DF Date Analyzed

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130417A QC Batch: R88491 PrepDate: Analyst: QBM Fluoride 0.59 0.012 0.50 mg/L 1 4/17/2013 03:26 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



Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-27-085-192

Lab Order: N010025 **Collection Date:** 4/15/2013 1:52:00 PM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010025-005

Analyses Result MDL PQL Qual Units DF Date Analyzed

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

 RunID:
 IC2_130417A
 QC Batch:
 R88491
 PrepDate:
 Analyst:
 QBM

 Fluoride
 2.8
 0.060
 2.5
 mg/L
 5
 4/17/2013 04:44 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



ANALYTICAL QC SUMMARY REPORT CH2M HILL N010025 Work Order: CLIENT:

PG&E Topock, 423575.MP.07.TS Project:

TestCode: 300_W_FPGE

Date: 01-May-13

Sample ID: MB-R88491_F	SampType: MBLK	TestCode: 300_W_FPGE Units: mg/L	Prep Date:	RunNo: 88491
Client ID: PBW	Batch ID: R88491	TestNo: EPA 300.0	Analysis Date: 4/17/2013	SeqNo: 1559093
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	QN	0.50		
Sample ID: LCS-R88491_F	SampType: LCS	TestCode: 300_W_FPGE Units: mg/L	Prep Date:	RunNo: 88491
	!			

Sample ID: LCS-R88491_F	SampType: LCS	TestCo	de: 300_W_FF	TestCode: 300_W_FPGE Units: mg/L		Prep Date:			RunNo: 88491	.91	
Client ID: LCSW	Batch ID: R88491	Test	TestNo: EPA 300.0		*	Analysis Date: 4/17/2013	e: 4/17/201	13	SeqNo: 1559094	9094	
Analyte	Result	PQL	SPK value	PQL SPK value SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit Qual	Qual
Fluoride	2.356	0.50	2.500	0	94.2	06	110				
Sample ID: N010025-004BDUP	SampType: DUP	TestCo	de: 300_W_FF	TestCode: 300_W_FPGE Units: mg/L		Prep Date:			RunNo: 88491	91	
Client ID: ZZZZZZ	Batch ID: R88491	Test	TestNo: EPA 300.0		1	Analysis Date:	e: 4/17/2013	13	SeqNo: 1559100	9100	
Analyte	Result	PQL	SPK value	SPK value SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	RPDLimit	Qual

	0 :odf :dimo			
Client ID: ZZZZZZ	Batch ID: R88491	TestNo: EPA 300.0	Analysis Date: 4/17/2013	SeqNo: 1559100
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	0.590	0.50	0.5940	0.676 20
Sample ID: N010025-004BMS	SampType: MS	TestCode: 300_W_FPGE Units: mg/L	Prep Date:	RunNo: 88491
Client ID: ZZZZZZ	Batch ID: R88491	TestNo: EPA 300.0	Analysis Date: 4/17/2013	SeqNo: 1559101
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	2.831	0.50 2.500 0.5940	89.5 80 120	
Sample ID: N010025-004BMSD SampType: MSD	SampType: MSD	TestCode: 300_W_FPGE Units: mg/L	Prep Date:	RunNo: 88491

Sample ID: N010025-004BMSD	SampType: MSD	TestCo	ode: 300_W_FP	TestCode: 300_W_FPGE Units: mg/L		Prep Date:			RunNo: 88491	.91	
Client ID: ZZZZZZ	Batch ID: R88491	Test	TestNo: EPA 300.0		*	Analysis Da	Analysis Date: 4/17/2013	13	SeqNo: 1559102	9102	
Analyte	Result	PQL		SPK value SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit Qual	Qual
Fluoride	2.840	0.50	2.500	0.5940	89.8	80	120	2.831	0.317	20	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

RPD outside accepted recovery limits Calculations are based on raw values ы ч

Value above quantitation range

H Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix interference

Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CH2M HILL

PG&E Topock, 423575.MP.07.TS

N010025

Client Sample ID: MW-121-192

Collection Date: 4/15/2013 7:10:00 AM

Matrix: WATER

Lab ID: N010025-001

CLIENT:

Project:

Lab Order:

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130429A	QC Batch: 427	741		PrepDate:	4/21/2013	Analyst: CEI
Arsenic	1.4	0.035	0.10	μg/L	1	4/29/2013 11:53 AM
Manganese	86	0.16	0.50	μg/L	1	4/29/2013 11:53 AM
Molybdenum	19	0.074	0.50	μg/L	1	4/29/2013 11:53 AM
Selenium	ND	0.084	0.50	μg/L	1	4/29/2013 11:53 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



Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CH2M HILL Client Sample ID: MW-122-192

Lab Order: N010025 **Collection Date:** 4/15/2013 5:15:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010025-002

CLIENT:

Amalanaa	D14	MDI	DOI	O1 U:4	DE	D-4- Ald
Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY IC	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130429A	QC Batch: 42	741		PrepDate:	4/21/2013	Analyst: CEI
Molybdenum	25	0.074	0.50	μg/L	1	4/29/2013 11:58 AM
Selenium	ND	0.084	0.50	μg/L	1	4/29/2013 11:58 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



Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-27-020-192

Lab Order: N010025 **Collection Date:** 4/15/2013 11:20:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010025-003

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130429A	QC Batch: 427	741		PrepDate:	4/21/2013	Analyst: CEI
Arsenic	1.6	0.035	0.10	μg/L	1	4/29/2013 04:49 PM
Manganese	96	0.16	0.50	μg/L	1	4/29/2013 04:49 PM
Molybdenum	4.8	0.074	0.50	μg/L	1	4/29/2013 04:49 PM
Selenium	ND	0.084	0.50	μg/L	1	4/29/2013 04:49 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



Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CH2M HILL

Client Sample ID: MW-27-060-192

Lab Order: N010025 **Collection Date:** 4/15/2013 12:41:00 PM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010025-004

CLIENT:

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130429A	QC Batch: 427	7 41		PrepDate:	4/21/2013	Analyst: CEI
Arsenic	6.8	0.035	0.10	μg/L	1	4/29/2013 12:09 PM
Manganese	140	0.16	0.50	μg/L	1	4/29/2013 12:09 PM
Molybdenum	3.7	0.074	0.50	μg/L	1	4/29/2013 12:09 PM
Selenium	ND	0.084	0.50	μg/L	1	4/29/2013 12:09 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



Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-27-085-192

Lab Order: N010025 **Collection Date:** 4/15/2013 1:52:00 PM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010025-005

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130429A	QC Batch: 427	741		PrepDate:	4/21/2013	Analyst: CEI
Arsenic	1.3	0.035	0.10	μg/L	1	4/29/2013 12:15 PM
Manganese	85	0.16	0.50	μg/L	1	4/29/2013 12:15 PM
Molybdenum	19	0.074	0.50	μg/L	1	4/29/2013 12:15 PM
Selenium	ND	0.084	0.50	μg/L	1	4/29/2013 12:15 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



4/29/2013 12:46 PM

Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-30-030-192

Lab Order: N010025 **Collection Date:** 4/15/2013 3:27:00 PM

0.084

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

ND

Lab ID: N010025-006

Selenium

Analyses	Result MDL	PQL Qual Units	s DF	Date Analyzed
DISSOLVED METALS BY IC	P-MS			
	EPA 3010A	EPA 6020		
RunID: ICP7_130429A	QC Batch: 42741	PrepDate:	4/21/2013	Analyst: CEI
Molybdenum	26 0.074	0.50 μg/L	1	4/29/2013 12:46 PM

0.50

μg/L

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



Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CH2M HILL

Client Sample ID: MW-124-192

Lab Order: N010025 **Collection Date:** 4/16/2013 6:50:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010025-007

CLIENT:

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130429A	QC Batch: 427	741		PrepDate:	4/21/2013	Analyst: CEI
Arsenic	1.3	0.035	0.10	μg/L	1	4/29/2013 12:52 PM
Manganese	15	0.16	0.50	μg/L	1	4/29/2013 12:52 PM
Molybdenum	31	0.37	2.5	μg/L	5	4/29/2013 04:55 PM
Selenium	ND	0.084	0.50	μg/L	1	4/29/2013 12:52 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



4/29/2013 12:57 PM

Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-34-080-192

0.16

Lab Order: N010025 **Collection Date:** 4/16/2013 10:06:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

4.5

Lab ID: N010025-008

Manganese

Analyses	Result MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY ICI	P-MS				
	EPA 3010A	EPA	6020		
RunID: ICP7_130429A	QC Batch: 42741		PrepDate:	4/21/2013	Analyst: CEI
Arsenic	1.3 0.035	0.10	μg/L	1	4/29/2013 12:57 PM

0.50

μg/L

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



Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-34-100-192

Lab Order: N010025 **Collection Date:** 4/16/2013 1:27:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010025-009

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130429A	QC Batch: 427	741		PrepDate:	4/21/2013	Analyst: CEI
Arsenic	1.3	0.035	0.10	μg/L	1	4/29/2013 01:42 PM
Manganese	15	0.16	0.50	μg/L	1	4/29/2013 01:42 PM
Molybdenum	32	0.37	2.5	μg/L	5	4/29/2013 05:01 PM
Selenium	ND	0.42	2.5	μg/L	5	4/29/2013 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



Print Date: 01-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-42-055-192

Lab Order: N010025 **Collection Date:** 4/16/2013 3:28:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010025-010

Analyses Result MDL PQL Qual Units DF Date Analyzed

DISSOLVED METALS BY ICP-MS

EPA 3010A EPA 6020

RunID: ICP7_130429A QC Batch: 42741 PrepDate: 4/21/2013 Analyst: CEI

Arsenic 11 0.035 0.10 μg/L 1 4/29/2013 01:48 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



ANALYTICAL QC SUMMARY REPORT CH2M HILL N010025 Work Order: CLIENT:

TestCode: 6020_DIS

Date: 01-May-13

PG&E Topock, 423575.MP.07.TS Project:

RunNo: 88645	Prep Date: 4/21/2013	Units: µg/L	TestCode: 6020_DIS	SampType: MSD	Sample ID: N010046-001A-MSD
	111 75 125	26.11	0.10 10.00	37.208	Arsenic
%RPD RPDLimit Qual	%REC LowLimit HighLimit RPD Ref Val	SPK Ref Val %F	PQL SPK value	Result	Analyte
SeqNo: 1565749	Analysis Date: 4/29/2013	EPA 3010A	TestNo: EPA 6020	Batch ID: 42741	Client ID: ZZZZZZ
RunNo: 88645	Prep Date: 4/21/2013	Units: µg/L	TestCode: 6020_DIS	SampType: MS	Sample ID: N010046-001A-MS
	104 85 115	0	0.50 10.00	10.405	Selenium
	102 85 115	0	0.50 10.00	10.213	Molybdenum
	99.6 85 115	6 0	0.50 100.0	99.642	Manganese
	110 85 115	0	0.10 10.00	11.009	Arsenic
%RPD RPDLimit Qual	%REC LowLimit HighLimit RPD Ref Val	SPK Ref Val	PQL SPK value	Result	Analyte
SeqNo: 1565722	Analysis Date: 4/29/2013	EPA 3010A	TestNo: EPA 6020	Batch ID: 42741	Client ID: LCSW
RunNo: 88645	Prep Date: 4/21/2013	Units: µg/L	TestCode: 6020_DIS	SampType: LCS	Sample ID: LCS-42741
			0.50	QN	Selenium
			0.50	QN	Molybdenum
			0.50	QN	Manganese
			0.10	QN	Arsenic
%RPD RPDLimit Qual	%REC LowLimit HighLimit RPD Ref Val	SPK Ref Val	PQL SPK value	Result	Analyte
SeqNo: 1565721	Analysis Date: 4/29/2013	EPA 3010A	TestNo: EPA 6020	Batch ID: 42741	Client ID: PBW
RunNo: 88645	Prep Date: 4/21/2013	Units: µg/L	TestCode: 6020_DIS	SampType: MBLK	Sample ID: MB-42741

Analyte	Result	Pal	SPK value	SPK value SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val
Arsenic	37.678	0.10	10.00	26.11	116	75	125	37.21
Qualifiers:								
В	Analyte detected in the associated Method Blank	田	Value above	Value above quantitation range			Н Но	Holding times for prepresent
ND	Not Detected at the Reporting Limit	R	RPD outside	RPD outside accepted recovery limits	its		S Spi	Spike/Surrogate outsid
DO	DO Surrogate Diluted Out		Calculations	Calculations are based on raw values	Se			

times for preparation or analysis exceeded

Qual

%RPD RPDLimit

1.26

SeqNo: 1565750

Analysis Date: 4/29/2013

EPA 3010A

TestNo: EPA 6020

Batch ID: 42741

Client ID: ZZZZZZ

rrogate outside of limits due to matrix interference

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Project: PG&E Topock, 423575.MP.07.TS

CH2M HILL

N010025

CLIENT: Work Order:

Sample ID: N010046-001A-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 42741	TestCode TestNo	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date	Prep Date: 4/21/2013 Analysis Date: 4/29/2013		RunNo: 88645 SeqNo: 1565754	t5 i754	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RF	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1370.494	12	100.0	1260	111	75	125				
Sample ID: N010046-001A-MSD Client ID: ZZZZZZ	SampType: MSD Batch ID: 42741	TestCode TestNo	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date	Prep Date: 4/21/2013 Analysis Date: 4/29/2013		RunNo: 88645 SeqNo: 1565757	t5 757	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RF	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1382.281	12	100.0	1260	122	75	125	1370	0.856	20	
Sample ID: N010046-001A-MS Client ID: ZZZZZ	SampType: MS Batch ID: 42741	TestCode TestNo	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date: Analysis Date:	Prep Date: 4/21/2013 Analysis Date: 4/29/2013		RunNo: 88645 SeqNo: 1565759	t5 759	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit		RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum Selenium	26.058 10.253	2.5	10.00	15.00	111	75 75	125 125				
Sample ID: N010046-001A-MSD Client ID: ZZZZZ	SampType: MSD Batch ID: 42741	TestCode TestNo	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date: Analysis Date:	e: 4/21/2013 e: 4/29/2013		RunNo: 88645 SeqNo: 1565760	t5 i760	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit		RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum Selenium	26.203 9.922	2.5	10.00	15.00 0	112 99.2	75 75	125 125	26.06 10.25	0.555	20	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

ND Not Detected at the Reporting L
DO Surrogate Diluted Out

Advanced Technology 3151 W. Post Rd La Laboratories, Inc.

E Value above quantitation range
R RPD outside accepted recovery limits

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

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

	-	Э.			
•		26	8	П	

CHAIN OF CUSTODY RECORD

4/16/2013 4:08:53 PM

Page 1 OF 1

CMZIVIHIL	- L							CII		4/10/2013 4:06:53 PW Page 1	UF _	<u> </u>
Project Name Po Location Topod Project Manager	:k		Container: servatives:	Poly HNO3,	500 ml Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	1 Liter Poly 4°C	1 Liter Poly 4°C			
Sample Manager	Shawn Duf	fy	Filtered:	Field	Field	Field	Field	NA	NA			
		Hold	ling Time:	180	180	180	180	14	14			
Project Number Task Order Project 2013-GM Turnaround Time Shipping Date: 4 COC Number: 2	IP-192-Q2 • 10 Days	•	Matrix	Arsenic (6020A) Field Filtered	Metals (6020A) Field Filtered Mn	Metals (6020A) Field Filtered Mo,Se	Metals (6020A) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Anions (E300.0) Fluoride		Number of Containers	сомме
MW-121-192	4/15/2013	7:10	Water	х			х	х	х	HU1U025 -1	2	
W-122-192	4/15/2013	17:15	Water			х		х		1 -2	2	
/W-27-020-192	4/15/2013	11:20	Water	х			х	х		- 3	2	
/W-27-060-192	4/15/2013	12:41	Water	Х			х	х	x	- 4	2	
/IW-27-085-192	4/15/2013	13:52	Water	х			х	х	Х	- 5	2	
/W-30-030-192	4/15/2013	15:27	Water			х		х		- Ç	2	
IW-124-192	4/16/2013	6:50	Water	х			х	х		- 7	2	
TW-34-080-192	4/16/2013	10:06	Water	х	×			х		- 8	2	
TW-34-100-192	4/16/2013	13:27	Water	х			х	х		-9	2	
IW-42-055-192	4/16/2013	15:28	Water	х				х		- 10	2	
								1				

Approved by

Sampled by

Relinquished by

Received by

Received by

Received by

Date/Time 4-16-13 1653

4-16-13 165

Method of Shipment: courier
On Ice: (yes) / no (XF 24 //2)

Shipping Details

On Ice: (yés) / no (F)

Lab Name: ADVANCED TECHNOLOGY LABORATO Lab Phone: (702) 307-2659 ATTN:

Special Instructions: April 15 to May 9, 2013

Sample Custody

and Marlon

Report Copy to Shawn Duffy (530) 229-3303

AT IN.

astouy

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 o	r further in	struction, pleas	e contact our F	Project Coor	dinator at (702) 307-2659.		
Cooler Received/Opened On:	4/16/2013	3			Workorder:	N010025		
Rep sample Temp (Deg C):	2.4				IR Gun ID:	1		
Temp Blank:	Yes	✓ No						
Carrier name:	ATL							
Last 4 digits of Tracking No.:	N/A			Packing	Material Used:	None		
Cooling process:	✓ Ice	lce Pack	Dry ice	Other	None			
		s	ample Recei	ot Checklis	ŧ			
1. Shipping container/cooler in	good condi				Yes 🗹	No 🗌	Not Present	
2. Custody seals intact, signed	, dated on s	shippping contain	er/cooler?		Yes 🗌	No 🗆	Not Present	✓
3. Custody seals intact on sam	ple bottles?	?			Yes 🗌	No 🗆	Not Present	V
4. Chain of custody present?					Yes 🗹	No 🗌		
5. Sampler's name present in	COC?				Yes 🗹	No 🗆		
6. Chain of custody signed who	en relinquis	hed and received	?		Yes 🗹	No 🗔		
7. Chain of custody agrees wit	h sample la	bels?			Yes 🗸	No 🗀		
8. Samples in proper containe	r/bottle?				Yes 🗹	No 🗀		
9. Sample containers intact?	ŕ				Yes 🗸	No 🗆		
10. Sufficient sample volume t	or indicated	I test?			Yes 🗹	No 🗀		
11. All samples received within	n holding tin	ne?			Yes 🗹	No \square		
12. Temperature of rep sample	or Temp E	Blank within accep	otable limit?		Yes 🗹	No 🗔	NA	
13. Water - VOA vials have ze	ro headspa	ce?			Yes 🗌	No 🗌	NA	V
14. Water - pH acceptable upon	5.7	for Metals			Yes 🗹	No 🗌	NA	
15. Did the bottle labels indica	te correct p	reservatives used	l?		Yes 🗹	No 🗌	NA	
16. Were there Non-Conforma	ince issues las Client n				Yes	No 🗌 No 🗆	NA NA	
Comments:							ک. بـ	<u>.</u>
Checklist Completed B	MBC Into	e dullo				Reviewed By:	4	2

Sample Calculation

METHOD: EPA 300

TEST NAME: INORGANIC ANIONS BY IC

MATRIX: WATER

FORMULA:

Calculate the Fluoride concentration, in mg/L, in the original sample as follows:

Fluoride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration DF = dilution factor

For **N010025-004B**, concentration in mg/L are calculated as follows:

Fluoride, mg/L = 0.594 * 1

= 0.594

بر المهام المواقعة ا

Fluoride, mg/L = 0.59

Sample Calculation

METHOD: EPA 6020

TEST NAME: Heavy Metals by ICP-MS

MATRIX: Aqueous

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

Arsenic, ug/L

A * DF * PF

where:

A = ug/L, calculated concentration

DF = dilution factor

PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N010025-001A, the concentration in ug/L is calculated as follows:

Arsenic, ug/L

1.35212 * 1 * (25/25)

= 1.35212

Reporting results in two significant figures,

Arsenic, ug/L

1.4

NS fn 5/1/13

f 100 3

ICP-Metals in Water

Dilution Test Summary

Work Order No.:

N010025

Test Method: Analysis Date: EPA 6020

04/29/13

Matrix:

Water

Batch No.:

42741

Instrument ID:

ICP-MS #2

Instrument Description:

Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Se. The calculated values are <25X RL. PS @5X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N010046-001A-DT 5X	Arsenic	μg/L	26.66757628	PASSED	26.11157097	2.13%	10
N010046-001A-DT 25X	Manganese	μg/L	1325.961891	PASSED	1259.78847	5.25%	10
N010046-001A-DT 5X2	ダ Selenium	μg/L	0	NA	0		10
N010046-001A-DT 5X 0		μg/L	13.72252297	PASSED	14.99696558	8.50%	10

Note: NA - Not applicable

CLIENT:

CH2M HILL

Work Order:

N010025

Project:

PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT

Date: 30-Apr-13

TestCode: 6020_DIS

Sample ID: N010046-001A-PS Client ID: ZZZZZZ	SampType: PS Batch ID: 42741	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A	Prep Date: Analysis Date: 4/29/2013	RunNo: 88645 SeqNo: 1565748
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref \	'al %RPD RPDLimit Qual
Arsenic	45.926	0.20 20.00	26.11	99.1 75 125	
Sample ID: N010046-001A-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 88645
Client ID: ZZZZZZ	Batch ID: 42741	TestNo: EPA 6020	EPA 3010A	Analysis Date: 4/29/2013	SeqNo: 1565753
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref V	'al %RPD RPDLimit Qual
Manganese	3671.468	12 2500	1260	96.5 75 125	
Sample ID: N010046-001A-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 88645
Client ID: ZZZZZZ	Batch ID: 42741	TestNo: EPA 6020	EPA 3010A	Analysis Date: 4/29/2013	SeqNo: 1565758
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref V	al %RPD RPDLimit Qual
Molybdenum	67.659	2.5 50.00	15.00	105 75 125	
Selenium	46.875	2.5 50.00	0	93.7 75 125	

Qualifiers:

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

May 03, 2013

Shawn P. Duffy

CH2M HILL

155 Grand Avenue, Suite 1000

Oakland, CA 94612

TEL: (530) 229-3303

FAX: (530) 339-3303

Workorder No.: N010046

NV Cert. No.: NV-009222007A

CA-ELAP No.: 2676

RE: PG&E Topock, 423575.MP.07.TS

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on April 18, 2013 by Advanced Technology Laboratories, Inc. . 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.

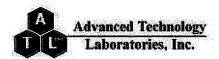
Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Jose Tenorio Jr.

Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.07.TS CASE NARRATIVE

Date: 03-May-13

Lab Order: N010046

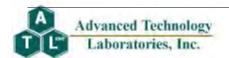
SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.



Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.07.TS Work Order Sample Summary

Date: 03-May-13

Lab Order: N010046 **Contract No:** 2013-GMP-192-

Lab Sample ID Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N010046-001A MW-123-192	Water	4/17/2013 6:25:00 AM	4/18/2013	5/3/2013
N010046-001B MW-123-192	Water	4/17/2013 6:25:00 AM	4/18/2013	5/3/2013
N010046-002A MW-32-035-192	Water	4/17/2013 11:05:00 AM	4/18/2013	5/3/2013
N010046-002B MW-32-035-192	Water	4/17/2013 11:05:00 AM	4/18/2013	5/3/2013
N010046-003A MW-42-065-192	Water	4/17/2013 9:04:00 AM	4/18/2013	5/3/2013
N010046-003B MW-42-065-192	Water	4/17/2013 9:04:00 AM	4/18/2013	5/3/2013
N010046-004A MW-43-025-192	Water	4/17/2013 12:59:00 PM	4/18/2013	5/3/2013
N010046-004B MW-43-025-192	Water	4/17/2013 12:59:00 PM	4/18/2013	5/3/2013
N010046-005A MW-43-090-192	Water	4/17/2013 1:47:00 PM	4/18/2013	5/3/2013
N010046-005B MW-43-090-192	Water	4/17/2013 1:47:00 PM	4/18/2013	5/3/2013
N010046-006A MW-125-192	Water	4/18/2013 6:25:00 AM	4/18/2013	5/3/2013
N010046-006B MW-125-192	Water	4/18/2013 6:25:00 AM	4/18/2013	5/3/2013
N010046-007A MW-28-025-192	Water	4/18/2013 8:24:00 AM	4/18/2013	5/3/2013
N010046-007B MW-28-025-192	Water	4/18/2013 8:24:00 AM	4/18/2013	5/3/2013
N010046-008A MW-28-090-192	Water	4/18/2013 9:15:00 AM	4/18/2013	5/3/2013
N010046-008B MW-28-090-192	Water	4/18/2013 9:15:00 AM	4/18/2013	5/3/2013
N010046-009A MW-29-192	Water	4/18/2013 10:39:00 AM	4/18/2013	5/3/2013
N010046-009B MW-29-192	Water	4/18/2013 10:39:00 AM	4/18/2013	5/3/2013
N010046-010A MW-44-125-192	Water	4/18/2013 4:10:00 PM	4/18/2013	5/3/2013
N010046-010B MW-44-125-192	Water	4/18/2013 4:10:00 PM	4/18/2013	5/3/2013



Print Date: 03-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-123-192

Lab Order: N010046 **Collection Date:** 4/17/2013 6:25:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010046-001

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130422D
 QC Batch:
 R88527
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 15000
 0.10
 umhos/cm
 1
 4/22/2013

Qualifiers: B Analyte

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



Print Date: 03-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-32-035-192

Lab Order: N010046 **Collection Date:** 4/17/2013 11:05:00 AM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010046-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130422D
 QC Batch:
 R88527
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 16000
 0.10
 0.10
 umhos/cm
 1
 4/22/2013

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



Print Date: 03-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-42-065-192

Lab Order: N010046 **Collection Date:** 4/17/2013 9:04:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010046-003

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130422D
 QC Batch:
 R88527
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 8000
 0.10
 0.10
 umhos/cm
 1
 4/22/2013

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

11 Holding times for preparation of analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 03-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-43-025-192

Lab Order: N010046 **Collection Date:** 4/17/2013 12:59:00 PM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010046-004

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130422D
 QC Batch:
 R88527
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 1400
 0.10
 umhos/cm
 1
 4/22/2013

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



Print Date: 03-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-43-090-192

Lab Order: N010046 **Collection Date:** 4/17/2013 1:47:00 PM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010046-005

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130422D
 QC Batch:
 R88527
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 18000
 0.10
 0.10
 umhos/cm
 1
 4/22/2013

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



Print Date: 03-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-125-192

Lab Order: N010046 **Collection Date:** 4/18/2013 6:25:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010046-006

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130422D
 QC Batch:
 R88527
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 9700
 0.10
 umhos/cm
 1
 4/22/2013

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



Print Date: 03-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-28-025-192

Lab Order: N010046 **Collection Date:** 4/18/2013 8:24:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010046-007

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130422D
 QC Batch:
 R88527
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 1000
 0.10
 umhos/cm
 1
 4/22/2013

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



Print Date: 03-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-28-090-192

Lab Order: N010046 **Collection Date:** 4/18/2013 9:15:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010046-008

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130422D
 QC Batch:
 R88527
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 7400
 0.10
 umhos/cm
 1
 4/22/2013

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



Print Date: 03-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-29-192

Lab Order: N010046 **Collection Date:** 4/18/2013 10:39:00 AM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010046-009

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130422D
 QC Batch:
 R88527
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 2100
 0.10
 umhos/cm
 1
 4/22/2013

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



Print Date: 03-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-44-125-192

Lab Order: N010046 **Collection Date:** 4/18/2013 4:10:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010046-010

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130422D
 QC Batch:
 R88527
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 9400
 0.10
 umhos/cm
 1
 4/22/2013

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



PG&E Topock, 423575.MP.07.TS

Date: 03-May-13

CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N010046

Project:

TestCode: 120.1_WPGE

Sample ID: N010046-004B-DUP	SampType: DUP	TestCode: 120.1_WPGE Units: umhos/cm Prep Date:	RunNo: 88527
Client ID: ZZZZZZ	Batch ID: R88527	TestNo: EPA 120.1 Analysis Date: 4/22/2013	SeqNo: 1560970
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Specific Conductance	1364.000	0.10 1362	0.147 10
Sample ID: N010046-006B MS	SampType: MS	TestCode: 120.1_WPGE Units: umhos/cm Prep Date:	RunNo: 88527
Client ID: ZZZZZZ	Batch ID: R88527	TestNo: EPA 120.1 Analysis Date: 4/22/2013	SeqNo: 1560971
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Specific Conductance	22140.000	0.20 9992 9660 125 75 125	
Sample ID: N010046-006B MSD	SampType: MSD	TestCode: 120.1_WPGE Units: umhos/cm Prep Date:	RunNo: 88527
Client ID: ZZZZZZ	Batch ID: R88527	TestNo: EPA 120.1 Analysis Date: 4/22/2013	SeqNo: 1560972
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Specific Conductance	21820.000	0.20 9992 9660 122 75 125 22140	1.46 10
Sample ID: LCS-R88527	SampType: LCS	TestCode: 120.1_WPGE Units: umhos/cm Prep Date:	RunNo: 88527
Client ID: LCSW	Batch ID: R88527	TestNo: EPA 120.1 Analysis Date: 4/22/2013	SeqNo: 1560973
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual

103

115

Qualifiers:

Specific Conductance

B Analyte detected in the associated Method Blank

10260.000

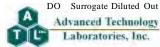
ND Not Detected at the Reporting Limit

E Value above quantitation range

9992

RPD outside accepted recovery limits Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- Spike/Surrogate outside of limits due to matrix interference



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

0.10

Print Date: 03-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-28-090-192

Lab Order: N010046 **Collection Date:** 4/18/2013 9:15:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010046-008

Analyses Result MDL PQL Qual Units DF Date Analyzed

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130423A QC Batch: R88668 PrepDate: Analyst: QBM
Fluoride 3.1 0.060 2.5 mg/L 5 4/23/2013 11:31 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



Print Date: 03-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-29-192

Lab Order: N010046 **Collection Date:** 4/18/2013 10:39:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010046-009

Analyses Result MDL PQL Qual Units DF Date Analyzed

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130423A QC Batch: R88668 PrepDate: Analyst: QBM
Fluoride 1.1 0.024 1.0 mg/L 2 4/23/2013 11:44 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



PG&E Topock, 423575.MP.07.TS

Date: 03-May-13

CLIENT: CH2M HILL

Work Order:

Project:

N010046

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPGE

Sample ID: N	MB-R88668_F	SampType: MBLK	TestCode: 300_W_FPGE Units: mg/L	Prep Date:	RunNo: 88668
Client ID: P	PBW	Batch ID: R88668	TestNo: EPA 300.0	Analysis Date: 4/23/2013	SeqNo: 1566479
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride		ND	0.50		
Sample ID: L	_CS-R88668_F	SampType: LCS	TestCode: 300_W_FPGE Units: mg/L	Prep Date:	RunNo: 88668
Client ID: L	csw	Batch ID: R88668	TestNo: EPA 300.0	Analysis Date: 4/23/2013	SeqNo: 1566480
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride		2.415	0.50 2.500 0	96.6 90 110	
Sample ID: N	N010046-008BDUP	SampType: DUP	TestCode: 300_W_FPGE Units: mg/L	Prep Date:	RunNo: 88668
Client ID: Z	ZZZZZZ	Batch ID: R88668	TestNo: EPA 300.0	Analysis Date: 4/23/2013	SeqNo: 1566483
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride		3.125	2.5	3.125	0 20
Sample ID: N	N010046-009BMS	SampType: MS	TestCode: 300_W_FPGE Units: mg/L	Prep Date:	RunNo: 88668
Client ID: Z	ZZZZZZ	Batch ID: R88668	TestNo: EPA 300.0	Analysis Date: 4/23/2013	SeqNo: 1566484
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride		5.770	1.0 5.000 1.078	93.8 80 120	
Sample ID: N	N010046-009BMSD	SampType: MSD	TestCode: 300_W_FPGE Units: mg/L	Prep Date:	RunNo: 88668
Client ID: Z	ZZZZZZ	Batch ID: R88668	TestNo: EPA 300.0	Analysis Date: 4/23/2013	SeqNo: 1566485
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride		5.768	1.0 5.000 1.078	93.8 80 120 5.770	0.0347 20

Qualifiers:

B Analyte detected in the associated Method Blank

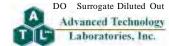
ND Not Detected at the Reporting Limit

E Value above quantitation range

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference

RPD outside accepted recovery limits Calculations are based on raw values



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 03-May-13

Advanced Technology Laboratories, Inc.

CH2M HILL Client Sample ID: MW-123-192

Lab Order: N010046 **Collection Date:** 4/17/2013 6:25:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010046-001

CLIENT:

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY IC	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130429A	QC Batch: 427	'41		PrepDate:	4/21/2013	Analyst: CEI
Arsenic	26	0.035	0.10	μg/L	1	4/29/2013 01:53 PM
Manganese	1300	4.0	12	μg/L	25	4/29/2013 03:55 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



Print Date: 03-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-32-035-192

Lab Order: N010046 **Collection Date:** 4/17/2013 11:05:00 AM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010046-002

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY IC	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130429A	QC Batch: 427	'41		PrepDate:	4/21/2013	Analyst: CEI
Arsenic	27	0.035	0.10	μg/L	1	4/29/2013 01:59 PM
Manganese	1300	4.0	12	μg/L	25	4/29/2013 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



Print Date: 03-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-42-065-192

Lab Order: N010046 **Collection Date:** 4/17/2013 9:04:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010046-003

Analyses	Result MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY IC	P-MS				
	EPA 3010A	EPA	6020		
RunID: ICP7_130429A	QC Batch: 42741		PrepDate:	4/21/2013	Analyst: CEI
Arsenic	2.5 0.035	0.10	μg/L	1	4/29/2013 02:04 PM
Manganese	860 1.6	5.0	μg/L	10	4/29/2013 05:23 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



Print Date: 03-May-13

Advanced Technology Laboratories, Inc.

CH2M HILL Client Sample ID: MW-43-025-192

Lab Order: N010046 **Collection Date:** 4/17/2013 12:59:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010046-004

CLIENT:

Analyses	Result MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY IC	P-MS				
	EPA 3010A	EF	PA 6020		
RunID: ICP7_130429A	QC Batch: 42741		PrepDate:	4/21/2013	Analyst: CEI
Arsenic	19 0.03	5 0.10	μg/L	1	4/29/2013 02:10 PM
Manganese	270 0.80	2.5	μg/L	5	4/29/2013 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



Print Date: 03-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-43-090-192

Lab Order: N010046 **Collection Date:** 4/17/2013 1:47:00 PM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010046-005

Analyses	Result MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY ICP	-MS				_
	EPA 3010A	EPA	6020		
RunID: ICP7_130429A	QC Batch: 42741		PrepDate:	4/21/2013	Analyst: CEI
Arsenic	3.2 0.035	0.10	μg/L	1	4/29/2013 02:15 PM
Manganese	870 0.80	2.5	μg/L	5	4/29/2013 05:45 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



Print Date: 03-May-13

Advanced Technology Laboratories, Inc.

CH2M HILL Client Sample ID: MW-125-192

Lab Order: N010046 **Collection Date:** 4/18/2013 6:25:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010046-006

CLIENT:

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130429A	QC Batch: 427	'41		PrepDate:	4/21/2013	Analyst: CEI
Arsenic	3.3	0.035	0.10	μg/L	1	4/29/2013 02:21 PM
Manganese	480	0.80	2.5	μg/L	5	4/29/2013 05:51 PM
Molybdenum	130	0.37	2.5	μg/L	5	4/29/2013 05:51 PM
Selenium	ND	0.084	0.50	μg/L	1	4/29/2013 02:21 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



Print Date: 03-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-28-025-192

Lab Order: N010046 **Collection Date:** 4/18/2013 8:24:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010046-007

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130429A	QC Batch: 427	'41		PrepDate:	4/21/2013	Analyst: CEI
Arsenic	1.7	0.035	0.10	μg/L	1	4/29/2013 02:26 PM
Manganese	25	0.16	0.50	μg/L	1	4/29/2013 02:26 PM
Molybdenum	4.4	0.074	0.50	μg/L	1	4/29/2013 02:26 PM
Selenium	ND	0.084	0.50	μg/L	1	4/29/2013 02:26 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



Print Date: 03-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-28-090-192

Lab Order: N010046 **Collection Date:** 4/18/2013 9:15:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010046-008

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130429A	QC Batch: 427	741		PrepDate:	4/21/2013	Analyst: CEI
Arsenic	1.7	0.035	0.10	μg/L	1	4/29/2013 02:32 PM
Manganese	120	0.16	0.50	μg/L	1	4/29/2013 02:32 PM
Molybdenum	21	0.074	0.50	μg/L	1	4/29/2013 02:32 PM
Selenium	ND	0.084	0.50	μg/L	1	4/29/2013 02:32 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



Print Date: 03-May-13

Advanced Technology Laboratories, Inc.

CH2M HILL Client Sample ID: MW-29-192

Lab Order: N010046 **Collection Date:** 4/18/2013 10:39:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010046-009

CLIENT:

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130429A	QC Batch: 427	'41		PrepDate:	4/21/2013	Analyst: CEI
Arsenic	4.1	0.035	0.10	μg/L	1	4/29/2013 05:56 PM
Manganese	250	0.80	2.5	μg/L	5	4/29/2013 06:02 PM
Molybdenum	9.1	0.074	0.50	μg/L	1	4/29/2013 05:56 PM
Selenium	1.1	0.084	0.50	μg/L	1	4/29/2013 05:56 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



Print Date: 03-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-44-125-192

Lab Order: N010046 **Collection Date:** 4/18/2013 4:10:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010046-010

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130429A	QC Batch: 427	741		PrepDate:	4/21/2013	Analyst: CEI
Arsenic	3.2	0.035	0.10	μg/L	1	4/29/2013 03:12 PM
Manganese	480	0.80	2.5	μg/L	5	4/29/2013 06:07 PM
Molybdenum	130	0.074	0.50	μg/L	1	4/29/2013 03:12 PM
Selenium	ND	0.084	0.50	μg/L	1	4/29/2013 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



CLIENT: CH2M HILL

Work Order: N010046

Project: PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT

Date: 03-May-13

TestCode: 6020_DIS

Sample ID: MB-42741	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/21/2013	RunNo: 88645		
Client ID: PBW	Batch ID: 42741	TestNo: EPA 6020	EPA 3010A	Analysis Date: 4/29/2013	SeqNo: 1565721		
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Arsenic	ND	0.10					
Manganese	ND	0.50					
Molybdenum	ND	0.50					
Selenium	ND	0.50					
Sample ID: LCS-42741	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/21/2013	RunNo: 88645		
Client ID: LCSW	Batch ID: 42741	TestNo: EPA 6020	EPA 3010A	Analysis Date: 4/29/2013	SeqNo: 1565722		
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Arsenic	11.009	0.10 10.00	0	110 85 115			
Manganese	99.642	0.50 100.0	0	99.6 85 115			
Molybdenum	10.213	0.50 10.00	0	102 85 115			
Selenium	10.405	0.50 10.00	0	104 85 115			
Sample ID: N010046-001A-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/21/2013	RunNo: 88645		
Client ID: ZZZZZZ	Batch ID: 42741	TestNo: EPA 6020	EPA 3010A	Analysis Date: 4/29/2013	SeqNo: 1565749		
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Arsenic	37.208	0.10 10.00	26.11	111 75 125			
Sample ID: N010046-001A-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/21/2013	RunNo: 88645		
Client ID: ZZZZZZ	Batch ID: 42741	TestNo: EPA 6020	EPA 3010A	Analysis Date: 4/29/2013	SeqNo: 1565750		
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Arsenic	37.678	0.10 10.00	26.11	116 75 125 37.21	1.26 20		

Qualifiers:

B Analyte detected in the associated Method Blank

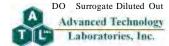
ND Not Detected at the Reporting Limit

E Value above quantitation range

H Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits Calculations are based on raw values

Spike/Surrogate outside of limits due to matrix interference



CH2M HILL **CLIENT:**

ANALYTICAL QC SUMMARY REPORT

N010046 Work Order:

TestCode: 6020_DIS Project: PG&E Topock, 423575.MP.07.TS

Sample ID: N010046-001A-MS	SampType: MS	TestCod	de: 6020 DIS	Units: µg/L		Prep Dat	te: 4/21/20)13	RunNo: 886	645	
Client ID: ZZZZZZ	Batch ID: 42741		lo: EPA 6020	EPA 3010A		Analysis Date: 4/29/2013			SeqNo: 1565754		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1370.494	12	100.0	1260	111	75	125				
Sample ID: N010046-001A-MSD	SampType: MSD	TestCod	de: 6020_DIS	Units: µg/L		Prep Dat	te: 4/21/20)13	RunNo: 886	645	
Client ID: ZZZZZZ	Batch ID: 42741	TestN	lo: EPA 6020	EPA 3010A		Analysis Da	te: 4/29/20	113	SeqNo: 156	55757	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1382.281	12	100.0	1260	122	75	125	1370	0.856	20	
Sample ID: N010046-001A-MS	SampType: MS	TestCod	de: 6020_DIS	Units: µg/L		Prep Dat	te: 4/21/20	113	RunNo: 886	645	
Client ID: ZZZZZZ	Batch ID: 42741	TestN	lo: EPA 6020	EPA 3010A		Analysis Da	te: 4/29/20	113	SeqNo: 156	5759	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	26.058	2.5	10.00	15.00	111	75	125				
Selenium	10.253	2.5	10.00	0	103	75	125				
Sample ID: N010046-001A-MSD	SampType: MSD	TestCod	de: 6020_DIS	Units: µg/L		Prep Dat	te: 4/21/20)13	RunNo: 886	645	
Client ID: ZZZZZZ	Batch ID: 42741	TestN	lo: EPA 6020	EPA 3010A		Analysis Da	te: 4/29/2 0	113	SeqNo: 1565760		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	26.203	2.5	10.00	15.00	112	75	125	26.06	0.555	20	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

E Value above quantitation range

H Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits Calculations are based on raw values

Spike/Surrogate outside of limits due to matrix interference



CH2N	/IHILL
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CHAIN OF CUSTODY RECORD

4/18/2013 4:20:14 PM

Page 1 OF 1

CHZIVINIL	- L							0117	4/16/2013 4.20.14 PW Page _	<u>, Or</u>	
Project Name Po Location Topod Project Manager	:k		Container: servatives:	Poly HNO3,	500 ml Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	1 Liter Poly 4°C	1 Liter Poly 4°C			
Sample Manager	Shawn Du	ffy	Filtered:	Field	Field	Field	NA	NA		ı	ł
		Hole	ding Time:	180	180	180	14	14			
Project Number Task Order Project 2013-GN Turnaround Time Shipping Date: 4 COC Number: 5	#P-192-Q2 • 10 Day: 4/18/2013	S	Matrix	Arsenic (6020A) Field Filtered	Metals (6020A) Field Filtered Mn	Metals (6020A) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Anions (E300.0) Fluoride		Number of Containers	СОММЕ
MW-123-192	4/17/2013	6:25	Water	х	х		х		NO10046-1	2	
MW-32-035-192	4/17/2013	11:05	Water	х	х		Х		, -2	2	
MW-42-065-192	4/17/2013	9:04	Water	х	x		х			2	
MW-43-025-192	4/17/2013	12:59	Water	х	х		х		_4	2	
MW-43-090-192	4/17/2013	13:47	Water	х	х		Х		_ S	2	
MW-125-192	4/18/2013	6:25	Water	х		х	х		- 6	2	1
MW-28-025-192	4/18/2013	8:24	Water	Х		х	х		- 7	2	
MW-28-090-192	4/18/2013	9:15	Water	х	2	X	х	х	- 8	2	
MW-29-192	4/18/2013	10:39	Water	х		х	х	х	-9	2	
MW-44-125-192	4/18/2013	16:10	Water	х		х	х			2	
								·	TOTAL NUMBER OF CONTAINERS	20	1

Approved by
Sampled by
Relinquished by
Reseived by
Rendinguished by
Received by

Signatures Date/Time
4-18-13

me Shipping Details

Method of Shipment: courier

On Ice: (785) no

un t

ATTN: April 15 to May 9, 2013

Sample Custody and

Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

Marion

Report Copy to Shawn Duffy

(530) 229-3303

Special Instructions:

Advanced Technology Laboratories, Inc.

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 of	or further in	struction, pleas	e contact our f	Project Coord	dinator at (702) 307-2659.	
Cooler Received/Opened On:	4/18/2013	i			Workorder:	N010046	
Rep sample Temp (Deg C):	2.4				IR Gun ID:	1	
Temp Blank:	Yes	✓ No					
Carrier name:	ATL						
Last 4 digits of Tracking No.:	N/A			Packing	Material Used:	None	
Cooling process:	✓ ice	☐ Ice Pack	Dry Ice	Other	None		
		s	ample Recei	nt Checklist	ŀ		
1. Shipping container/cooler in	good condi		ampie recei	pt Oncorns	Yes 🗹	No 🗌	Not Present
2. Custody seals intact, signed	i, dated on s	shippping contain	er/cooler?		Yes 🗌	No 🗀	Not Present
3. Custody seals intact on sam	nple 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 wh	en relinquisl	hed and received	?		Yes 🗸	No 🗆	
7. Chain of custody agrees wit	h sample la	bels?			Yes 🔽	No 🗌	
8. Samples in proper containe	r/bottle?				Yes 🗹	No 🗌	
9. Sample containers intact?					Yes 🗹	No 🗌	
10. Sufficient sample volume t	for indicated	test?			Yes 🗹	No 🗆	
11. All samples received within	n holding tim	ne?			Yes 🗸	No 🗌	
12. Temperature of rep sample	e or Temp E	Blank within accep	table limit?		Yes 🗸	No 🗌	NA 🗆
13. Water - VOA vials have ze	ero headspa	ce?			Yes	No 🗌	NA 🗹
14. Water - pH acceptable upo					Yes 🗹	No 🗌	NA 🔲
Example: pH > 12 for (C			•		v	[T]	NA (***)
15. Did the bottle labels indica	•		17		Yes 🗹	No 🗔	NA 🗔
16. Were there Non-Conforma W	ance issues /as Client no				Yes 🗌 Yes 🗍	No □ No □	NA 🔽 NA 🗹
Comments:							
Checklist Completed B	мвс /ма	sc 4/10/17				Reviewed By:	<i>ት</i> ች

Sample Calculation

METHOD: EPA 300

TEST NAME: INORGANIC ANIONS BY IC

MATRIX: WATER

FORMULA:

Calculate the Fluoride concentration, in mg/L, in the original sample as follows:

Fluoride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration DF = dilution factor

For N010046-008B, concentration in mg/L are calculated as follows:

Fluoride, mg/L = 0.625 * 5

= 3.125

Reporting N010046-008B results in two significant figures,

Fluoride, mg/L = 3.1

Sample Calculation

METHOD: EPA 6020

TEST NAME: Heavy Metals by ICP-MS

MATRIX: Aqueous

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

where:

A = ug/L, calculated concentration

DF = dilution factor

PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N010046-002A, the concentration in ug/L is calculated as follows:

Reporting results in two significant figures,

M fn Thy Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: Test Method:

N010025 ¾6 EPA 6020

Matrix: Water

Analysis Date:

04/29/13

Batch No.: 42741

Instrument ID:

ICP-MS #2

Instrument Description:

Agilent 7700x

Comments:

4236

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Se. The calculated values are <25X RL. PS @5X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N010046-001A-DT 5X	Arsenic	μg/L	26.66757628	PASSED	26.11157097	2.13%	1.0
N010046-001A-DT,25X	× Manganese	μg/L	1325.961891	PASSED	1259.78847	5.25%	10
N010046-001A-DT 5Xン	Selenium רכ	µg/L	0	NA	0		10
N010046-001A-DT 5X ¹ √	トラ Molybdenum	μg/L	13.72252297	PASSED	14.99696558	8.50%	10

Note: NA - Not applicable

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1

Advanced Technology Laboratories, Inc.

CLIENT:

CH2M HILL

Work Order:

N010046

Project:

PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT

Date: 02-May-13

TestCode: 6020_DIS

Sample ID: N010046-001A-PS Client ID: ZZZZZZ	SampType: PS Batch ID: 42741		le: 6020_DIS lo: EPA 6020	Units: µg/L EPA 3010A		Prep Da Analysis Da		013	RunNo: 88645 SeqNo: 1565748		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	45.926	0.20	20.00	26.11	99.1	75	125	_			
Sample ID: N010046-001A-PS	mple ID: N010046-001A-PS SampType: PS			Units: µg/L	Prep Date:			RunNo: 88645			
Client ID: ZZZZZZ	Batch ID: 42741	TestN	lo: EPA 6020	EPA 3010A	Analysis Date: 4/29/2013			SeqNo: 1565753			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	3671.468	12	2500	1260	96.5	75	125				
Sample ID: N010046-001A-PS	SampType: PS	TestCod	e: 6020_DIS	Units: µg/L		Prep Da	te:	RunNo: 88645			
Client ID: ZZZZZZ	Batch ID: 42741	TestN	o: EPA 6020	EPA 3010A		Analysis Da	te: 4/29/2 0)13	SeqNo: 15 6	55758	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum Selenium	6 7 .659 46.875	2.5 2.5	50.00 50.00	15.00 0	105 93.7	75 75	125 125				



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

May 09, 2013

Shawn P. Duffy CA-ELAP No.: 2676

CH2M HILL NV Cert. No.: NV-009222007A

155 Grand Avenue, Suite 1000

Oakland, CA 94612

TEL: (530) 229-3303 FAX: (530) 339-3303 Workorder No.: N010097

RE: PG&E Topock, 423575.MP.07.TS

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on April 23, 2013 by Advanced Technology Laboratories, Inc. . 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,

Jose Tenorio Jr.

Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.07.TS CASE NARRATIVE

Date: 09-May-13

Lab Order: N010097

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.07.TS Work Order Sample Summary

Date: 09-May-13

Lab Order: N010097

Contract No: 2013-GMP-192-

Lab Sample ID Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N010097-001A MW-33-040-192	Water	4/22/2013 11:07:00 AM	4/23/2013	5/9/2013
N010097-001B MW-33-040-192	Water	4/22/2013 11:07:00 AM	4/23/2013	5/9/2013
N010097-002A MW-33-090-192	Water	4/22/2013 1:37:00 PM	4/23/2013	5/9/2013
N010097-002B MW-33-090-192	Water	4/22/2013 1:37:00 PM	4/23/2013	5/9/2013
N010097-003A MW-33-150-192	Water	4/22/2013 3:03:00 PM	4/23/2013	5/9/2013
N010097-003B MW-33-150-192	Water	4/22/2013 3:03:00 PM	4/23/2013	5/9/2013
N010097-004A MW-44-070-192	Water	4/22/2013 9:33:00 AM	4/23/2013	5/9/2013
N010097-004B MW-44-070-192	Water	4/22/2013 9:33:00 AM	4/23/2013	5/9/2013
N010097-005A MW-23-060-192	Water	4/23/2013 11:13:00 AM	4/23/2013	5/9/2013
N010097-005B MW-23-060-192	Water	4/23/2013 11:13:00 AM	4/23/2013	5/9/2013
N010097-005C MW-23-060-192	Water	4/23/2013 11:13:00 AM	4/23/2013	5/9/2013
N010097-006A MW-23-080-192	Water	4/23/2013 1:08:00 PM	4/23/2013	5/9/2013
N010097-006B MW-23-080-192	Water	4/23/2013 1:08:00 PM	4/23/2013	5/9/2013
N010097-006C MW-23-080-192	Water	4/23/2013 1:08:00 PM	4/23/2013	5/9/2013
N010097-007A MW-33-210-192	Water	4/23/2013 9:24:00 AM	4/23/2013	5/9/2013
N010097-007B MW-33-210-192	Water	4/23/2013 9:24:00 AM	4/23/2013	5/9/2013
N010097-008A MW-35-060-192	Water	4/23/2013 2:15:00 PM	4/23/2013	5/9/2013
N010097-008B MW-35-060-192	Water	4/23/2013 2:15:00 PM	4/23/2013	5/9/2013
N010097-009A MW-35-135-192	Water	4/23/2013 3:24:00 PM	4/23/2013	5/9/2013
N010097-010A MW-41D-192	Water	4/23/2013 11:52:00 AM	4/23/2013	5/9/2013
N010097-011A MW-57-185-192	Water	4/23/2013 3:26:00 PM	4/23/2013	5/9/2013
N010097-011B MW-57-185-192	Water	4/23/2013 3:26:00 PM	4/23/2013	5/9/2013
N010097-011C MW-57-185-192	Water	4/23/2013 3:26:00 PM	4/23/2013	5/9/2013



Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-33-040-192

Lab Order: N010097 **Collection Date:** 4/22/2013 11:07:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010097-001

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424J
 QC Batch:
 R88615
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 7000
 0.10
 umhos/cm
 1
 4/24/2013

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



Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-33-090-192

Lab Order: N010097 **Collection Date:** 4/22/2013 1:37:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010097-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424J
 QC Batch:
 R88615
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 11000
 0.10
 umhos/cm
 1
 4/24/2013

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



Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-33-150-192

Lab Order: N010097 **Collection Date:** 4/22/2013 3:03:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010097-003

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424J
 QC Batch:
 R88615
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 19000
 0.10
 0.10
 umhos/cm
 1
 4/24/2013

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



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-44-070-192

Lab Order: N010097 **Collection Date:** 4/22/2013 9:33:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010097-004

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424J
 QC Batch:
 R88615
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 2400
 0.10
 0.10
 umhos/cm
 1
 4/24/2013

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



Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-23-060-192

Lab Order: N010097 **Collection Date:** 4/23/2013 11:13:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010097-005

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424J
 QC Batch:
 R88615
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 19000
 0.10
 0.10
 umhos/cm
 1
 4/24/2013

Qualifiers: B Analyte

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



Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-23-080-192

Lab Order: N010097 **Collection Date:** 4/23/2013 1:08:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010097-006

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424J
 QC Batch:
 R88615
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 20000
 0.10
 0.10
 umhos/cm
 1
 4/24/2013

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



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-33-210-192

Lab Order: N010097 **Collection Date:** 4/23/2013 9:24:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010097-007

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424J
 QC Batch:
 R88615
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 23000
 0.10
 0.10
 umhos/cm
 1
 4/24/2013

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



Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-35-060-192

Lab Order: N010097 **Collection Date:** 4/23/2013 2:15:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010097-008

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424J
 QC Batch:
 R88615
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 7000
 0.10
 umhos/cm
 1
 4/24/2013

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



Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-35-135-192

Lab Order: N010097 **Collection Date:** 4/23/2013 3:24:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010097-009

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424J
 QC Batch:
 R88615
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 12000
 0.10
 0.10
 umhos/cm
 1
 4/24/2013

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



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-41D-192

Lab Order: N010097 **Collection Date:** 4/23/2013 11:52:00 AM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010097-010

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424J
 QC Batch:
 R88615
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 26000
 0.10
 0.10
 umhos/cm
 1
 4/24/2013

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



Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-57-185-192

Lab Order: N010097 **Collection Date:** 4/23/2013 3:26:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010097-011

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424K
 QC Batch:
 R88616
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 23000
 0.10
 0.10
 umhos/cm
 1
 4/24/2013

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



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Work Order: CLIENT:

ANALYTICAL QC SUMMARY REPORT CH2M HILL N010097

Date: 09-May-13

Qual %RPD RPDLimit SeqNo: 1564343 RunNo: 88615 TestCode: 120.1_WPGE %REC LowLimit HighLimit RPD Ref Val Analysis Date: 4/24/2013 Prep Date: 82 102 TestCode: 120.1_WPGE Units: umhos/cm SPK value SPK Ref Val 0 TestNo: EPA 120.1 9992 PQL 0.10 PG&E Topock, 423575.MP.07.TS Batch ID: R88615 Result 10210.000 SampType: LCS Sample ID: LCS-R88615 Specific Conductance Client ID: LCSW Project: Analyte

Sample ID: N010097-008BMS	SampType: MS	TestCo	de: 120.1_WP	TestCode: 120.1_WPGE Units: umhos/cm	s/cm	Prep Date:	.: •		RunNo: 88615	15	
Client ID: ZZZZZ	Batch ID: R88615	Test	TestNo: EPA 120.1		•	Analysis Date: 4/24/2013	e: 4/24/20	13	SeqNo: 1564352	4352	
Analyte	Result	PQL	SPK value	SPK value SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit	Qual
Specific Conductance	18720.000	0.20	9992	7030	117	75	125				
Sample ID: N010097-008BMSD	SampType: MSD	TestCo	de: 120.1_WP	TestCode: 120.1_WPGE Units: umhos/cm	s/cm	Prep Date:	.: a)		RunNo: 88615	15	
Client ID: ZZZZZ	Batch ID: R88615	Test	TestNo: EPA 120.1		•	Analysis Date: 4/24/2013	e: 4/24/20	13	SeqNo: 1564353	4353	
Analyte	Result	PQL	SPK value	SPK value SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit	Qual
Specific Conductance	18680.000	0.20	9992	7030	117	75	125	18720	0.214	10	
Sample ID: N010097-010ADUP	SampType: DUP	TestCo	stCode: 120.1_WP	TestCode: 120.1_WPGE Units: umhos/cm		Prep Date:	e:	2	RunNo: 88615	15	
And the Annual Control of the Annual Control	Date: 10. Nooo!3		OBK 30100	10 X 20 X 10 0) (Journaly Siss Car	G. 4/4/20	200 000		966	Ċ
Analyte	Result	T ØF	orn value		Var.	LOWLITTI	Підпенні	WREC LOWEITHIN HIGHEITHIN RPD REI VAI	WAPD	AP DEIIIII	Guai
Specific Conductance	25700.000	0.10						25900	0.775	10	

RPD outside accepted recovery limits Calculations are based on raw values Value above quantitation range ы м B Analyte detected in the associated Method Blank ND Not Detected at the Reporting Limit DO Surrogate Diluted Out Qualifiers:

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

H Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix inte

Spike/Surrogate outside of limits due to matrix interference

Advanced Technology

Laboratories, Inc.

CH2M HILL CLIENT:

N010097 Work Order:

PG&E Topock, 423575.MP.07.TS Project:

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: LCS-R88616	SampType: LCS	TestCo	ode: 120.1_WP(TestCode: 120.1_WPGE Units: umhos/cm	nos/cm	Prep Date:	:6		RunNo: 88616		
Client ID: LCSW	Batch ID: R88616	Test	TestNo: EPA 120.1		,	Analysis Date: 4/24/2013	9: 4/24/20	13	SeqNo: 1564357	24	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	LowLimit HighLimit RPD Ref Val	%RPD RF	RPDLimit	Qual
Specific Conductance	1466.000	0.10	1412	0	104	85	115				
Sample ID: N010122-002B-DUP	SampType: DUP	TestCo	TestCode: 120.1_WPGE	GE Units: umhos/cm	nos/cm	Prep Date:	;;		RunNo: 88616		
Client ID: ZZZZZZ	Batch ID: R88616	Test	TestNo: EPA 120.1		-	Analysis Date: 4/24/2013	3: 4/24/20	13	SeqNo: 1564361	19	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD RF	RPDLimit	Qual
Specific Conductance	1128.000	0.10						0	0	10	
Sample ID: N010122-003B MS	SampType: MS	TestCo	ide: 120.1_WP0	TestCode: 120.1_WPGE Units: umhos/cm	nos/cm	Prep Date:	:6		RunNo: 88616		
Client ID: ZZZZZ	Batch ID: R88616	Test	TestNo: EPA 120.1		,	Analysis Date: 4/24/2013	9: 4/24/20	13	SeqNo: 1564369	69	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	LowLimit HighLimit RPD Ref Val	%RPD RF	RPDLimit	Qual
Specific Conductance	2994.000	0.20	1412	1462	108	75	125				
Sample ID: N010122-003B MSD	SampType: MSD	TestCo	TestCode: 120.1_WPGE	GE Units: umhos/cm	nos/cm	Prep Date:	:6		RunNo: 88616		
Client ID: ZZZZZ	Batch ID: R88616	Test	TestNo: EPA 120.1		7	Analysis Date: 4/24/2013	∋: 4/24/20 ⁻	13	SeqNo: 1564371	7	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	LowLimit HighLimit RPD Ref Val	%RPD RF	RPDLimit	Qual
Specific Conductance	2980.000	0.20	1412	1462	108	75	125	2994	0.469	10	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

Advanced Technology Laboratories, Inc. DO Surrogate Diluted Out

Value above quantitation range ы ч

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

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-33-040-192

Lab Order: N010097 **Collection Date:** 4/22/2013 11:07:00 AM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010097-001

Analyses Result MDL PQL Qual Units DF Date Analyzed

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130424A QC Batch: R88704 PrepDate: Analyst: QBM Fluoride 10 0.12 5.0 mg/L 10 4/24/2013 02:53 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



Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-33-090-192

Lab Order: N010097 **Collection Date:** 4/22/2013 1:37:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010097-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130424A QC Batch: R88704 PrepDate: Analyst: QBM Fluoride 4.6 0.060 2.5 mg/L 5 4/24/2013 03:06 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



Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-33-150-192

Lab Order: N010097 **Collection Date:** 4/22/2013 3:03:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010097-003

Analyses Result MDL PQL Qual Units DF Date Analyzed

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130424A QC Batch: R88704 PrepDate: Analyst: QBM Fluoride 5.7 0.12 5.0 mg/L 10 4/24/2013 03:19 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



Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-33-210-192

Lab Order: N010097 **Collection Date:** 4/23/2013 9:24:00 AM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010097-007

Analyses Result MDL PQL Qual Units DF Date Analyzed

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130424A QC Batch: R88704 PrepDate: Analyst: QBM
Fluoride 5.6 0.12 5.0 mg/L 10 4/24/2013 03:31 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



Advanced Technology Laboratories, Inc.

ANALYTICAL QC SUMMARY REPORT CH2M HILL N010097 Work Order: CLIENT:

TestCode: 300_W_FPGE

Date: 09-May-13

PG&E Topock, 423575.MP.07.TS Project:

Sample ID: MB-R88704_F Client ID: PBW	SampType: MBLK Batch ID: R88704	TestCode: 300_W_FPGE Units: mg/L TestNo: EPA 300.0	Prep Date: Analysis Date: 4/24/2013	RunNo: 88704 SeqNo: 1567863
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	ND	0.50		
Sample ID: LCS-R88704_F Client ID: LCSW	SampType: LCS Batch ID: R88704	TestCode: 300_W_FPGE Units: mg/L TestNo: EPA 300.0	Prep Date: Analysis Date: 4/24/2013	RunNo: 88704 SeqNo: 1567864
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	2.405	0.50 2.500 0	96.2 90 110	
Sample ID: N010097-001BDUP Client ID: ZZZZZ	SampType: DUP Batch ID: R88704	TestCode: 300_W_FPGE Units: mg/L TestNo: EPA 300.0	Prep Date: Analysis Date: 4/24/2013	RunNo: 88704 SeqNo: 1567873
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	10.650	5.0	10.26	3.73 20
Sample ID: N010097-002BMS Client ID: ZZZZZZ	SampType: MS Batch ID: R88704	TestCode: 300_W_FPGE Units: mg/L TestNo: EPA 300.0	Prep Date: Analysis Date: 4/24/2013	RunNo: 88704 SeqNo: 1567874
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	16.955	2.5 12.50 4.610	98.8 80 120	
Sample ID: N010097-002BMSD Client ID: ZZZZZZ	SampType: MSD Batch ID: R88704	TestCode: 300_W_FPGE Units: mg/L TestNo: EPA 300.0	Prep Date: Analysis Date: 4/24/2013	RunNo: 88704 SeqNo: 1567875
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual

ND Not Detected at the Reporting Limit DO Surrogate Diluted Out В Qualifiers:

Analyte detected in the associated Method Blank

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RPD outside accepted recovery limits Calculations are based on raw values Value above quantitation range

H Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix inter

20

0.503

16.96

120

80

98.1

4.610

12.50

16.870

Fluoride

Spike/Surrogate outside of limits due to matrix interference

Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-33-040-192

Lab Order: N010097 **Collection Date:** 4/22/2013 11:07:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010097-001

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130502A	QC Batch: 428	352		PrepDate:	4/30/2013	Analyst: CEI
Arsenic	15	0.035	0.10	μg/L	1	5/2/2013 11:46 AM
Manganese	ND	0.16	0.50	μg/L	1	5/2/2013 11:46 AM
Molybdenum	150	0.37	2.5	μg/L	5	5/4/2013 07:17 PM
Selenium	ND	0.42	2.5	μg/L	5	5/4/2013 07:17 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



Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-33-090-192

Lab Order: N010097 **Collection Date:** 4/22/2013 1:37:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010097-002

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130502A	QC Batch: 428	352		PrepDate:	4/30/2013	Analyst: CEI
Arsenic	1.7	0.035	0.10	μg/L	1	5/2/2013 11:52 AM
Manganese	ND	0.16	0.50	μg/L	1	5/2/2013 11:52 AM
Molybdenum	15	0.074	0.50	μg/L	1	5/2/2013 11:52 AM
Selenium	0.56	0.084	0.50	μg/L	1	5/7/2013 01:23 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



Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-33-150-192

Lab Order: N010097 **Collection Date:** 4/22/2013 3:03:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010097-003

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130502A	QC Batch: 428	52		PrepDate:	4/30/2013	Analyst: CEI
Arsenic	2.2	0.035	0.10	μg/L	1	5/2/2013 11:57 AM
Manganese	2.3	0.16	0.50	μg/L	1	5/2/2013 11:57 AM
Molybdenum	35	0.37	2.5	μg/L	5	5/4/2013 07:56 PM
Selenium	ND	0.42	2.5	μg/L	5	5/4/2013 07:56 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



Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CH2M HILL Client Sample ID: MW-44-070-192

Lab Order: N010097 **Collection Date:** 4/22/2013 9:33:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010097-004

CLIENT:

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY IC	P-MS					
	EPA 3010A		EP/	A 6020		
RunID: ICP7_130502A	QC Batch: 428	352		PrepDate:	4/30/2013	Analyst: CEI
Arsenic	4.0	0.035	0.10	μg/L	1	5/2/2013 12:03 PM
Manganese	87	0.16	0.50	μg/L	1	5/2/2013 12:03 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



Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CH2M HILL Client Sample ID: MW-23-060-192

Lab Order: N010097 **Collection Date:** 4/23/2013 11:13:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010097-005

CLIENT:

Analyses	Result	MDL	PQL	Qual Unit	s DF	Date Analyzed
DISSOLVED METALS BY IC	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130504C	QC Batch: 428	52		PrepDate:	4/30/2013	Analyst: CEI
Arsenic	4.3	0.17	0.50	μg/L	5	5/4/2013 08:23 PM
Manganese	ND	0.16	0.50	μg/L	1	5/2/2013 12:08 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



Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-23-080-192

Lab Order: N010097 **Collection Date:** 4/23/2013 1:08:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010097-006

Analyses	Resu	lt MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY IC	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130504C	QC Batch:	42852		PrepDate:	4/30/2013	Analyst: CEI
Arsenic	3.	6 0.17	0.50	μg/L	5	5/4/2013 08:29 PM
Manganese	NI	D 0.16	0.50	μg/L	1	5/2/2013 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



Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-33-210-192

Lab Order: N010097 **Collection Date:** 4/23/2013 9:24:00 AM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010097-007

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130504C	QC Batch: 428	52		PrepDate:	4/30/2013	Analyst: CEI
Arsenic	1.6	0.17	0.50	μg/L	5	5/4/2013 08:34 PM
Manganese	9.1	0.16	0.50	μg/L	1	5/2/2013 12:19 PM
Molybdenum	15	0.37	2.5	μg/L	5	5/4/2013 08:34 PM
Selenium	ND	0.42	2.5	μg/L	5	5/4/2013 08:34 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



Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-35-060-192

Lab Order: N010097 **Collection Date:** 4/23/2013 2:15:00 PM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010097-008

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130502A	QC Batch: 428	352		PrepDate:	4/30/2013	Analyst: CEI
Arsenic	1.4	0.035	0.10	μg/L	1	5/2/2013 01:31 PM
Manganese	ND	0.16	0.50	μg/L	1	5/2/2013 01:31 PM
Molybdenum	8.5	0.37	2.5	μg/L	5	5/4/2013 08:40 PM
Selenium	ND	0.42	2.5	μg/L	5	5/4/2013 08:40 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



Print Date: 09-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-57-185-192

Lab Order: N010097 **Collection Date:** 4/23/2013 3:26:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010097-011

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130504C	QC Batch: 428	52		PrepDate:	4/30/2013	Analyst: CEI
Arsenic	13	0.17	0.50	μg/L	5	5/4/2013 08:45 PM
Manganese	190	0.80	2.5	μg/L	5	5/4/2013 08:45 PM
Molybdenum	79	0.37	2.5	μg/L	5	5/4/2013 08:45 PM
Selenium	ND	0.42	2.5	μg/L	5	5/4/2013 08:45 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



Advanced Technology Laboratories, Inc.

Date: 09-May-13

TestCode: 6020_DIS

ANALYTICAL QC SUMMARY REPORT CH2M HILL N010097 Work Order: CLIENT:

PG&E Topock, 423575.MP.07.TS Project:

Sample ID: MB-42852 Client ID: PBW	SampType: MBLK Batch ID: 42852	TestCod	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date: 4/30/201: Analysis Date: 5/2/2013	Prep Date: 4/30/2013		RunNo: 88736 SeaNo: 1569544	736 19544	
	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD	RPD Ref Val	«RPD	RPDLimit	Qual
Arsenic Manganese Molybdenum	N N D N O D	0.10 0.50 0.50									
Sample ID: LCS-42852 Client ID: LCSW	SampType: LCS Batch ID: 42852	TestCod	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date: 4/30/201 : Analysis Date: 5/2/2013	Prep Date: 4/30/2013 llysis Date: 5/2/2013		RunNo: 88736 SeqNo: 1569545	36 19545	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic Manganese Molybdenum	10.171 91.829 9.104	0.10 0.50 0.50	10.00	0 0	102 91.8 91.0	85 85 85	115 115 115				
Sample ID: N010097-001A-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 42852	TestCod	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date: Analysis Date:	Prep Date: 4/30/2013 Ilysis Date: 5/2/2013		RunNo: 88736 SeqNo: 1569571	736 1957 1	
Analyte	Result	PaL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic Manganese	24.787 57.918	0.10	10.00	14.55 0	102 57.9	75	125 125				Ø
Sample ID: N010097-001A-MSD Client ID: ZZZZZZ	SampType: MSD Batch ID: 42852	TestCod	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date: Analysis Date:	Prep Date: 4/30/2013 llysis Date: 5/2/2013		RunNo: 88736 SeqNo: 1569572	36 1957 2	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic Manganese	24.980 57.170	0.10	10.00	14.55	104	75 75	125 125	24.79	0.776	20	Ø

B Analyte detected in the associated Method Blank E Value above quantitation range ND Not Detected at the Renorting Unitit
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Analyte detected in the associated Method Blank E Value above quantitati

Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix inter-

Spike/Surrogate outside of limits due to matrix interference

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

PG&E Topock, 423575.MP.07.TS

CH2M HILL

N010097

Work Order: CLIENT:

Project:

Sample ID: MB-42852 Client ID: PBW	SampType: MBLK Batch ID: 42852	TestCode: TestNo:	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date: 4/30/201 : Analysis Date: 5/4/2013	Prep Date: 4/30/2013 alysis Date: 5/4/2013	RunNo: 88739 SeqNo: 1569655	8739 569655	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit	ighLimit RPD Ref Val	II %RPD	RPDLimit	Qual
Selenium	QN	0.50								
Sample ID: LCS-42852 Client ID: LCSW	SampType: LCS Batch ID: 42852	TestCode: TestNo:	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A	,	Prep Date: 4/30/201 : Analysis Date: 5/4/2013	Prep Date: 4/30/2013 ilysis Date: 5/4/2013	RunNo: 88739 SeqNo: 1569656	8739 569656	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit Hi	LowLimit HighLimit RPD Ref Val	II %RPD) RPDLimit	Qual
Selenium	9.052	0.50	10.00	0	90.5	85	115			
Sample ID: N010097-001A-MS Client ID: ZZZZZ	SampType: MS Batch ID: 42852	TestCode: TestNo:	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date: Analysis Date:	4/30/2013 5/4/2013	RunNo: 88739 SeqNo: 1569660	8739 569660	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit Hi	HighLimit RPD Ref Val	II %RPD	RPDLimit	Qual
Molybdenum Selenium	155.786 10.241	2.5	10.00	146.0	97.4	75 75	125 125			
Sample ID: N010097-001A-MSD Client ID: ZZZZZ	SampType: MSD Batch ID: 42852	TestCode: TestNo:	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date: Analysis Date:	4/30/2013 5/4/2013	RunNo: 88739 SeqNo: 1569661	8739 569661	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit Hi	HighLimit RPD Ref Val	II %RPD	RPDLimit	Qual
Molybdenum Selenium	159.008 9.384	2.5	10.00	146.0 0	130	75 75	125 155.8 125 10.24	8 2.05 4 8.73	5 20	Ø

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Value above quantitation range

RPD outside accepted recovery limits Calculations are based on raw values ы ч

H Holding times for preparation or analysis exceeded S Ppike/Surrogate outside of limits due to matrix interference

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CHAIN OF CUSTODY RECORD

4/23/2013 4:10:41 PM

Page 1 OF 1

	-									4/23/2013 4.10.41 PW	rage 1 Oi	
Project Name P		:k	Container:	Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1Liter Poly			
Project Manager		Pres	servatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C			
Sample Manager	Shawn Du	ffy	Filtered:	Field	Field	Field	NA	NA	NA		i i	1
		Holo	ding Time:	180	180	180	14	14	30			
Project Number Task Order		P.07.TS		Arser	Metals	Meta	Specific Conductance	An				
Project 2013-GN				nic (t	(60	ls (6	ii o	iions			Nur	
Turnaround Time	=	S		3020	20A.	020. Mo	ondi	Anions (E300.0)	Extra		Number	
Shipping Date:				Ž) Fie	Α) F.	uctai	00.0	га (*)		rof	
COC Number: 7				Arsenic (6020A) Field Filtered	Metals (6020A) Field Filtered	Metals (6020A) Field Filtered Mo,Se,Mn	nce (E120.1))) Fluoride	Č		Containers	
	DATE	1	Matrix		<u></u>	ı		Т				COMMIL
MW-33-040-192	4/22/2013	11:07	Water	Х		Х	Х	Х		H010097-1	2	
MW-33-090-192	4/22/2013	13:37	Water	X		X	Х	Х		1 -2	2	
MW-33-150-192	4/22/2013	15:03	Water	x		Х	X	X		^ 3	2	
MW-44-070-192	4/22/2013	9:33	Water	х	X		X	· ·		- 4	2	
MW-23-060-192	4/23/2013	11:13	Water	х	х		Х		х	\$	3	
MW-23-080-192	4/23/2013	13:08	Water	х	х	1	х		Х	- 8	3	
MW-33-210-192	4/23/2013	9:24	Water	х		х	х	х		- 7	2	1
MW-35-060-192	4/23/2013	14:15	Water	x		х	х			- 8	2	
MW-35-135-192	4/23/2013	12/17/2015					х			~ 9	1	1
NW-41D-192	4/23/2013	11:52	Water				х			- 10	1	1
MW-57-185-192	4/23/2013	15:26	Water	х		х	Х		х		3	1
	<u> </u>					-		 		TOTAL NUMBER OF CO	NTAINERS 23	1

Approved by
Sampled by
Relinquished by
Reseived by

Received by

d/23/13 1615

Signatures

4-23-13

Method of Shipment: courier
On Ice: Fes)/ no 3.6 /P/

Airbill No:

Lab Name: ADVANCED TECHNOLOGY LABORATO

Shipping Details

Lab Phone: (702) 307-2659

ATTN:

Special Instructions: April 15 to May 9, 2013

Sample Custody

and Marion

Report Copy to Shawn Duffy (530) 229-3303

Advanced Technology Laboratories, Inc.

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 o	r further in	struction, pleas	e contact our F	Project Coord	dinator at (702) 307-2659.	
Cooler Received/Opened On:	4/23/2013				Workorder:	N010097	
Rep sample Temp (Deg C):	3.6				IR Gun ID:	1	
Temp Blank:	Yes	☑ No					
Carrier name:	ATL						
Last 4 digits of Tracking No.:	NA			Packing	Material Used:	None	
Cooling process:	✓ Ice	lce Pack	Dry Ice	Other	None		
		S	ample Recei	ot Checklis	t		
1. Shipping container/cooler in	good condi		<u> </u>		Yes 🗹	No 🗔	Not Present
2. Custody seals intact, signed	, dated on s	hippping contain	er/cooler?		Yes	No 🗆	Not Present
3. Custody seals intact on sam	ple bottles?				Yes \square	No 🗔	Not Present
4. Chain of custody present?					Yes 🗹	No 🗆	
5. Sampler's name present in 0	COC?				Yes 🗹	No 🗌	
6. Chain of custody signed who	en relinquist	ned and received	?		Yes 🗹	No 🗆	
7. Chain of custody agrees with	h sample lai	oels?			Yes 🗹	No 🗌	
8. Samples in proper container	/bottle?				Yes 🗹	No 🗔	
9. Sample containers intact?					Yes 🗹	No 🗀	
10. Sufficient sample volume for	or indicated	test?			Yes 🗹	No 🗌	
11. All samples received within	holding tim	e?			Yes 🗹	No 🗌	
12. Temperature of rep sample	or Temp B	lank within accep	table limit?		Yes 🗹	No 🗆	NA \square
13. Water - VOA vials have zer	ro headspac	ce?			Yes	No 🗌	NA 🗹
14. Water - pH acceptable upo Example: pH > 12 for (C		for Metals			Yes 🗹	No 🗆	NA \square
15. Did the bottle labels indicat	te correct pr	eservatives used	?		Yes 🗹	No 🗔	NA 🗆
16. Were there Non-Conforma		•			Yes 🗌	No 🗌	NA 🗹
	as Client no	tified? 			Yes LJ 	No 🗆	NA 🗹
Comments:							
Checklist Completed B	MBC <i>(Ma</i>	ie Alzelia				Reviewed By:	On .

Sample Calculation

METHOD: EPA 300

TEST NAME: INORGANIC ANIONS BY IC

MATRIX: WATER

FORMULA:

Calculate the Fluoride concentration, in mg/L, in the original sample as follows:

Fluoride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration DF = dilution factor

For N010097-001B, concentration in mg/L are calculated as follows:

Fluoride, mg/L = 1.026 * 10

= 10.26

Reporting N010097-001B results in two significant figures,

VS/8ps

Fluoride, mg/L = 10

Sample Calculation

METHOD: EPA 6020

TEST NAME: Heavy Metals by ICP-MS

MATRIX: Aqueous

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

Arsenic, ug/L

A * DF * PF

where:

A = ug/L, calculated concentration

DF = dilution factor

PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N010097-001A, the concentration in ug/L is calculated as follows:

Arsenic, ug/L

= 14.5534499809815 * 1 * (25/25)

= 14.5534499809815

Reporting results in two significant figures,

Arsenic, ug/L

15

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.:

N010097

Test Method:

EPA 6020

Matrix:

Water 42852

Analysis Date:

05/02/13

Batch No.:

Instrument ID:

ICP-MS #2

Instrument Description:

Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Mn. The calculated value was <25X RL.

Dilution test of As failed. However, PS@2X passed criteria.

	Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
	N010097-001A-DT 5X	Arsenic	μg/L	16.37274587	FAILED	14.55344998	12.50%	10
Ī	N010097-001A-DT 5X	Manganese	μg/L	0	NA	0	0.00%	10

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.:

N010097 EPA 6020

Test Method: Analysis Date:

05/04/13

Matrix: Batch No.: Water 42852

Instrument ID:

ICP-MS #2

Instrument Description:

Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Se. The calculated value was <25X RL. However, PS@2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N010097-001A-DT 25X	Molybdenum	μg/L	146.14151	PASSED	146.0445913	0.07%	10
N010097-001A-DT 25X	Selenium	μg/L	0	NA	0	0.00%	10

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

CLIENT:

CH2M HILL

Work Order:

N010097

Project:

PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT

Date: 07-May-13

TestCode: 6020_DIS

Sample ID: N010097-001A-PS Client ID: ZZZZZZ	SampType: PS Batch ID: 42852		de: 6020_DIS No: EPA 6020	Units: µg/L EPA 3010A		Prep Da Analysis Da		13	RunNo: 887 SeqNo: 156		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	35.454	0.20	20.00	14.55	105	7 5	125				
Manganese	147.242	1.0	200.0	0	73.6	75	125				S
Sample ID: N010097-001A-PS	SampType: PS	TestCo	de: 6020_DIS	Units: µg/L		Prep Da	te:		RunNo: 887	'39	
Client ID: ZZZZZZ	Batch ID: 42852	Test	lo: EPA 6020	EPA 3010A		Analysis Da	ite: 5/4/20 1	13	SeqNo: 156	9659	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	201.200	2.5	50.00	146.0	110	75	125				4.00
Selenium	44.320	2.5	50.00	0	88.6	75	125				

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

Spike/Surrogate outside of limits due to matrix interference

May 22, 2013

Shawn P. Duffy CA-ELAP No.: 2676

CH2M HILL NV Cert. No.: NV-009222007A

155 Grand Avenue, Suite 1000

Oakland, CA 94612

TEL: (530) 229-3303

FAX: (530) 339-3303 Workorder No.: N010122

RE: PG&E Topock, 423575.MP.07.TS

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on April 25, 2013 by Advanced Technology Laboratories, Inc. . 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,

Jose Tenorio Jr.

or geogenundo

Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.07.TS CASE NARRATIVE

Date: 22-May-13

Lab Order: N010122

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Cadmium possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Dilution was necessary on samples N010122-005, N010122-006, N010122-007, N010122-014 and N010122-016 due to failing internal standard when samples were analyzed at no dilution.



Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.07.TS Work Order Sample Summary

Date: 22-May-13

Lab Order: N010122 **Contract No:** 2013-GMP-192-

Lab Sample ID Client	t Sample ID	Matrix	Collection Date	Date Received	Date Reported
N010122-001A MW-12	26-192	Water	4/24/2013 8:57:00 AM	4/25/2013	5/22/2013
N010122-002A MW-16	5-192	Water	4/24/2013 11:00:00 AM	4/25/2013	5/22/2013
N010122-002B MW-16	5-192	Water	4/24/2013 11:00:00 AM	4/25/2013	5/22/2013
N010122-003A MW-17	7-192	Water	4/24/2013 12:20:00 PM	4/25/2013	5/22/2013
N010122-003B MW-17	7-192	Water	4/24/2013 12:20:00 PM	4/25/2013	5/22/2013
N010122-004A MW-21	-192	Water	4/24/2013 9:55:00 AM	4/25/2013	5/22/2013
N010122-004B MW-21	-192	Water	4/24/2013 9:55:00 AM	4/25/2013	5/22/2013
N010122-005A MW-36	5-100-192	Water	4/24/2013 3:20:00 PM	4/25/2013	5/22/2013
N010122-005B MW-36	5-100-192	Water	4/24/2013 3:20:00 PM	4/25/2013	5/22/2013
N010122-006A MW-44	-115-192	Water	4/24/2013 1:50:00 PM	4/25/2013	5/22/2013
N010122-006B MW-44	-115-192	Water	4/24/2013 1:50:00 PM	4/25/2013	5/22/2013
N010122-007A MW-46	5-175-192	Water	4/24/2013 11:08:00 AM	4/25/2013	5/22/2013
N010122-007B MW-46	5-175-192	Water	4/24/2013 11:08:00 AM	4/25/2013	5/22/2013
N010122-008A MW-46	5-205-192	Water	4/24/2013 9:08:00 AM	4/25/2013	5/22/2013
N010122-009A MW-47	7-055-192	Water	4/24/2013 3:13:00 PM	4/25/2013	5/22/2013
N010122-010A MW-47	7-115-192	Water	4/24/2013 2:37:00 PM	4/25/2013	5/22/2013
N010122-011A MW-50)-095-192	Water	4/24/2013 8:55:00 AM	4/25/2013	5/22/2013
N010122-012A MW-48	3-192	Water	4/25/2013 8:20:00 AM	4/25/2013	5/22/2013
N010122-013A MW-62	2-065-192	Water	4/25/2013 3:10:00 PM	4/25/2013	5/22/2013
N010122-013B MW-62	2-065-192	Water	4/25/2013 3:10:00 PM	4/25/2013	5/22/2013
N010122-014A MW-63	3-065-192	Water	4/25/2013 9:40:00 AM	4/25/2013	5/22/2013
N010122-014B MW-63	3-065-192	Water	4/25/2013 9:40:00 AM	4/25/2013	5/22/2013
N010122-014C MW-63	3-065-192	Water	4/25/2013 9:40:00 AM	4/25/2013	5/22/2013
N010122-015A MW-70)-105-192	Water	4/25/2013 11:45:00 AM	4/25/2013	5/22/2013
N010122-015B MW-70)-105-192	Water	4/25/2013 11:45:00 AM	4/25/2013	5/22/2013
N010122-015C MW-70)-105-192	Water	4/25/2013 11:45:00 AM	4/25/2013	5/22/2013
N010122-016A MW-72	2-080-192	Water	4/25/2013 1:29:00 PM	4/25/2013	5/22/2013
N010122-016B MW-72	2-080-192	Water	4/25/2013 1:29:00 PM	4/25/2013	5/22/2013
N010122-016C MW-72	2-080-192	Water	4/25/2013 1:29:00 PM	4/25/2013	5/22/2013



Page 1 of 1

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702

Fax: 702-307-2691

Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-126-192

Lab Order: N010122 Collection Date: 4/24/2013 8:57:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010122-001

Result MDL **PQL** DF Analyses Units **Date Analyzed** Qual

SPECIFIC CONDUCTANCE

EPA 120.1

QC Batch: R88616 RunID: WETCHEM_130424K PrepDate: Analyst: LCC Specific Conductance 5700 0.10 0.10 umhos/cm 4/26/2013 1

Qualifiers:

Analyte detected in the associated Method Blank

Н Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

Value above quantitation range

Not Detected at the Reporting Limit Results are wet unless otherwise specified



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-16-192

Lab Order: N010122 **Collection Date:** 4/24/2013 11:00:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010122-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424K
 QC Batch:
 R88616
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 1100
 0.10
 umhos/cm
 1
 4/26/2013

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



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CH2M HILL Client Sample ID: MW-17-192

Lab Order: N010122 **Collection Date:** 4/24/2013 12:20:00 PM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010122-003

CLIENT:

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424K
 QC Batch:
 R88616
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 1500
 0.10
 0.10
 umhos/cm
 1
 4/26/2013

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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CH2M HILL Client Sample ID: MW-21-192

Lab Order: N010122 **Collection Date:** 4/24/2013 9:55:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010122-004

CLIENT:

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424K
 QC Batch:
 R88616
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 11000
 0.10
 umhos/cm
 1
 4/26/2013

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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-36-100-192

Lab Order: N010122 **Collection Date:** 4/24/2013 3:20:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010122-005

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424K
 QC Batch:
 R88616
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 9900
 0.10
 0.10
 umhos/cm
 1
 4/26/2013

Qualifiers: B Ana

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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-44-115-192

Lab Order: N010122 **Collection Date:** 4/24/2013 1:50:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010122-006

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424K
 QC Batch:
 R88616
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 13000
 0.10
 umhos/cm
 1
 4/26/2013

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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-46-175-192

Lab Order: N010122 **Collection Date:** 4/24/2013 11:08:00 AM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010122-007

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424K
 QC Batch:
 R88616
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 23000
 0.10
 0.10
 umhos/cm
 1
 4/26/2013

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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-46-205-192

Lab Order: N010122 **Collection Date:** 4/24/2013 9:08:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010122-008

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424K
 QC Batch:
 R88616
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 28000
 0.10
 0.10
 umhos/cm
 1
 4/26/2013

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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-47-055-192

Lab Order: N010122 **Collection Date:** 4/24/2013 3:13:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010122-009

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424K
 QC Batch:
 R88616
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 5200
 0.10
 0.10
 umhos/cm
 1
 4/26/2013

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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-47-115-192

Lab Order: N010122 **Collection Date:** 4/24/2013 2:37:00 PM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010122-010

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424L
 QC Batch:
 R88619
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 16000
 0.10
 0.10
 umhos/cm
 1
 4/26/2013

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



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-50-095-192

Lab Order: N010122 Collection Date: 4/24/2013 8:55:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010122-011

PQL DF Analyses Result MDL Units Qual Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

QC Batch: R88619 RunID: WETCHEM_130424L PrepDate: Analyst: LCC Specific Conductance 5800 0.10 0.10 umhos/cm 4/26/2013 1

Qualifiers: Analyte detected in the associated Method Blank

> Н Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

Value above quantitation range

Not Detected at the Reporting Limit Results are wet unless otherwise specified



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-48-192

Lab Order: N010122 **Collection Date:** 4/25/2013 8:20:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010122-012

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424L
 QC Batch:
 R88619
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 23000
 0.10
 0.10
 umhos/cm
 1
 4/26/2013

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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-62-065-192

Lab Order: N010122 **Collection Date:** 4/25/2013 3:10:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010122-013

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424L
 QC Batch:
 R88619
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 7300
 0.10
 umhos/cm
 1
 4/26/2013

Qualifiers: B An

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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-63-065-192

Lab Order: N010122 **Collection Date:** 4/25/2013 9:40:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010122-014

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424L
 QC Batch:
 R88619
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 8100
 0.10
 umhos/cm
 1
 4/26/2013

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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-70-105-192

Lab Order: N010122 Collection Date: 4/25/2013 11:45:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010122-015

Analyses DF Result MDL **PQL** Units **Date Analyzed** Qual

SPECIFIC CONDUCTANCE

EPA 120.1

QC Batch: R88619 RunID: WETCHEM_130424L PrepDate: Analyst: LCC Specific Conductance 3800 0.10 0.10 umhos/cm 4/26/2013 1

Qualifiers: Analyte detected in the associated Method Blank

> Н Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

Value above quantitation range



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-72-080-192

Lab Order: N010122 **Collection Date:** 4/25/2013 1:29:00 PM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010122-016

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130424L
 QC Batch:
 R88619
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 20000
 0.10
 0.10
 umhos/cm
 1
 4/26/2013

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



Advanced Technology Laboratories, Inc.

Date: 22-May-13

ANALYTICAL QC SUMMARY REPORT CH2M HILL CLIENT:

PG&E Topock, 423575.MP.07.TS

N010122

Work Order:

Project:

TestCode: 120.1_WPGE

Sample ID: LCS-R88616	SampType: LCS	TestCoc	le: 120.1_WPG	TestCode: 120.1_WPGE Units: umhos/cm		Prep Date:			RunNo: 88616	9	
Client ID: LCSW	Batch ID: R88616	TestN	TestNo: EPA 120.1			Analysis Date: 4/26/2013	4/26/2013		SeqNo: 1564357	357	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	%REC LowLimit HighLimit RPD Ref Val	ighLimit RPD	Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1466.000	0.10	1412	0	104	85	115				
Sample ID: N010122-002B-DUP SampType: DUP	SampType: DUP	TestCoc	le: 120.1_WPG	TestCode: 120.1_WPGE Units: umhos/cm	s/cm	Prep Date:			RunNo: 88616	9	
Client ID: ZZZZZZ	Batch ID: R88616	TestN	TestNo: EPA 120.1			Analysis Date: 4/26/2013	4/26/2013		SeqNo: 1564361	361	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit RPD Ref Val	Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1128.000	0.10						0	0	10	
Sample ID: N010122-003B MS	SampType: MS	TestCoc	le: 120.1_WPG	TestCode: 120.1_WPGE Units: umhos/cm	s/cm	Prep Date:			RunNo: 88616	9	
Client ID: ZZZZZ	Batch ID: R88616	TestN	TestNo: EPA 120.1			Analysis Date: 4/26/2013	4/26/2013		SeqNo: 1564369	369	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Val	Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2994.000	0.20	1412	1462	108	75	125				
Sample ID: N010122-003B MSD SampType: MSD	SampType: MSD	TestCoc	le: 120.1_WPG	TestCode: 120.1_WPGE Units: umhos/cm	s/cm	Prep Date:			RunNo: 88616	9	
Client ID: ZZZZZZ	Batch ID: R88616	TestN	TestNo: EPA 120.1			Analysis Date: 4/26/2013	4/26/2013		SeqNo: 1564371	371	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit RPD	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2980.000	0.20	1412	1462	108	75	125	2994	0.469	10	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Value above quantitation range ы ч

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: N010122

Project: PG&E Topock, 423575.MP.07.TS

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TestCode: 120.1_WPGE

Sample ID: LCS-R88619	SampType: LCS	TestCo	de: 120.1_WPG	TestCode: 120.1_WPGE Units: umhos/cm	ns/cm	Prep Date:			RunNo: 88619	61	
Client ID: LCSW	Batch ID: R88619	Test	TestNo: EPA 120.1			Analysis Date: 4/26/2013	: 4/26/20′	3	SeqNo: 1564397	1397	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	- - - - - - - - - - - - - - - - - - -	HighLimit RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	000.3666	0.10	8992	0	100	85	115				
Sample ID: N010122-014B-DUP	SampType: DUP	TestCo	TestCode: 120.1_WPGE	SE Units: umhos/cm	ns/cm	Prep Date:			RunNo: 88619	6	
Client ID: ZZZZZZ	Batch ID: R88619	Test	TestNo: EPA 120.1			Analysis Date: 4/26/2013	: 4/26/20′	3	SeqNo: 1564405	1405	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	%REC LowLimit HighLimit RPD Ref Val	⊣ighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	8143.000	0.10						8140	0.0368	10	
Sample ID: N010122-014B MS	SampType: MS	TestCo	ide: 120.1_WPG	TestCode: 120.1_WPGE Units: umhos/cm	ns/cm	Prep Date:			RunNo: 88619	6	
Client ID: ZZZZZ	Batch ID: R88619	Test	TestNo: EPA 120.1			Analysis Date: 4/26/2013	: 4/26/20′	3	SeqNo: 1564407	1407	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	LowLimit HighLimit RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	20220.000	0.20	8992	8140	121	75	125				
Sample ID: N010122-014B MSD	SampType: MSD	TestCo	ide: 120.1_WPG	TestCode: 120.1_WPGE Units: umhos/cm	ns/cm	Prep Date:			RunNo: 88619	6	
Client ID: ZZZZZ	Batch ID: R88619	Test	TestNo: EPA 120.1			Analysis Date: 4/26/2013	: 4/26/20′	3	SeqNo: 1564408	1408	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	%REC LowLimit HighLimit RPD Ref Val	⊣ighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	20200.000	0.20	9992	8140	121	75	125	20220	0660.0	10	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

ND Not Detected at the Reporting DO Surrogate Diluted Out

E Value above quantitation rangeR RPD outside accepted recovery limits

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

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-16-192

Lab Order: N010122 **Collection Date:** 4/24/2013 11:00:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010122-002

Analyses	Result	MDL	PQL	Qual Uni	ts DF	Date Analyzed
DISSOLVED METALS BY IC	P					
	EPA 3010A		EP	A 6010B		
RunID: ICP2_130503C	QC Batch: 428	20		PrepDate:	4/26/2013	Analyst: CEI
Aluminum	ND	7.0	50	ug/L	1	5/3/2013 06:13 PM
Barium	25	0.36	3.0	ug/L	1	5/3/2013 06:13 PM
Beryllium	ND	0.12	1.0	ug/L	1	5/7/2013 04:27 PM
Boron	300	14	100	ug/L	1	5/3/2013 06:13 PM
Cadmium	ND	0.37	3.0	ug/L	1	5/3/2013 06:13 PM
Calcium	22000	75	500	ug/L	1	5/3/2013 06:13 PM
Cobalt	ND	0.37	3.0	ug/L	1	5/3/2013 06:13 PM
Copper	ND	2.2	5.0	ug/L	1	5/3/2013 06:13 PM
Iron	ND	7.2	20	ug/L	1	5/3/2013 06:13 PM
Lead	ND	1.6	10	ug/L	1	5/3/2013 06:13 PM
Magnesium	4200	13	100	ug/L	1	5/3/2013 06:13 PM
Nickel	ND	0.70	5.0	ug/L	1	5/3/2013 06:13 PM
Silver	ND	0.39	3.0	ug/L	1	5/3/2013 06:13 PM
Vanadium	30	0.31	3.0	ug/L	1	5/3/2013 06:13 PM
Zinc	ND	1.4	10	ug/L	1	5/3/2013 06:13 PM

Qualifiers:

- 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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-17-192

Lab Order: N010122 **Collection Date:** 4/24/2013 12:20:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010122-003

Analyses	Result	MDL	PQL	Qual Unit	s DF	Date Analyzed
DISSOLVED METALS BY IC	P					
	EPA 3010A		EP	A 6010B		
RunID: ICP2_130503C	QC Batch: 428	320		PrepDate:	4/26/2013	Analyst: CEI
Aluminum	ND	7.0	50	ug/L	1	5/3/2013 06:19 PM
Barium	21	0.36	3.0	ug/L	1	5/3/2013 06:19 PM
Beryllium	ND	0.12	1.0	ug/L	1	5/7/2013 04:33 PM
Boron	230	14	100	ug/L	1	5/3/2013 06:19 PM
Cadmium	ND	0.37	3.0	ug/L	1	5/3/2013 06:19 PM
Calcium	62000	75	500	ug/L	1	5/3/2013 06:19 PM
Cobalt	ND	0.37	3.0	ug/L	1	5/3/2013 06:19 PM
Copper	ND	2.2	5.0	ug/L	1	5/3/2013 06:19 PM
Iron	ND	7.2	20	ug/L	1	5/3/2013 06:19 PM
Lead	ND	1.6	10	ug/L	1	5/3/2013 06:19 PM
Magnesium	8600	13	100	ug/L	1	5/3/2013 06:19 PM
Nickel	ND	0.70	5.0	ug/L	1	5/3/2013 06:19 PM
Silver	ND	0.39	3.0	ug/L	1	5/3/2013 06:19 PM
Vanadium	4.6	0.31	3.0	ug/L	1	5/3/2013 06:19 PM
Zinc	ND	1.4	10	ug/L	1	5/3/2013 06:19 PM

Qualifiers:

- 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



Advanced Technology Laboratories, Inc.

ANALYTICAL QC SUMMARY REPORT CH2M HILL N010122 Work Order: CLIENT:

Date: 22-May-13

PG&E Topock, 423575.MP.07.TS Project:

Qual %RPD RPDLimit TestCode: 6010_WDPGEPPB SeqNo: 1569318 RunNo: 88732 %REC LowLimit HighLimit RPD Ref Val Prep Date: 4/26/2013 Analysis Date: 5/3/2013 TestCode: 6010_WDPGE Units: ug/L **EPA 3010A** SPK value SPK Ref Val TestNo: EPA 6010B 50 3.0 3.0 5.00 5.0 20 10 PQL Result 9 Q SampType: MBLK Batch ID: 42820 Sample ID: MB-42820 Client ID: PBW Aluminum Analyte

50.091

Barium Boron

RunNo: 88732	Prep Date: 4/26/2013	TestCode: 6010 WDPGE Units: ua/L	SampType: MS	Sample ID: N010122-002A-MS SampType: MS
		10	QN	Zinc
		3.0	QN	Vanadium
		3.0	QN	Silver
		5.0	QN	Nickel
		100	QN	Magnesium
		10	QN	Lead
		20	QN	Iron
		5.0	QN	Copper
		3.0	QN	Cobalt
		500	QN	Calcium
		3.0	QN	Cadmium

Sample ID: N010122-002A-MS	SampType: MS	TestCo	TestCode: 6010_WDPGE Units: ug/L	3E Units: ug/L		Prep Date	Prep Date: 4/26/2013	RunNo: 88732
Client ID: ZZZZZZ	Batch ID: 42820	Test	TestNo: EPA 6010B	EPA 3010A	•	Analysis Date: 5/3/2013	: 5/3/2013	SeqNo: 1569322
Analyte	Result	PQL	SPK value SPK Ref Val	SPK Ref Val	%REC	LowLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Aluminum	8313.694	20	10000	0	83.1	75	125	
Barium	67.649	3.0	50.00	25.24	84.8	75	125	
Boron	9201.208	100	10000	303.0	89.0	75	125	
Cadmium	7.062	3.0	10.00	0	9.02	75	125	Ø
Calcium	29567.969	200	10000	21550	80.2	75	125	
Cobalt	9.629	3.0	10.00	0	96.3	75	125	
Copper	10.010	2.0	10.00	0	100	75	125	
Iron	88.921	20	100.0	0	88.9	75	125	
Lead	38.034	10	20.00	0	76.1	75	125	

Analyte detected in the associated Method Blank ND Not Detected at the Reporting Limit Advanced Technology DO Surrogate Diluted Out Laboratories, Inc. В

Qualifiers:

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

RPD outside accepted recovery limits Calculations are based on raw values

Value above quantitation range

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Spike/Surrogate outside of limits due to matrix interference H Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix inte

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

PG&E Topock, 423575.MP.07.TS

CH2M HILL

N010122

Work Order: CLIENT:

Project:

Sample ID: N010122-002A-MS SampType: MS	SampType: MS	TestCoo	TestCode: 6010_WDPGE Units: ug/L	E Units: ug/L		Prep Dat	Prep Date: 4/26/2013	RunNo: 88732	2	
Client ID: ZZZZZZ	Batch ID: 42820	Test	TestNo: EPA 6010B	EPA 3010A		Analysis Dat	Analysis Date: 5/3/2013	SeqNo: 1569322	322	
Analyte	Result	PQL	SPK value SPK Ref Val	PK Ref Val	%REC	LowLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit	Qual
Magnesium	12388.382	100	10000	4153	82.4	75	125			
Nickel	42.717	5.0	50.00	0.7430	83.9	75	125			
Silver	43.438	3.0	50.00	0	86.9	75	125			
Vanadium	38.696	3.0	10.00	30.16	85.4	75	125			
Zinc	46.941	10	50.00	3.089	87.7	75	125			

Sample ID: N010122-002A-MSD	SampType: MSD	TestCoc	e: 6010_WDPC	TestCode: 6010_WDPGE Units: ug/L		Prep Date:	4/26/2013		RunNo: 88732	32	
Client ID: ZZZZZZ	Batch ID: 42820	TestN	TestNo: EPA 6010B	EPA 3010A	4	Analysis Date:	5/3/2013		SeqNo: 1569323	9323	
Analyte	Result	Pal	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit R	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	8600.496	20	10000	0	86.0	75	125	8314	3.39	20	
Barium	69.702	3.0	50.00	25.24	88.9	75	125	67.65	2.99	20	
Boron	9437.395	100	10000	303.0	91.3	75	125	9201	2.53	20	
Cadmium	7.306	3.0	10.00	0	73.1	75	125	7.062	3.39	20	S
Calcium	30285.183	200	10000	21550	87.3	75	125	29570	2.40	20	
Cobalt	10.038	3.0	10.00	0	100	75	125	9.629	4.16	20	
Copper	10.176	2.0	10.00	0	102	75	125	10.01	1.65	20	
Iron	103.831	20	100.0	0	104	75	125	88.92	15.5	20	
Lead	39.958	10	50.00	0	79.9	75	125	38.03	4.93	20	
Magnesium	12739.645	100	10000	4153	85.9	75	125	12390	2.80	20	
Nickel	44.103	2.0	50.00	0.7430	86.7	75	125	42.72	3.19	20	
Silver	44.785	3.0	50.00	0	9.68	75	125	43.44	3.05	20	
Vanadium	39.401	3.0	10.00	30.16	92.5	75	125	38.70	1.81	20	
Zinc	49.102	10	20.00	3.089	92.0	75	125	46.94	4.50	20	
Sample ID: LCS-42820	SampType: LCS	TestCoc	e: 6010_WDPC	TestCode: 6010_WDPGE Units: ug/L		Prep Date:	4/26/2013		RunNo: 88732	'32	
Client ID: LCSW	Batch ID: 42820	Test	TestNo: EPA 6010B	EPA 3010A	1	Analysis Date:	5/3/2013		SeqNo: 1569328	9328	

Client ID: LCSW		Batch ID: 42820	TestN	o: EPA 6010B	TestNo: EPA 6010B EPA 3010A		Analysis Date: 5/3/2013	te: 5/3/201	8
Analyte		Result	PQL	SPK value SPK Ref Val	SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val
Aluminum		8778.132	20	10000	0	87.8	85	115	
Qualifiers:									
В	Analyte detected in the associated Method Blank	ed Method Blank	田	Value above q	Value above quantitation range			H Hole	Holding times for prep
ND	Not Detected at the Reporting Limit	imit	R	RPD outside a	RPD outside accepted recovery limits	mits		S Spik	Spike/Surrogate outsid
DO	DO Surrogate Diluted Out			Calculations a	Calculations are based on raw values	nes			

Spike/Surrogate outside of limits due to matrix interference Holding times for preparation or analysis exceeded

%RPD RPDLimit Qual

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

PG&E Topock, 423575.MP.07.TS

CH2M HILL

N010122

CLIENT: Work Order:

Project:

Cilient ID: LCSW Batch ID: 42820 Analyte Resul Barium 46.95 Boron 973.17 Cadmium 9.973. Calcium 875.84 Cobalt 9.93 Iron 97.39 Lead 43.07 Magnesium 9239.41 Nickel 44.47 Silver 45.92	± 1 60	TestNo: EPA 6010B			riep va	Prep Date: 4/26/2013	•		32	
m 877			EPA 3010A		Analysis Dat	Analysis Date: 5/3/2013	0)	SeqNo: 1569328	9328	
m 876		SPK value	SPK Ref Val	%REC	LowLimit	%REC LowLimit HighLimit RPD Ref Val	f Val	%RPD	RPDLimit	Qual
877 876 976 929		20.00	0	93.9	85	115				
m 923	8723.170 100	10000	0	87.2	82	115				
876 922 927	9.978 3.0	10.00	0	8.66	85	115				
ium 9220	8765.844 500	10000	0	87.7	85	115				
922 vium 9227	10.442 3.0	10.00	0	104	82	115				
sium 92	9.934 5.0	10.00	0	99.3	85	115				
sium	97.396 20	100.0	0	97.4	85	115				
sium	43.071 10	20.00	0	86.1	85	115				
	9239.410 100	10000	0	92.4	85	115				
	44.477 5.0	20.00	0	89.0	85	115				
	45.925 3.0	20.00	0	91.8	85	115				
Vanadium 8.8	8.884 3.0	10.00	0	88.8	85	115				
Zinc 47.5	47.574	20.00	0	95.1	85	115				

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

k E Value above quantitation range RPD outside accepted recovery I

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

DO Surrogate Diluted Out
Advanced Technology
Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2M HILL CLIENT:

N010122 Work Order:

PG&E Topock, 423575.MP.07.TS Project:

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TestCode: 6010_WDPGEPPB

	SampType: MBLK	TestCode: 6010_	Щ.		Prep Date	Prep Date: 5/7/2013	RunNo: 88781		
Client ID: PBW	Batch ID: 42923	TestNo: EPA 6010B	010B EPA 3010A		Analysis Date:	: 5/7/2013	SeqNo: 1571628		
Analyte	Result	PQL SPK value	llue SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Val	%RPD RPD	RPDLimit Qual	ıal
Beryllium	ON	1.0							
Sample ID: LCS-42923	SampType: LCS	TestCode: 6010_	TestCode: 6010_WDPGE Units: ug/L		Prep Date	Prep Date: 5/7/2013	RunNo: 88781		
Client ID: LCSW	Batch ID: 42923	TestNo: EPA 6010B	010B EPA 3010A	-	Analysis Date:	: 5/7/2013	SeqNo: 1571629		
Analyte	Result	PQL SPK value	llue SPK Ref Val	%REC	LowLimit HighLimit	HighLimit RPD Ref Val	%RPD RPD	RPDLimit Qual	ıal
Beryllium	9.010	1.0 10	10.00 0	90.1	85	115			
Sample ID: N010122-002A-MS	SampType: MS	TestCode: 6010_	TestCode: 6010_WDPGE Units: ug/L		Prep Date	Prep Date: 5/7/2013	RunNo: 88781		
Client ID: ZZZZZZ	Batch ID: 42923	TestNo: EPA 6010B	010B EPA 3010A	-	Analysis Date: 5/7/2013	: 5/7/2013	SeqNo: 1571632		
Analyte	Result	PQL SPK value	llue SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Val	%RPD RPD	RPDLimit Qual	ıal
Beryllium	9.222	1.0 10	10.00 0	92.2	75	125			
Sample ID: N010122-002A-MSD	SampType: MSD	TestCode: 6010_	TestCode: 6010_WDPGE Units: ug/L		Prep Date:	: 5/7/2013	RunNo: 88781		
Client ID: ZZZZZZ	Batch ID: 42923	TestNo: EPA 6010B	010B EPA 3010A	-	Analysis Date:	: 5/7/2013	SeqNo: 1571633		
Analyte	Result	PQL SPK value	llue SPK Ref Val	%REC	LowLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD RPD	RPDLimit Qual	ıal
Beryllium	9.311	1.0 10	10.00 0	93.1	75	125 9.222	0.951	20	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

Advanced Technology Laboratories, Inc.

Value above quantitation range

RPD outside accepted recovery limits Calculations are based on raw values ы ч

H Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix interference

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-16-192

Lab Order: N010122 **Collection Date:** 4/24/2013 11:00:00 AM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010122-002

Analyses	Result	MDL	PQL	Qual U	nits DF	Date Analyzed
DISSOLVED METALS BY IC	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130502A	QC Batch: 428	52		PrepDate:	4/30/2013	Analyst: CEI
Antimony	ND	0.084	0.50	μg/l	L 1	5/2/2013 01:42 PM
Arsenic	9.7	0.035	0.10	μg/l	L 1	5/2/2013 01:42 PM
Manganese	ND	0.16	0.50	μg/l	L 1	5/2/2013 01:42 PM
Molybdenum	12	0.074	0.50	μg/l	L 1	5/2/2013 01:42 PM
Selenium	1.9	0.084	0.50	μg/l	L 1	5/21/2013 01:39 PM
Thallium	ND	0.075	0.50	μg/l	L 1	5/2/2013 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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-17-192

Lab Order: N010122 **Collection Date:** 4/24/2013 12:20:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010122-003

Analyses	Result	MDL	PQL	Qual U	nits DF	Date Analyzed
DISSOLVED METALS BY IC	P-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130502A	QC Batch: 428	352		PrepDate:	4/30/2013	Analyst: CEI
Antimony	ND	0.084	0.50	μg/L	_ 1	5/2/2013 01:47 PM
Arsenic	1.6	0.035	0.10	μg/l	_ 1	5/2/2013 01:47 PM
Manganese	ND	0.16	0.50	μg/l	_ 1	5/2/2013 01:47 PM
Molybdenum	15	0.074	0.50	μg/l	_ 1	5/2/2013 01:47 PM
Selenium	10	0.084	0.50	μg/l	_ 1	5/21/2013 01:45 PM
Thallium	ND	0.075	0.50	μg/L	_ 1	5/2/2013 01:47 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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-21-192

Lab Order: N010122 **Collection Date:** 4/24/2013 9:55:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010122-004

Analyses	Res	ult	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS							
	EPA 3010A			EF	PA 6020			
RunID: ICP7_130521A	QC Batch:	428	352		PrepDa	ite:	4/30/2013	Analyst: CEI
Molybdenum		64	0.74	5.0		μg/L	10	5/21/2013 03:46 PM
Selenium		20	0.84	5.0		μg/L	10	5/21/2013 03:46 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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-36-100-192

Lab Order: N010122 **Collection Date:** 4/24/2013 3:20:00 PM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010122-005

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130502A	QC Batch: 428	352		PrepDate:	4/30/2013	Analyst: CEI
Arsenic	7.8	0.035	0.10	μg/L	1	5/2/2013 01:58 PM
Manganese	15	0.16	0.50	μg/L	1	5/2/2013 01:58 PM
Molybdenum	33	0.37	2.5	μg/L	5	5/4/2013 08:56 PM
Selenium	ND	0.42	2.5	μg/L	5	5/4/2013 08:56 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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-44-115-192

Lab Order: N010122 **Collection Date:** 4/24/2013 1:50:00 PM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010122-006

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY IC	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130504C	QC Batch: 4285	52		PrepDate:	4/30/2013	Analyst: CEI
Arsenic	6.3	0.17	0.50	μg/L	5	5/4/2013 09:01 PM
Manganese	ND	0.16	0.50	μg/L	1	5/2/2013 02:04 PM
Molybdenum	73	0.37	2.5	μg/L	5	5/4/2013 09:01 PM
Selenium	ND	0.42	2.5	μg/L	5	5/4/2013 09:01 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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-46-175-192

Lab Order: N010122 **Collection Date:** 4/24/2013 11:08:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010122-007

Analyses	Result	MDL	PQL	Qual Units	s DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130504C	QC Batch: 42	852		PrepDate:	4/30/2013	Analyst: CEI
Molybdenum	150	0.37	2.5	μg/L	5	5/4/2013 09:23 PM
Selenium	ND	0.42	2.5	μg/L	5	5/4/2013 09:23 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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-63-065-192

Lab Order: N010122 **Collection Date:** 4/25/2013 9:40:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010122-014

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130502A	QC Batch: 428	352		PrepDate:	4/30/2013	Analyst: CEI
Arsenic	1.9	0.035	0.10	μg/L	1	5/2/2013 02:15 PM
Manganese	ND	0.16	0.50	μg/L	1	5/2/2013 02:15 PM
Molybdenum	19	0.37	2.5	μg/L	5	5/4/2013 09:29 PM
Selenium	ND	0.42	2.5	μg/L	5	5/4/2013 09:29 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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-70-105-192

Lab Order: N010122 **Collection Date:** 4/25/2013 11:45:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010122-015

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130502A	QC Batch: 428	352		PrepDate:	4/30/2013	Analyst: CEI
Arsenic	5.9	0.035	0.10	μg/L	1	5/2/2013 02:37 PM
Manganese	170	0.80	2.5	μg/L	5	5/4/2013 09:34 PM
Molybdenum	81	0.074	0.50	μg/L	1	5/2/2013 02:37 PM
Selenium	3.8	0.42	2.5	μg/L	5	5/7/2013 01:29 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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-72-080-192

Lab Order: N010122 **Collection Date:** 4/25/2013 1:29:00 PM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010122-016

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130504C	QC Batch: 428	352		PrepDate:	4/30/2013	Analyst: CEI
Arsenic	12	0.17	0.50	μg/L	5	5/4/2013 09:40 PM
Manganese	ND	0.80	2.5	μg/L	5	5/4/2013 09:40 PM
Molybdenum	73	0.37	2.5	μg/L	5	5/4/2013 09:40 PM
Selenium	ND	0.42	2.5	μg/L	5	5/4/2013 09:40 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



CLIENT:	CH2M HILL ANAL W	THEAL OF SHAMARY BEPORT
Work Order:	N010122	TICAL COMMAN METON
Project:	PG&E Topock, 423575.MP.07.TS	TestCode: 6020_DIS

Date: 22-May-13

Sample ID: MB-42852	SampType: MBLK	TestCode:	TestCode: 6020_DIS	Units: µg/L		Prep Date	Prep Date: 4/30/2013	RunNo: 88736	
Client ID: PBW	Batch ID: 42852	TestNo:	TestNo: EPA 6020	EPA 3010A	4	Analysis Date: 5/2/2013	5/2/2013	SeqNo: 1569544	
Analyte	Result	Pal	SPK value	SPK Ref Val	%REC	LowLimit HighLimit	HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Antimony Arsenic Manganese Molybdenum	ON ON ON ON ON ON ON ON ON ON ON ON ON O	0.50 0.10 0.50 0.50							
Sample ID: LCS-42852 Client ID: LCSW	SampType: LCS Batch ID: 42852	TestCode: TestNo:	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date: Analysis Date:	Prep Date: 4/30/2013 Ilysis Date: 5/2/2013	RunNo: 88736 SeqNo: 1569545	
Analyte	Result	Pal	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Antimony Arsenic Manganese Molybdenum	10.256 10.171 91.829 9.104	0.50 0.10 0.50 0.50	10.00 10.00 100.0 10.00	0000	103 102 91.8 91.0	85 85 85	115 115 115		
Sample ID: N010097-001A-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 42852	TestCode: TestNo:	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date: 4/30/201 Analysis Date: 5/2/2013	Prep Date: 4/30/2013 llysis Date: 5/2/2013	RunNo: 88736 SeqNo: 1569571	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	LowLimit HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Antimony Arsenic Manganese	11.199 24.787 57.918	0.50 0.10 0.50	10.00	0.6269 14.55 0	106 102 57.9	75 75 75	125 125 125		Ø
Sample ID: N010097-001A-MSD Client ID: ZZZZZZ	SampType: MSD Batch ID: 42852	TestCode: TestNo:	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A	1	Prep Date: Analysis Date:	s: 4/30/2013 s: 5/2/2013	RunNo: 88736 SeqNo: 1569572	

Sample I	Sample ID: N010097-001A-MSD SampType: MSD	SampType: MSD	TestCode	TestCode: 6020_DIS	Units: µg/L		Prep Date	Prep Date: 4/30/2013	13	RunNo: 88736	'36	
Client ID:	Client ID: ZZZZZZ	Batch ID: 42852	TestN	TestNo: EPA 6020	EPA 3010A	*	Analysis Date: 5/2/2013	e: 5/2/2013		SeqNo: 1569572	9572	
Analyte		Result	PQL	SPK value	SPK value SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit Qual	Qual
Antimony		11.191	0.50	10.00	0.6269	106	75	125	11.20	0.0636	20	
Arsenic		24.980	0.10	10.00	14.55	104	75	125	24.79	0.776	20	
Qualifiers:	:s											
д	B Analyte detected in the	Analyte detected in the associated Method Blank	田	Value above	Value above quantitation range			H Holdi	Holding times for preparation or analysis exceeded	aration or analy	ysis exceeded	
Z	ND Not Detected at the Reporting Limit	corting Limit	R	RPD outside	RPD outside accepted recovery limits	its		S Spike	Spike/Surrogate outside of limits due to matrix interference	e of limits due t	to matrix inter	ference
Ď	DO Surrogate Diluted Out			Calculations	Calculations are based on raw values	Se						

Advanced Technology
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

PG&E Topock, 423575.MP.07.TS

CH2M HILL

N010122

Work Order: CLIENT:

Project:

Sample ID: N010097-001A-MSD SampType: MSD	SampType: MSD	TestCode	TestCode: 6020_DIS	Units: µg/L		Prep Date	Prep Date: 4/30/2013		RunNo: 88736	36	
Client ID: ZZZZZZ	Batch ID: 42852	TestNo	TestNo: EPA 6020	EPA 3010A		Analysis Date: 5/2/2013	5/2/2013		SeqNo: 1569572	9572	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	%REC LowLimit HighLimit RPD Ref Val	HighLimit F	RPD Ref Val	%RPD	%RPD RPDLimit	Qual
Manganese	57.170	0.50	100.0	0	57.2	75	125	57.92	1.30	20	S
Sample ID: MB-42852 Client ID: PBW	SampType: MBLK Batch ID: 42852	TestCode	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date: 4/30/201 : Analysis Date: 5/4/2013	Prep Date: 4/30/2013 alysis Date: 5/4/2013		RunNo: 88739 SeqNo: 1569655	39 9655	
Analyte	Result	Pal	SPK value	SPK Ref Val	%REC	%REC LowLimit HighLimit RPD Ref Val	HighLimit F	RPD Ref Val	%RPD	%RPD RPDLimit	Qual
Selenium	ND	0.50									

Sample ID: LCS-42852	SampType: LCS	TestCode	TestCode: 6020_DIS	Units: µg/L		Prep Dat	Prep Date: 4/30/2013	RunNo: 88739	
Client ID: LCSW	Batch ID: 42852	TestNo	TestNo: EPA 6020	EPA 3010A	•	Analysis Date:	e: 5/4/2013	SeqNo: 1569656	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Selenium	9.052	0.50	10.00	0	90.5	85	115		
Sample ID: N010097-001A-MS Client ID: ZZZZZ	SampType: MS Batch ID: 42852	TestCode	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Dat Analysis Dat	Prep Date: 4/30/2013 Analysis Date: 5/4/2013	RunNo: 88739 SeqNo: 1569660	
Analyte	Result	PQL	SPK value	SPK value SPK Ref Val	%REC	LowLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual	Qual
Molybdenum Selenium	155.786 10.241	2.5	10.00	146.0 0	97.4	75 75	125 125		
Sample ID: N010097-001A-MSD SampType: MSD	SampType: MSD	TestCode	TestCode: 6020_DIS	Units: µg/L		Prep Dat	Prep Date: 4/30/2013	RunNo: 88739	
Client ID: ZZZZZZ	Batch ID: 42852	TestNo	TestNo: EPA 6020	EPA 3010A		Analysis Dat	Analysis Date: 5/4/2013	SeqNo: 1569661	

Sample ID: N010097-001A-MSD	D SampType: MSD	TestCoc	TestCode: 6020_DIS	Units: µg/L		Prep Dat	Prep Date: 4/30/2013		RunNo: 88739	39	
Client ID: ZZZZZZ	Batch ID: 42852	TestN	TestNo: EPA 6020	EPA 3010A		Analysis Dat	Analysis Date: 5/4/2013		SeqNo: 1569661	19661	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	LowLimit HighLimit RPD Ref Val	PD Ref Val	%RPD	%RPD RPDLimit	Qual
Molybdenum	159.008	2.5	10.00	146.0	130	75	125	155.8	2.05	20	S
Selenium	9.384	2.5	10.00	0	93.8	75	125	10.24	8.73	20	

	Analyte detected in the	ND Not Detected at the Rep	DO Surrogate Diluted Out
Qualifiers:	B	ND	DC

rte detected in the associated Method Blank Detected at the Reporting Limit

Value above quantitation range

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RPD outside accepted recovery limits Calculations are based on raw values ы ч

Spike/Surrogate outside of limits due to matrix interference Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix inter-

CH2M HILL CLIENT:

N010122 Work Order:

PG&E Topock, 423575.MP.07.TS Project:

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TestCode: 6020_DIS

Sample ID: MB-42852	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L		Prep Date: 4/30/2013	0/2013	RunNo: 88736	
Client ID: PBW	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	1	Analysis Date: 5/2/2013	/2013	SeqNo: 1576653	
Analyte	Result	PQL SPK value	SPK Ref Val	%REC	LowLimit HighLimit	mit RPD Ref Val	%RPD RPDLimit	it Qual
Thallium	ND	0.50						
Sample ID: LCS-42852 Client ID: LCSW	SampType: LCS Batch ID: 42852	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date: 4/30/2013 Analysis Date: 5/2/2013	4/30/2013 5/2/2013	RunNo: 88736 SeqNo: 1576654	
Analyte	Result	PQL SPK value	SPK Ref Val	%REC	%REC LowLimit HighLimit RPD Ref Val	mit RPD Ref Val	%RPD RPDLimit	it Qual
Thallium	10.578	0.50 10.00	0	106	85 1	115		
Sample ID: N010097-001A-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 42852	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date: 4/30/2013 Analysis Date: 5/2/2013	0/2013 /2013	RunNo: 88736 SeqNo: 1576680	
Analyte	Result	PQL SPK value	SPK Ref Val	%REC	LowLimit HighLimit	mit RPD Ref Val	%RPD RPDLimit	it Qual
Thallium	10.254	0.50 10.00	0	103	75 1	125		
Sample ID: N010097-001A-MSD SampType: MSD Client ID: ZZZZZ Batch ID: 4285	SampType: MSD Batch ID: 42852	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date: 4/30/2013 Analysis Date: 5/2/2013	4/30/2013 5/2/2013	RunNo: 88736 SeqNo: 1576681	
Analyte	Result	PQL SPK value	SPK Ref Val	%REC	%REC LowLimit HighLimit RPD Ref Val	mit RPD Ref Val	%RPD RPDLimit	it Qual
Thallium	10.299	0.50 10.00	0	103	75 1	125 10.25	0.432	20

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 - DO Surrogate Diluted Out
- Value above quantitation range ы ч
- 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

Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-16-192

Lab Order: N010122 **Collection Date:** 4/24/2013 11:00:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010122-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE

EPA 7470A

RunID: AA1_130515B QC Batch: 42979 PrepDate: 5/14/2013 Analyst: LCC Mercury ND 0.028 0.20 μg/L 1 5/15/2013

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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CH2M HILL

Client Sample ID: MW-17-192

Lab Order: N010122 **Collection Date:** 4/24/2013 12:20:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010122-003

CLIENT:

Analyses Result MDL PQL Qual Units DF Date Analyzed

DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE

EPA 7470A

RunID: AA1_130515B QC Batch: 42979 PrepDate: 5/14/2013 Analyst: LCC Mercury ND 0.028 0.20 μg/L 1 5/15/2013

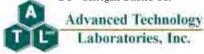
Qualifiers: B Analyte detected in the associated Method Blank

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



PG&E Topock, 423575.MP.07.TS

Project:

Date: 22-May-13

TestCode: 7470_W_DISSPGE

ANALYTICAL QC SUMMARY REPORT CH2M HILL N010122 Work Order: CLIENT:

Qual %RPD RPDLimit SeqNo: 1576009 RunNo: 88874 %REC LowLimit HighLimit RPD Ref Val Prep Date: 5/14/2013 Analysis Date: 5/15/2013 115 82 110 TestCode: 7470_W_DIS Units: µg/L 0 SPK value SPK Ref Val TestNo: EPA 7470A 5.000 PQL 0.20 Result 5.492 Batch ID: 42979 SampType: LCS Sample ID: LCS-42979 Client ID: LCSW Analyte Mercury

Sample ID: MB-42979	SampType: MBLK	TestCode: 7470_W_DIS Units: µg/L	Prep Date: 5/14/2013	RunNo: 88874
Client ID: PBW	Batch ID: 42979	TestNo: EPA 7470A	Analysis Date: 5/15/2013	SeqNo: 1576012
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	/al %RPD RPDLimit Qual
Mercury	QN	0.20		
Sample ID: N010122-002A-MS	SampType: MS	TestCode: 7470_W_DIS Units: µg/L	Prep Date: 5/14/2013	RunNo: 88874
Client ID: ZZZZZZ	Batch ID: 42979	TestNo: EPA 7470A	Analysis Date: 5/15/2013	SeqNo: 1576015

Client ID:	Client ID: ZZZZZZ	Batch ID: 42979	Test	TestNo: EPA 7470A			Analysis Date	Analysis Date: 5/15/2013		SeqNo: 1576015	3015	
Analyte		Result	PQL	PQL SPK value SPK Ref Val	SPK Ref Val	%REC	LowLimit	%REC LowLimit HighLimit RPD Ref Val	D Ref Val	%RPD	%RPD RPDLimit Qual	Qual
Mercury		5.438	0.20	5.000	0	109	75	125				
Sample ID	Sample ID: N010122-002A-MSD SampType: MSD	SampType: MSD	TestCoo	de: 7470_W_D	TestCode: 7470_W_DIS Units: µg/L		Prep Date	Prep Date: 5/14/2013		RunNo: 88874	4.	
Client ID:	Client ID: ZZZZZ	Batch ID: 42979	TestN	TestNo: EPA 7470A			Analysis Date	Analysis Date: 5/15/2013		SeqNo: 1576016	3016	
Analyte		Result	PQL	PQL SPK value SPK Ref Val	SPK Ref Val	%REC	LowLimit	%REC LowLimit HighLimit RPD Ref Val	D Ref Val	%RPD	%RPD RPDLimit Qual	Qual
Mercury		5.532	0.20	5.000	0	111	75	125	5.438	1.72	20	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

RPD outside accepted recovery limits Calculations are based on raw values ы к

Value above quantitation range

Spike/Surrogate outside of limits due to matrix interference H Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix inte

> Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CI	12 1	ИH	11	LL

CHAIN OF CUSTODY RECORD

4/25/2013 4:01:36 PM

Page 1 OF 2

CHZIVIHIL	<u></u>							Cr	IAIN C	F CUSTODT RECORD	4/25/2013 4:01:36 PM	Page 1	OF .	
Project Name Po Location Topod Project Manager	:k		Container: servatives:	500 ml Poly HNO3, 4°C	500 mi Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	1 Liter Poly 4°C	1Liter Poly 4°C					
Sample Manager	Shawn Du	ffy	Filtered:	Field	Field	Field	Field	NA	NA					
		Hole	ding Time:	180	180	180	180	14	30					
Project Number Task Order Project 2013-GM Turnaround Time Shipping Date: 4 COC Number: 16	IP-192-Q2 10 Day:	s	Matrix	Arsenic (6020A) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered AlSbAsBaBeBCaCdCoCuFePbMg	Metals (6020A) Field Filtered Mo,Se	Metals (6020A) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Extra (*)				Number of Containers	COMMEN
MW-126-192	4/24/2013	8:57	Water					х		H010122-1			1	
MW-16-192	4/24/2013	11:00	Water		х			х		1 -2			2	
MW-17-192	4/24/2013	12:20	Water		х			х		- 3			2	
MW-21-192	4/24/2013	9:55	Water			Х		х		-4			2	
MW-36-100-192	4/24/2013	15:20	Water	х			х	ж		- 5			2	
MW-44-115-192	4/24/2013	13:50	Water	х			х	х		-6			2	
MW-46-175-192	4/24/2013	11:08	Water			х		X		-7			2	
MW-46-205-192	4/24/2013	9:08	Water					х		- B		:	1	
The state of the s								х	_	-9	· · · · · · · · · · · · · · · · · · ·		1	
MW-47-055-192	4/24/2013	15:13	Water						f					
MW-47-055-192 MW-47-115-192	4/24/2013 4/24/2013	15:13 14:37	Water Water					х		- 4n			1	Į
								x		- to			1	
MW-47-115-192	4/24/2013	14:37	Water							- Ho -11 -12			1 1 1	
MW-47-115-192 MW-50-095-192	4/24/2013 4/24/2013	14:37 8:55	Water Water					x	x	-17			1	

Approved by
Sampled by
Relinquished by
Ceived by
Relinquished by

Received by

Signatures Date/Time
4-25-13
1607

24-25/15 e 1607

Shipping Details

Method of Shipment: courier

On Ice: (yes) no 7 1

Airbill No:

ICE IRAI

Lab Name: ADVANCED TECHNOLOGY LABORATO

Lab Phone: (702) 307-2659

ATTN:

Special Instructions:

Sample Custody

and

Marlon

Report Copy to Shawn Duffy (530) 229-3303

April 15 to May 9, 2013

CH2MHILL

CHAIN OF CUSTODY RECORD

4/25/2013 4:01:36 PM

Page 2 OF 2

CHZIVINIL	L							O.		COSTODI RECORD	4/25/2013 4.01.30 FW Fage Z	Oг.	
Project Name PG Location Topoci Project Manager	k		Container: ervatives:	Poly HNO3,	500 ml Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	1 Liter Poly 4°C	1Liter Poly 4°C				
Sample Manager	Shawn Du	-	Filtered:	Field	Field	Field	Field	NA	NA				
		Holdi	ing Time:	180	180	180	180	14	30				İ
Project Number 4 Task Order Project 2013-GMI Turnaround Time Shipping Date: 4 COC Number: 10	P-192-Q2 10 Days /25/2013	S	Matrix	Arsenic (6020A) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered AlSbAsBaBeBCaCdCoCuFePbMg	Metals (6020A) Field Filtered Mo,Se	Metals (6020A) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Extra (*)			Number of Containers	COMMENTS
MW-70-105-192	4/25/2013	11:45	Water	х			х	Х	х	MO10122-15	-	3	
MW-72-080-192	4/25/2013	13:29	Water	Х			Х	х	Х	1 - 16		3	
											TOTAL NUMBER OF CONTAINERS	29	

Date/Time #-25-/3 Signatures Special Instructions: **Shipping Details** Approved by ATTN: April 15 to May 9, 2013 Method of Shipment: courier Sampled by On Ice: yes / no Relinquished by Sample Custody Airbill No: Received by and Report Copy to Relinquished by Lab Name: ADVANCED TECHNOLOGY LABORATO Shawn Duffy **Marlon** Received by Lab Phone: (702) 307-2659 (530) 229-3303

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 o	r turtner in	struction, pieas	e contact our i	Project Coord	dinator at (702	1) 307-2659.	
Cooler Received/Opened On:	4/25/2013	ı			Workorder:	N010122	
Rep sample Temp (Deg C):	2.1				IR Gun ID:	1	
Temp Blank:	Yes	☑ No					
Carrier name:	ATL.						
Last 4 digits of Tracking No.:	NA			Packing	Material Used:	None	
Cooling process:	✓ Ice	lce Pack	☐ Dry Ice	Other	None		
		S	ample Recei	ot Checklis	t		
1. Shipping container/cooler in	good condi				Yes ⊻	No 🗌	Not Present
2. Custody seals intact, signed	l, dated on s	shippping contain	er/cooler?		Yes 🗌	No 🗌	Not Present
3. Custody seals intact on sam	ple bottles?	•			Yes 🗌	No 🗀	Not Present
4. Chain of custody present?					Yes 🗹	No 🗌	
5. Sampler's name present in 0	COC?				Yes 🗹	No 🗀	
6. Chain of custody signed who	en relinquisl	hed and received	?		Yes 🗹	No 🗌	
7. Chain of custody agrees wit	h sample la	bels?			Yes 🗹	No 🗌	
8. Samples in proper container	r/bottle?				Yes 🗹	No 🗆	
9. Sample containers intact?					Yes 🗹	No 🗔	
10. Sufficient sample volume f	or indicated	test?			Yes 🗸	No 🗆	
11. All samples received within	n holding tim	ne?			Yes 🗹	No 🗌	
12. Temperature of rep sample	e or Temp E	Blank within accep	otable limit?		Yes 🗹	No 🗔	NA 🗆
13. Water - VOA vials have ze	ro headspa	ce?			Yes 🗌	No 🗀	NA 🗹
14. Water - pH acceptable upo					Yes 🗸	No 🗌	NA 🗆
Example: pH > 12 for (C					.		
15. Did the bottle labels indica	•		1?		Yes 🗹	No 🗌	NA 🗀
16. Were there Non-Conforma W	ince issues las Client no				Yes ∐ Yes ☐	No 🗔 No 🗔	NA ⊻ NA ✓
Comments:							
Checklist Completed B	MBC M	N 4/26/13				Reviewed By:	Jan .

Nancy Sibucao

From:

Marlon B. Cartin [marlon@atl-labs.com]

Sent:

Monday, May 13, 2013 4:03 PM

To: Cc: Nancy Sibucao Sample Control

Subject:

FW: PG&E Topock, 423575.MP.07.TS

Forwarding Nancy!

Thanks,

Marlon

From: Shawn.Duffy@CH2M.com [mailto:Shawn.Duffy@CH2M.com]

Sent: Monday, May 13, 2013 3:42 PM

To: marlon@atl-labs.com

Subject: RE: PG&E Topock, 423575.MP.07.TS

Hi Marlon,

Good catch...

The metals list should be Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, and Zn.

Shawn

From: Marlon B. Cartin [mailto:marlon@atl-labs.com]

Sent: Monday, May 13, 2013 3:27 PM

To: Duffy, Shawn/RDD

Subject: PG&E Topock, 423575.MP.07.TS

Hi Shawn!

For the attached COC, we are ready to generate the report. However, Nancy noticed that the list of metals for samples MW-126 and MW-16 was short. We just want to confirm that list is accurate and we're not missing anything.

Thanks,

Marlon B. Cartin

Advanced Technology Laboratories, Inc.

3151 W. Post Road

Las Vegas, NV 89118

Phone: 702-307-2659 ext 410

Mobile: 702-439-0421

Sample Calculation

METHOD: EPA 6010

TEST NAME: Heavy Metals by ICP

MATRIX: Aqueous

FORMULA:

Calculate the Barium concentration, in ug/L, in the original sample as follows:

where:

A = mg/L, calculated concentration

DF = dilution factor

PF = Final Vol. of Digestate in mL / Vol. of Sample used in MI

CF = Conversion Factor

For Sample N010122-002A, the concentration in ug/L is calculated as follows:

Barium, ug/L

0.02523562804 * 1 * (25/25) * 1000

= 25.23562804 ug/L

Reporting results in two significant figures,

Barium, ug/L

25 ug/L

2/10/13

ICP-Metals in Water

Comments:

Dilution Test Summary

Analyzed By: Mary Claire Ignacio

Work Order No.:	N010122			Matrix:	Water	
Test Method:	EPA 6010			Batch No.:	42820	
Analysis Date:	05/03/13					
			1 4			
Instrument ID:	ICP-02					
Instrument Description:	Perkin Elmer Optir	ma DV Series				

Dilution Test is not applicable to Ni, Ag, V, Zn, Al, Ba, B, Cd, Co, Cu, Fe and Pb. The calculated values were <25X RL.

However, PS@2X passed criteria.

Dilution Test of Ca and Mg failed. However, PS@2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N010122-02A DT 5X	Aluminum	ug/L	0	NA	0	0.00%	10
N010122-02A DT 5X	Barium	ug/L	29.0704599	NA	25.23562804	15.20%	10
N010122-02A DT 5X	Boron	ug/L	410.8954391	NA	302.9930053	35.61%	10
N010122-02A DT 5X	Cadmium	ug/L	0	NA	0	0.00%	10
N010122-02A DT 5X	Calcium	ug/L	24596.78521	FAILED	21551.66765	14.13%	10
N010122-02A DT 5X	Cobalt	ug/L	0	NA	0	0.00%	10
N010122-02A DT 5X	Copper	ug/L	0	NA	.0	0.00%	10
N010122-02A DT 5X	Iron	ug/L	0	NA	0	0.00%	10
N010122-02A DT 5X	Lead	ug/L	0	NA	0	0.00%	10
N010122-02A DT 5X	Magnesium	ug/L	4780.658847	FAILED	4153.211103	15.11%	10
N010122-02A DT 5X	Nickel	ug/L	0	NA	0.74302228	100.00%	10
N010122-02A DT 5X	Silver	ug/L	0	NA	0	0.00%	10
N010122-02A DT 5X	Vanadium	ug/L	30.9871339	NA	30.15581935	2.76%	10
N010122-02A DT 5X	Zinc	ug/L	0	NA	3.089387108	100.00%	10

Note: NA - Not Applicable

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N010122 Test Method: EPA 6010 Analysis Date: 05/07/13

Matrix: Water Batch No.: 42923

Instrument ID:

ICP-02

Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By:

Mary Claire Ignacio

Dilution Test is not applicable to Be. The calculated value was <25X RL. However, PS @2X passed criteria

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N010122-02A DT 5X	Beryllium	ug/L	0	NA	0	0.00%	10

Note: NA - Not Applicable

Date: 20-May-13

CLIENT:

CH2M HILL

Work Order:

N010122

Project:

PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: N010122-002A-PS Client ID: ZZZZZZ	SampType: PS Batch ID: 42820		de: 6010_WD F No: EPA 6010 I	PGE Units: ug/L B EPA 3010A		Prep Da Analysis Da		3	RunNo: 887 SeqNo: 15 6		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4843.246	100	5000	0	96.9	75	125				
Barium	264.225	6.0	250.0	25.24	95.6	75	125				
Boron	2603.653	200	2500	303.0	92.0	75	125				
Cadmium	243.273	6.0	250.0	0	97.3	75	125				
Calcium	26876.561	1000	5000	21550	106	75	125				
Cobalt	237.639	6.0	250.0	0	95.1	75	125				
Copper	231.872	10	250.0	0	92.7	75	125				
Iron	4533.037	40	5000	0	90.7	75	125				
Lead	225.523	20	250.0	0	90.2	75	125				
Magnesium	8838.249	200	5000	4153	93.7	75	125				
Nickel	240.547	10	250.0	0.7430	95.9	75	125				
Silver	226.612	6.0	250.0	0	90.6	75	125				
Vanadium	284.002	6.0	250.0	30.16	102	75	125				
Zinc	248.667	20	250.0	3.089	98.2	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:

N010122

Project:

PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	: N010122-002A-PS	SampType: PS	TestCo	de: 6010_WD I	PGE Units: ug/L		Prep Da	ite:		RunNo: 887	781	
Client ID:	ZZZZZZ	Batch ID: 42923	TestN	lo: EPA 6010	B EPA 3010A		Analysis Da	te: 5/7/201	3	SeqNo: 157	71635	
Analyte	2 · * 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium		246.714	2.0	250.0	0	98.7	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

Sample Calculation

METHOD: EPA 6020

TEST NAME: Heavy Metals by ICP-MS

MATRIX: Aqueous

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

Arsenic, ug/L

= A * DF * PF

where:

A = ug/L, calculated concentration

DF = dilution factor

PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N010122-002A, the concentration in ug/L is calculated as follows:

Arsenic, ug/L

9.71333328065282 * 1 * (25/25)

= 9.71333328065282

Reporting results in two significant figures,

Arsenic, ug/L

9.7

us for

ICP-Metals in Water

Dilution Test Summary

Work Order No.: Test Method: N010122 EPA 6020 Matrix: Batch No.: Water 42852

Analysis Date:

05/02/13

Instrument ID:

ICP-MS #2

Instrument Description:

Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Mn. The calculated value was <25X RL.

Dilution test is not applicable to TI and Sb. The calculated values were <25X RL. However, PS@2X passed criteria.

Dilution test of As failed. However, PS@2X passed criteria.

Sample 1D	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N010097-001A-DT 5X	Arsenic	μg/L	16.37274587	FAILED	14.55344998	12.50%	10
N010097-001A-DT 5X	Manganese	μg/L	0	NA	0	0.00%	10
N010097-001A-DT 5X	Antimony	μg/L	0.588663778	NA	0.626930485	6.10%	10
N010097-001A-DT 5X	Thallium	μg/L	0	NA	0		10

Note: NA - Not applicable

ICP-Metals in Water

Dilution Test Summary

Work Order No.: Test Method: N010122 EPA 6020 Matrix: Batch No.:

ix: Water No.: 42852

Analysis Date:

EPA 6020 05/04/13

Instrument ID:

ICP-MS #2

Instrument Description:

Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Se. The calculated value was <25X RL. However, PS@2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N010097-001A-DT 25X	Molybdenum	μg/L	146.14151	PASSED	146.0445913	0.07%	10
N010097-001A-DT 25X	Selenium	μg/L	0	NA	0	0.00%	10

Note: NA - Not applicable

CLIENT:

CH2M HILL

Work Order:

N010122

Project:

PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT

Date: 22-May-13

TestCode: 6020_DIS

Sample ID: N010097-001A-PS	SampType: PS	TestCoo	le: 6020_DIS	Units: µg/L		Prep Dat	te:		RunNo: 887	736	
Client ID: ZZZZZZ	Batch ID: 42852	TestN	lo: EPA 6020	EPA 3010A		Analysis Dat	te: 5/2/201	3	SeqNo: 15 6	S9570	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	21.742	1.0	20.00	0.6269	106	75	125				
Arsenic	35.454	0.20	20.00	14.55	105	75	125				
Manganese	147.242	1.0	200.0	0	73.6	75	125	_			s
Sample ID: N010097-001A-PS	SampType: PS	TestCod	le: 6020_DIS	Units: µg/L		Prep Dat	te:		RunNo: 887	739	
Client ID: ZZZZZZ	Batch ID: 42852	TestN	lo: EPA 6020	EPA 3010A		Analysis Dat	te: 5/4/201	3	SeqNo: 15 6	89659	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	201.200	2.5	50.00	146.0	110	75	125				
Selenium	44.320	2.5	50.00	0	88.6	75	125				
Sample ID: N010097-001A-PS	SampType: PS	TestCod	le: 6020_DIS	Units: µg/L		Prep Dat	e:		RunNo: 887	736	
Client ID: ZZZZZZ	Batch ID: 42852	TestN	o: EPA 6020	EPA 3010A		Analysis Dat	te: 5/2/201	3	SeqNo: 157	76679	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	22.171	1.0	20.00	0	111	75	125				

Qualifiers:

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 Calculation

METHOD: EPA 7470

TEST NAME: Mercury in Water by Cold-Vapor Technique

MATRIX: Aqueous

FORMULA:

Calculate the Mercury concentration, in ug/L, in the original sample as follows:

Mercury,
$$ug/L = A * DF * PF * 0.5$$

where:

A = ug/L, calculated concentration

DF = dilution factor

PF = Final Vol. of Digestate in mL / Wt. of Sample used in mL

0.5, is the coversion factor.

For Sample N010122-002A the concentration in ug/L is calculated as follows:

Mercury, ug/L = 0.02* 1 * (50/25) * 0.5

= 0.02 ug/L

Reporting results in two significant figures,

Mercury, ug/L = 0.020

Mercury, ug/L = ND since perult in LRL

be for

July 18, 2013

Shawn P. Duffy CA-ELAP No.:2676

CH2M HILL

155 Grand Avenue, Suite 1000

Oakland, CA 94612

TEL: (530) 229-3303

FAX: (530) 339-3303 Workorder No.: N010222

RE: PG&E Topock, 423575.MP.07.TS

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on May 09, 2013 by Advanced Technology Laboratories, Inc. . 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,

In New Library
Jose Tenorio Jr.

Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



NV Cert. No.: NV-009222007A

CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.07.TS CASE NARRATIVE

Date: 18-Jul-13

Lab Order: N010222

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Copper possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



Analyst: CEI

5/23/2013 02:38 PM

Print Date: 18-Jul-13

5/22/2013

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-12-192

Lab Order: N010222 **Collection Date:** 5/9/2013 11:22:00 AM

0.14

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

QC Batch: 43045

ND

Lab ID: N010222-005

RunID: ICP7_130523A

Copper

Analyses Result MDL PQL Qual Units DF Date Analyzed

DISSOLVED METALS BY ICP-MS

EPA 3010A EPA 6020

1.0

PrepDate:

μg/L

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



Date: 18-Jul-13

CLIENT: CH2M HILL Work Order: N010222

ANALYTICAL QC SUMMARY REPORT TestCode: 6020_DIS

Project: PG&E Topock, 423575.MP.07.TS

Sample ID: LCS-43045	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/22/2013	RunNo: 88998
Client ID: LCSW	Batch ID: 43045	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/23/2013	SeqNo: 1584193
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Copper	9.825	1.0 10.00	0	98.3 85 115	
Sample ID: N010222-002A-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/22/2013	RunNo: 88998
Client ID: ZZZZZZ	Batch ID: 43045	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/23/2013	SeqNo: 1584204
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Copper	ND	1.0 10.00	0	0 75 125	S
Sample ID: N010222-002A-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/22/2013	RunNo: 88998
Client ID: ZZZZZZ	Batch ID: 43045	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/23/2013	SeqNo: 1584205
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Copper	ND	1.0 10.00	0	0 75 125 0	0 20 S
Sample ID: MB-43045	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/22/2013	RunNo: 88998
Client ID: PBW	Batch ID: 43045	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/23/2013	SeqNo: 1584234
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

- E Value above quantitation range
- RPD outside accepted recovery limits Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- Spike/Surrogate outside of limits due to matrix interference



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

May 15, 2013

Shawn P. Duffy CA-ELAP No.: 2676

CH2M HILL NV Cert. No.: NV-009222007A

155 Grand Avenue, Suite 1000

Oakland, CA 94612

TEL: (530) 229-3303

FAX: (530) 339-3303 Workorder No.: N010137

RE: PG&E Topock, 423575.MP.07.TS

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on April 30, 2013 by Advanced Technology Laboratories, Inc. . 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,

Jose Tenorio Jr.

Laboratory Director

is geogermundo

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.07.TS CASE NARRATIVE

Date: 15-May-13

Lab Order: N010137

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

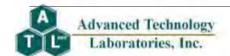
Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Molybdenum possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.07.TS Work Order Sample Summary

Date: 15-May-13

Lab Order: N010137

Contract No: 2013-GMP-192-

Lab Sample ID Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N010137-001A MW-72BR-200-192	Water	4/29/2013 2:09:00 PM	4/30/2013	5/15/2013
N010137-001B MW-72BR-200-192	Water	4/29/2013 2:09:00 PM	4/30/2013	5/15/2013
N010137-001C MW-72BR-200-192	Water	4/29/2013 2:09:00 PM	4/30/2013	5/15/2013
N010137-002A MW-37D-192	Water	4/30/2013 1:57:00 PM	4/30/2013	5/15/2013
N010137-002B MW-37D-192	Water	4/30/2013 1:57:00 PM	4/30/2013	5/15/2013
N010137-003A MW-58BR-192	Water	4/30/2013 11:53:00 AM	4/30/2013	5/15/2013
N010137-003B MW-58BR-192	Water	4/30/2013 11:53:00 AM	4/30/2013	5/15/2013
N010137-003C MW-58BR-192	Water	4/30/2013 11:53:00 AM	4/30/2013	5/15/2013
N010137-004A MW-71-035-192	Water	4/30/2013 7:32:00 AM	4/30/2013	5/15/2013
N010137-004B MW-71-035-192	Water	4/30/2013 7:32:00 AM	4/30/2013	5/15/2013



Print Date: 15-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

Client Sample ID: MW-72BR-200-192 Lab Order: N010137 Collection Date: 4/29/2013 2:09:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010137-001

PQL DF Result MDL Units Analyses Qual Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

QC Batch: R88673 RunID: WETCHEM_130501B PrepDate: Analyst: LCC Specific Conductance 16000 0.10 0.10 umhos/cm 5/1/2013 1

Qualifiers: Analyte detected in the associated Method Blank

> Н Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

Value above quantitation range



Print Date: 15-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-37D-192

Lab Order: N010137 **Collection Date:** 4/30/2013 1:57:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010137-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130501B
 QC Batch:
 R88673
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 15000
 0.10
 0.10
 umhos/cm
 1
 5/1/2013

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



Print Date: 15-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-58BR-192

Lab Order: N010137 **Collection Date:** 4/30/2013 11:53:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010137-003

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130501B
 QC Batch:
 R88673
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 8400
 0.10
 0.10
 umhos/cm
 1
 5/1/2013

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



Print Date: 15-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-71-035-192

Lab Order: N010137 **Collection Date:** 4/30/2013 7:32:00 AM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010137-004

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130501B
 QC Batch:
 R88673
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 7800
 0.10
 0.10
 umhos/cm
 1
 5/1/2013

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



Date: 15-May-13

ANALYTICAL QC SUMMARY REPORT CH2M HILL N010137 Work Order: CLIENT:

PG&E Topock, 423575.MP.07.TS Project:

TestCode: 120.1_WPGE

Sample ID: LCS-R88673	SampType: LCS	TestCod	e: 120.1_WP(estCode: 120.1_WPGE Units: umhos/cm	s/cm	Prep Date:	ie:		RunNo: 88673	73	
Client ID: LCSW	Batch ID: R88673	TestN	TestNo: EPA 120.1			Analysis Date:	te: 5/1/2013	8	SeqNo: 1566703	6703	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit Qual	Qual
Specific Conductance	10160.000	0.10	9992	0	102	85	115				

Sample ID: N010137-003B-DUP SampType: DUP	SampType: DUP	TestCod	le: 120.1_WPC	TestCode: 120.1_WPGE Units: umhos/cm	m;	Prep Date:			RunNo: 88673	73	
Client ID: ZZZZZZ	Batch ID: R88673	TestN	TestNo: EPA 120.1		1	Analysis Date: 5/1/2013	5/1/2013	-	SeqNo: 1566712	6712	
Analyte	Result	PQL	SPK value	SPK value SPK Ref Val	%REC	%REC LowLimit HighLimit RPD Ref Val	ighLimit	RPD Ref Val	%RPD	%RPD RPDLimit	Qual
Specific Conductance	8408.000	0.10						8410	0.0238	10	
Sample ID: N010137-003B MS	SampType: MS	TestCod	te: 120.1_WP(TestCode: 120.1_WPGE Units: umhos/cm	m;	Prep Date:			RunNo: 88673	73	
Client ID: ZZZZZ	Batch ID: R88673	TestN	TestNo: EPA 120.1		4	Analysis Date: 5/1/2013	5/1/2013		SeqNo: 1566713	6713	
Analyte	Result	PQL	SPK value	SPK value SPK Ref Val	%REC	%REC LowLimit HighLimit RPD Ref Val	ighLimit	RPD Ref Val	%RPD	%RPD RPDLimit	Qual
Specific Conductance	18620.000	0.20	9992	8410	102	75	125				
Sample ID: N010137-003B MSD SampType: MSD	SampType: MSD	TestCod	le: 120.1_WPC	TestCode: 120.1_WPGE Units: umhos/cm	m;	Prep Date:			RunNo: 88673	73	
Client ID: ZZZZZZ	Batch ID: R88673	TestN	TestNo: EPA 120.1		1	Analysis Date: 5/1/2013	5/1/2013		SeqNo: 1566714	6714	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	%REC LowLimit HighLimit RPD Ref Val	ighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	18640.000	0.20	9992	8410	102	75	125	18620	0.107	10	

Sample ID: N010137-003B MSD SampType: MSD	SampType: MSD	TestCo	de: 120.1_WP	TestCode: 120.1_WPGE Units: umhos/cm	ε	Prep Date:	 ø		RunNo: 88673	73	
Client ID: ZZZZZZ	Batch ID: R88673	Test	TestNo: EPA 120.1		٩	Analysis Date:	e: 5/1/2013		SeqNo: 1566714	6714	
Analyte	Result	PQL		SPK value SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit Qual	Qual
Specific Conductance	18640.000	0.20	9992	8410	102	75	125	18620	0.107	10	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

RPD outside accepted recovery limits Value above quantitation range ы ч

Calculations are based on raw values

Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix inter

Spike/Surrogate outside of limits due to matrix interference

Print Date: 15-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-72BR-200-192

Lab Order: N010137 **Collection Date:** 4/29/2013 2:09:00 PM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010137-001

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130510B	QC Batch: 428	387		PrepDate:	5/3/2013	Analyst: CEI
Arsenic	14	0.035	0.10	μg/L	1	5/10/2013 01:08 PM
Manganese	ND	0.16	0.50	μg/L	1	5/10/2013 01:08 PM
Molybdenum	74	0.074	0.50	μg/L	1	5/10/2013 01:08 PM
Selenium	ND	0.084	0.50	μg/L	1	5/10/2013 01:08 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



Print Date: 15-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-37D-192

Lab Order: N010137 **Collection Date:** 4/30/2013 1:57:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010137-002

Lab ID:	N010137-00	02							
Analyses		Res	ult	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED N	METALS BY ICI	P-MS							
		EPA 3010A			EP	PA 6020			
RunID: ICP7_	130510B	QC Batch:	42	887		PrepDa	ate:	5/3/2013	Analyst: CEI
Molybdenum			45	0.37	2.5		μg/L	5	5/10/2013 03:09 PM
Selenium		1	ND	0.42	2.5		μg/L	5	5/10/2013 03:09 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



Print Date: 15-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-58BR-192

Lab Order: N010137 **Collection Date:** 4/30/2013 11:53:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010137-003

Analyses Result MDL PQL Qual Units DF Date Analyzed

DISSOLVED METALS BY ICP-MS

EPA 3010A EPA 6020

RunID: ICP7_130510B QC Batch: 42887 PrepDate: 5/3/2013 Analyst: CEI

Arsenic 1.4 0.035 0.10 μg/L 1 5/10/2013 01:56 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



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 15-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-71-035-192

Lab Order: N010137 **Collection Date:** 4/30/2013 7:32:00 AM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010137-004

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY IC	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130510B	QC Batch: 428	887		PrepDate:	5/3/2013	Analyst: CEI
Arsenic	1.8	0.035	0.10	μg/L	1	5/10/2013 02:02 PM
Manganese	27	0.16	0.50	μg/L	1	5/10/2013 02:02 PM
Molybdenum	60	0.074	0.50	μg/L	1	5/10/2013 02:02 PM
Selenium	2.6	0.084	0.50	μg/L	1	5/10/2013 02:02 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



Advanced Technology Laboratories, Inc.

ANALYTICAL QC SUMMARY REPORT CH2M HILL N010137 Work Order: CLIENT:

Date: 15-May-13

Project:

SeqNo: 1574105 RunNo: 88833 TestCode: 6020_DIS Analysis Date: 5/10/2013 Prep Date: 5/3/2013 Units: µg/L **EPA 3010A** TestCode: 6020_DIS TestNo: EPA 6020 PG&E Topock, 423575.MP.07.TS SampType: MBLK Batch ID: 42887 Sample ID: MB-42887 Client ID: PBW

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	QN	0.10									
Manganese	ΩN	0.50									
Molybdenum	QN	0.50									
Selenium	ND	0.50									
Sample ID: LCS-42887	SampType: LCS	TestCo	TestCode: 6020_DIS	Units: µg/L		Prep Dat	Prep Date: 5/3/2013	·	RunNo: 88833	33	
Client ID: LCSW	Batch ID: 42887	Test	TestNo: EPA 6020	EPA 3010A		Analysis Date: 5/10/2013	e: 5/10/20	13	SeqNo: 1574106	4106	
Analyte	Result	PQL	SPK value	SPK value SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit	Qual
Arsenic	10.093	0.10	10.00	0	101	85	115				
Manganese	101.739	0.50	100.0	0	102	82	115				
Molybdenum	10.355	0.50	10.00	0	104	85	115				
Selenium	8.917	0.50	10.00	0	89.2	82	115				
Sample ID: N010156-011A-MS	SampType: MS	TestCo	TestCode: 6020_DIS	Units: µg/L		Prep Dat	Prep Date: 5/3/2013	· ·	RunNo: 88833	33	
Client ID: ZZZZZZ	Batch ID: 42887	Test	TestNo: EPA 6020	EPA 3010A		Analysis Date: 5/10/2013	e: 5/10/20	13	SeqNo: 1574138	4138	

Sample ID: N010156-011A-MS	SampType: MS	TestCo	TestCode: 6020_DIS	Units: µg/L		Prep Date	Prep Date: 5/3/2013	RunNo: 88833	9	
Client ID: ZZZZZ	Batch ID: 42887	Test	TestNo: EPA 6020	EPA 3010A		Analysis Date:	B: 5/10/2013	SeqNo: 1574138	138	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.533	0.10	10.00	11.08	94.5	75	125			
Manganese	88.192	0.50	100.0	0	88.2	75	125			
Molybdenum	84.970	0.50	10.00	78.46	65.1	75	125			S
Selenium	10.720	0.50	10.00	1.831	88.9	75	125			
Sample ID: N010156-011A-MSD SampType: MSD	SampType: MSD	TestCo	TestCode: 6020_DIS	Units: µg/L		Prep Date	Prep Date: 5/3/2013	RunNo: 88833	13	
Client ID: ZZZZZ	Batch ID: 42887	Test	TestNo: EPA 6020	EPA 3010A		Analysis Date	Analysis Date: 5/10/2013	SeqNo: 1574141	141	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.085	0.10	10.00	11.08	100	75	125 20.53	2.65	20	

Analyte detected in the associated Method Blank ND Not Detected at the Reporting Limit Advanced Technology DO Surrogate Diluted Out Laboratories, Inc. В Qualifiers:

RPD outside accepted recovery limits Calculations are based on raw values

Value above quantitation range

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Spike/Surrogate outside of limits due to matrix interference H Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix inte

ANALYTICAL QC SUMMARY REPORT

PG&E Topock, 423575.MP.07.TS

CH2M HILL

N010137

Work Order: CLIENT:

Project:

TestCode: 6020_DIS

Client ID: ZZZZZZ Batch ID: 42887 TestNo: EPA 6020 EPA 3010A Analysis Date: 5/10/2013 SeqNo: SeqNo: SeqNo: SeqNo: SeqNo: SeqNo: SeqNo: SeqNo: Seq. Seq. Seq. Seq. Seq. Seq. Seq. Seq.	Sample ID: N010156-011A-MSD SampType: MSD	SampType: MSD	TestCo	TestCode: 6020_DIS	Units: µg/L		Prep Date:	e: 5/3/2013	3	RunNo: 88833	833	
Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val se 89.499 0.50 100.0 0 89.5 75 125 88.19 um 84.658 0.50 10.00 78.46 62.0 75 125 84.97 10.849 0.50 10.00 1.831 90.2 75 125 10.72	Client ID: ZZZZZZ	Batch ID: 42887	Test	10: EPA 6020			Analysis Dat	e: 5/10/20 ′	13	SeqNo: 1574141	74141	
se 89.499 0.50 100.0 0 89.5 75 125 88.19 um 84.658 0.50 10.00 78.46 62.0 75 125 84.97 10.849 0.50 10.00 1.831 90.2 75 125 10.72	Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	%RPD RPDLimit	Qual
um 84.658 0.50 10.00 78.46 62.0 75 125 84.97 10.849 0.50 10.00 1.831 90.2 75 125 10.72	Manganese	89.499	0.50	100.0	0	89.5	75	125	88.19	1.47	20	
10.849 0.50 10.00 1.831 90.2 75 125 10.72	Molybdenum	84.658	0.50	10.00	78.46	62.0	75	125	84.97	0.367	20	S
	Selenium	10.849	0.50	10.00	1.831	90.2	75	125	10.72	1.20	20	

H Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix interference

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

RPD outside accepted recovery limits Calculations are based on raw values

Value above quantitation range

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•		_		,				_

CHAIN OF CUSTODY RECORD

4/30/2013 3:43:53 PM

Page 1 OF 1

CMZIVINILL							CHAIN OI	COSTODI RECORD	4/30/2013 3:43:53 PW Pa	ige 1 OF	
Project Name PG&E To	pock	Container:	Poly	Poly	500 ml Poly	1 Liter Poly	1Liter Poly				
Location Topock Project Manager Jay Pi	iper Pr	reservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C				
Sample Manager Shawi	n Duffy	Filtered:	: Field	Field	Field	NA	NA				
	H	olding Time:	: 180	180	180	14	30				
Project Number 42357 Task Order Project 2013-GMP-192 Turnaround Time 10 Shipping Date: 4/30/20 COC Number: 12	-Q2 Days 013	E Matrix	Arsenic (6020A) Field Filtered	(6020A) Field Mo,Se	Metals (6020A) Field Filtered Mo.Se,Mn	Conductance	Extra (*)	·		Number of Containers	СОММЕІ
MW-72BR-200-192 4/29/2	2013 14:09	9 Water	х	1	х	х	х	MO20137-1		3	
MW-37D-192 4/30/2	2013 13:57	7 Water		х		х		1 ~2		2	
MW-58BR-193-193-4/30/2	2013 11:5	3 Water	х			х	x	~3		3	
MW-71-035-192 4/30/2	2013 7:32	2 Water	х		X	Х				2	
			,	 	············	+	-		TOTAL NUMBER OF CONTAI	INERS 10	

signatures Date/Time 4-30-13 1605 **Shipping Details Special Instructions:** Approved by ATTN: April 15 to May 9, 2013 Method of Shipment: courier Sampled by On Ice: (yes) 1 no4-(ICE IP Relinquished by Sample Custody 4-30-13 1605 Airbill No: Received by and Report Copy to Relinquished by Lab Name: ADVANCED TECHNOLOGY LABORATO Shawn Duffy Marlon Lab Phone: (702) 307-2659 Received by (530) 229-3303

Advanced 1	Technology	Laboratories,	Inc.

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 o	r further in	struction, pleas	e contact our P	roject Coord	dinator at (702) 307-2659.		
Cooler Received/Opened On:	4/30/2013				Workorder:	N010137		
Rep sample Temp (Deg C):	4.6				IR Gun ID:	1		
Temp Blank:	Yes	☑ No						
Carrier name:	ATL							
Last 4 digits of Tracking No.:	N/A			Packing	Material Used:	None		
Cooling process:	✓ Ice	ice Pack	Dry Ice	Other	None			
		<u>S:</u>	ample Receip	t Checklist	<u> </u>			
1. Shipping container/cooler in	good condi	tion?			Yes 🗹	No 🗌	Not Present	
2. Custody seals intact, signed	, dated on s	shippping containe	er/cooler?		Yes 🗌	No 🗆	Not Present	✓
3. Custody seals intact on sam	ple bottles?	•			Yes 🗌	No 🗌	Not Present	✓
4. Chain of custody present?					Yes 🔽	No 🗔		
5. Sampler's name present in 6	COC?				Yes 🗹	No 🗌		
6. Chain of custody signed who	en relinquis	hed and received	?		Yes 🗹	No 🗀		
7. Chain of custody agrees with	h sample la	bels?			Yes 🗹	No 🗀		
8. Samples in proper container	/bottle?				Yes 🗸	No 🗌		
9. Sample containers intact?					Yes 🗹	No 🗔		
10. Sufficient sample volume f	or indicated	test?			Yes 🗹	No 🗌		
11. All samples received within	holding tin	ne?			Yes 🗹	No 🗌		
12. Temperature of rep sample	or Temp E	Blank within accep	table limit?		Yes 🗹	No 🗀	NA	
13. Water - VOA vials have ze	ro headspa	ce?			Yes 🗌	No 🗀	NA	V
14. Water - pH acceptable upo Example: pH > 12 for (C	-	for Metals			Yes 🗹	No 🗀	NA	
15. Did the bottle labels indica	te correct p	reservatives used	?		Yes 🗹	No 🗔	NA	
16. Were there Non-Conforma W	nce issues as Client no	•			Yes 🗌 Yes 🔲	No 🗌 No 🗍		⊻
Comments:	oossa saaree kannaansaansaansaansaansaansaansaansaans							
Checklist Completed B	мвс ју	BC 5/1/12	3			Reviewed By:		

Sample Calculation

METHOD: EPA 6020

TEST NAME: Heavy Metals by ICP-MS

MATRIX: Aqueous

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

Arsenic, ug/L

= A * DF * PF

where:

A = ug/L, calculated concentration

DF = dilution factor

PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N010137-001A, the concentration in ug/L is calculated as follows:

Arsenic, ug/L

= 14.2480525987205 * 1 * (25/25)

= 14.2480525987205

Reporting results in two significant figures,

Arsenic, ug/L

14

M fr Muhs

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.:

N010137

Test Method: Analysis Date: EPA 6020 05/10/13 Matrix: Batch No.: Water 42887

Instrument ID:

ICP-MS #2

Instrument Description:

Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Mn and Se. The calculated values are <25X RL. PS @2X passed criteria.

Dilution test of As failed. However, PS@2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N010156-011A-DT 5X	Arsenic	μg/L	12.42766893	FAILED	11.0805065	12.16%	10
N010156-011A-DT 5X	Manganese	μg/L	0	NA	0	0.00%	10
N010156-011A-DT 5X	Molybdenum	μg/L	80.64137298	PASSED	78.45765653	2.78%	10
N010156-011A-DT 5X	Selenium	μg/L	1.661406065	NA	1.830514354	9.24%	10

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

CLIENT:

CH2M HILL

Work Order:

N010137

Project:

PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT

Date: 13-May-13

TestCode: 6020_DIS

Sample ID: N010156-011A-PS	SampType: PS	TestCo	de: 6020_DIS	Units: µg/L		Prep Da	te: 5/3/201	3	RunNo: 888	33	
Client ID: ZZZZZZ	Batch ID: 42887	TestN	No: EPA 6020	EPA 3010A		Analysis Da	te: 5/10/20	113	SeqNo: 157	4137	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	30.776	0.20	20.00	11.08	98.5	75	125				
Manganese	189.276	1.0	200.0	0	94.6	75	125				
Molybdenum	98.657	1.0	20.00	78.46	101	75	125				
Selenium	19.802	1.0	20.00	1.831	89.9	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

May 17, 2013

Shawn P. Duffy CH2M HILL

155 Grand Avenue, Suite 1000

Oakland, CA 94612

TEL: (530) 229-3303 FAX: (530) 339-3303

RE: PG&E Topock, 423575.MP.07.TS

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on May 02, 2013 by Advanced Technology Laboratories, Inc. . 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,

Jose Tenorio Jr.

Laboratory Director

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CA-ELAP No.: 2676

NV Cert. No.: NV-009222007A

Workorder No.: N010156

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.07.TS CASE NARRATIVE

Date: 17-May-13

Lab Order: N010156

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

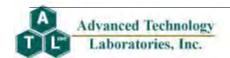
Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Molybdenum possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.07.TS Work Order Sample Summary

Date: 17-May-13

Lab Order: N010156
Contract No: 2013-GMP-192-

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N010156-001A	MW-40D-192	Water	5/1/2013 3:20:00 PM	5/2/2013	5/17/2013
N010156-001B	MW-40D-192	Water	5/1/2013 3:20:00 PM	5/2/2013	5/17/2013
N010156-002A	MW-64BR-192	Water	5/1/2013 11:30:00 AM	5/2/2013	5/17/2013
N010156-002B	MW-64BR-192	Water	5/1/2013 11:30:00 AM	5/2/2013	5/17/2013
N010156-003A	MW-65-160-192	Water	5/1/2013 1:52:00 PM	5/2/2013	5/17/2013
N010156-003B	MW-65-160-192	Water	5/1/2013 1:52:00 PM	5/2/2013	5/17/2013
N010156-003C	MW-65-160-192	Water	5/1/2013 1:52:00 PM	5/2/2013	5/17/2013
N010156-004A	MW-73-080-192	Water	5/1/2013 10:22:00 AM	5/2/2013	5/17/2013
N010156-004B	MW-73-080-192	Water	5/1/2013 10:22:00 AM	5/2/2013	5/17/2013
N010156-004C	MW-73-080-192	Water	5/1/2013 10:22:00 AM	5/2/2013	5/17/2013
N010156-005A	MW-120-192	Water	5/2/2013 9:30:00 AM	5/2/2013	5/17/2013
N010156-006A	MW-127-192	Water	5/2/2013 4:25:00 PM	5/2/2013	5/17/2013
N010156-006B	MW-127-192	Water	5/2/2013 4:25:00 PM	5/2/2013	5/17/2013
N010156-006C	MW-127-192	Water	5/2/2013 4:25:00 PM	5/2/2013	5/17/2013
N010156-007A	MW-19-192	Water	5/2/2013 10:10:00 AM	5/2/2013	5/17/2013
N010156-008A	MW-61-110-192	Water	5/2/2013 3:06:00 PM	5/2/2013	5/17/2013
N010156-008B	MW-61-110-192	Water	5/2/2013 3:06:00 PM	5/2/2013	5/17/2013
N010156-008C	MW-61-110-192	Water	5/2/2013 3:06:00 PM	5/2/2013	5/17/2013
N010156-009A	MW-65-225-192	Water	5/2/2013 1:16:00 PM	5/2/2013	5/17/2013
N010156-009B	MW-65-225-192	Water	5/2/2013 1:16:00 PM	5/2/2013	5/17/2013
N010156-009C	MW-65-225-192	Water	5/2/2013 1:16:00 PM	5/2/2013	5/17/2013
N010156-010A	MW-66-165-192	Water	5/2/2013 11:14:00 AM	5/2/2013	5/17/2013
N010156-010B	MW-66-165-192	Water	5/2/2013 11:14:00 AM	5/2/2013	5/17/2013
N010156-010C	MW-66-165-192	Water	5/2/2013 11:14:00 AM	5/2/2013	5/17/2013
N010156-011A	MW-74-240-192	Water	5/2/2013 8:21:00 AM	5/2/2013	5/17/2013
N010156-011B	MW-74-240-192	Water	5/2/2013 8:21:00 AM	5/2/2013	5/17/2013
N010156-011C	MW-74-240-192	Water	5/2/2013 8:21:00 AM	5/2/2013	5/17/2013



Page 1 of 1

Print Date: 17-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-40D-192

Lab Order: N010156 **Collection Date:** 5/1/2013 3:20:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010156-001

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130503A
 QC Batch:
 R88710
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 14000
 0.10
 0.10
 umhos/cm
 1
 5/3/2013

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



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 17-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-64BR-192

Lab Order: N010156 **Collection Date:** 5/1/2013 11:30:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010156-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130503A
 QC Batch:
 R88710
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 12000
 0.10
 0.10
 umhos/cm
 1
 5/3/2013

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



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 17-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-65-160-192

Lab Order: N010156 **Collection Date:** 5/1/2013 1:52:00 PM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010156-003

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE EPA 120.1

 RunID:
 WETCHEM_130503A
 QC Batch:
 R88710
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 3600
 0.10
 0.10
 umhos/cm
 1
 5/3/2013

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



Print Date: 17-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-73-080-192

Lab Order: N010156 **Collection Date:** 5/1/2013 10:22:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010156-004

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130503A
 QC Batch:
 R88710
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 9200
 0.10
 0.10
 umhos/cm
 1
 5/3/2013

Qualifiers: B Analyte

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



Print Date: 17-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-120-192

Lab Order: N010156 **Collection Date:** 5/2/2013 9:30:00 AM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010156-005

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130503A
 QC Batch:
 R88710
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 1900
 0.10
 0.10
 umhos/cm
 1
 5/3/2013

Qualifiers: B A

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



Print Date: 17-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-127-192

Lab Order: N010156 **Collection Date:** 5/2/2013 4:25:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010156-006

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130503A
 QC Batch:
 R88710
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 10000
 0.10
 umhos/cm
 1
 5/3/2013

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



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Print Date: 17-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-19-192

Lab Order: N010156 **Collection Date:** 5/2/2013 10:10:00 AM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010156-007

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130503A
 QC Batch:
 R88710
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 2000
 0.10
 0.10
 umhos/cm
 1
 5/3/2013

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



Print Date: 17-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-61-110-192

Lab Order: N010156 **Collection Date:** 5/2/2013 3:06:00 PM

 Project:
 PG&E Topock, 423575.MP.07.TS
 Matrix: WATER

 Lab ID:
 N010156-008

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE EPA 120.1

 RunID:
 WETCHEM_130503A
 QC Batch:
 R88710
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 14000
 0.10
 0.10
 umhos/cm
 1
 5/3/2013

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



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 17-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-65-225-192

Lab Order: N010156 **Collection Date:** 5/2/2013 1:16:00 PM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010156-009

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130503A
 QC Batch:
 R88710
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 10000
 0.10
 umhos/cm
 1
 5/3/2013

Qualifiers: B Analyte

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



Print Date: 17-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-66-165-192

Lab Order: N010156 **Collection Date:** 5/2/2013 11:14:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010156-010

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130503A
 QC Batch:
 R88710
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 4100
 0.10
 umhos/cm
 1
 5/3/2013

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



Print Date: 17-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL **Client Sample ID:** MW-74-240-192

Lab Order: N010156 Collection Date: 5/2/2013 8:21:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010156-011

Analyses **PQL** DF Result MDL Units Qual Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

QC Batch: R88711 RunID: WETCHEM_130503B PrepDate: Analyst: LCC Specific Conductance 810 0.10 0.10 umhos/cm 5/3/2013 1

Qualifiers: Analyte detected in the associated Method Blank

> Н Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

Value above quantitation range



Advanced Technology Laboratories, Inc.

ANALYTICAL QC SUMMARY REPORT CH2M HILL N010156

Date: 17-May-13

TestCode: 120.1_WPGE

PG&E Topock, 423575.MP.07.TS Project:

Work Order: CLIENT:

Sample ID: LCS-R88710	SampType: LCS	TestCo	de: 120.1_WP	TestCode: 120.1_WPGE Units: umhos/cm	os/cm	Prep Date:	:e:		RunNo: 88710	710	
Client ID: LCSW	Batch ID: R88710	Test	TestNo: EPA 120.1			Analysis Date: 5/3/2013	te: 5/3/201	ဗ	SeqNo: 1568425	38425	
Analyte	Result	PQL	SPK value	PQL SPK value SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit Qual	Qual
Specific Conductance	1396.000	0.10	1412	0	98.9	85	115				

Sample ID: N010156-010B-DUP SampType: DUP	SampType: DUP	TestCoc	le: 120.1_WPG	TestCode: 120.1_WPGE Units: umhos/cm	E;	Prep Date:			RunNo: 88710	10	
Client ID: ZZZZZ	Batch ID: R88710	TestN	TestNo: EPA 120.1		1	Analysis Date: 5/3/2013	: 5/3/2013	.	SeqNo: 1568436	8436	
Analyte	Result	PQL	SPK value SPK Ref Val	SPK Ref Val	%REC	LowLimit	-lighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit	Qual
Specific Conductance	4140.000	0.10						4120	0.484	10	
Sample ID: N010156-005A MS	SampType: MS	TestCod	e: 120.1_WPG	TestCode: 120.1_WPGE Units: umhos/cm	Ë	Prep Date:			RunNo: 88710	10	
Client ID: ZZZZZ	Batch ID: R88710	TestN	TestNo: EPA 120.1		1	Analysis Date: 5/3/2013	: 5/3/2013	m	SeqNo: 1568437	8437	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit	Qual
Specific Conductance	3376.000	0.20	1412	1949	101	75	125				
Sample ID: N010156-005A MSD SampType: MSD Client ID: ZZZZZZ Batch ID: R887	SampType: MSD Batch ID: R88710	TestCoc	stCode: 120.1_WPG TestNo: EPA 120.1	TestCode: 120.1_WPGE Units: umhos/cm TestNo: EPA 120.1		Prep Date: 5/3/2013	: 5/3/2013		RunNo: 88710 SeqNo: 1568438	10	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	«RPD	RPDLimit	Qual
Specific Conductance	3374.000	0.20	1412	1949	101	75	125	3376	0.0593	10	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691 Advanced Technology Laboratories, Inc.

Value above quantitation range ы ч

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

CH2M HILL CLIENT:

N010156 Work Order:

PG&E Topock, 423575.MP.07.TS Project:

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: LCS-R88711	SampType: LCS	TestCo	TestCode: 120.1_WPGE Units: umhos/cm	3E Units: um	nhos/cm	Prep Date:	 •		RunNo: 88711	11	
Client ID: LCSW	Batch ID: R88711	Test	TestNo: EPA 120.1			Analysis Date: 5/3/2013	e: 5/3/201	m	SeqNo: 1568441	8441	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	HighLimit RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1406.000	0.10	1412	0	9.66	85	115				
Sample ID: N010156-011B-DUP	SampType: DUP	TestCo	TestCode: 120.1_WPGE	3E Units: umhos/cm	nhos/cm	Prep Date:	 o		RunNo: 88711	=	
Client ID: ZZZZZ	Batch ID: R88711	Test	TestNo: EPA 120.1			Analysis Date:	e: 5/3/2013	8	SeqNo: 1568443	8443	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	809.000	0.10						807.0	0.248	10	
Sample ID: N010156-011B MS	SampType: MS	TestCo	TestCode: 120.1_WPGE Units: umhos/cm	3E Units: um	nhos/cm	Prep Date:	 ø		RunNo: 88711		
Client ID: ZZZZZ	Batch ID: R88711	Test	TestNo: EPA 120.1			Analysis Date: 5/3/2013	e: 5/3/201	8	SeqNo: 1568444	8444	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	HighLimit RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2208.000	0.20	1412	807.0	99.2	75	125				
Sample ID: N010156-011B MSD	SampType: MSD	TestCo	TestCode: 120.1_WPGE	3E Units: umhos/cm	nhos/cm	Prep Date:	 ø		RunNo: 88711		
Client ID: ZZZZZ	Batch ID: R88711	Test	TestNo: EPA 120.1			Analysis Date:	e: 5/3/2013	8	SeqNo: 1568445	8445	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	HighLimit RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2214.000	0.20	1412	807.0	9.66	75	125	2208	0.271	10	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

Advanced Technology Laboratories, Inc. DO Surrogate Diluted Out

Value above quantitation range ы ч

RPD outside accepted recovery limits Calculations are based on raw values

H Holding times for preparation or analysis exceeded S Ppike/Surrogate outside of limits due to matrix interference

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 17-May-13

Advanced Technology Laboratories, Inc.

CH2M HILL Client Sample ID: MW-40D-192

Lab Order: N010156 **Collection Date:** 5/1/2013 3:20:00 PM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010156-001

CLIENT:

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130510B	QC Batch: 428	387		PrepDate:	5/3/2013	Analyst: CEI
Arsenic	4.4	0.035	0.10	μg/L	1	5/10/2013 04:08 PM
Manganese	ND	0.16	0.50	μg/L	1	5/10/2013 04:08 PM
Molybdenum	50	0.37	2.5	μg/L	5	5/10/2013 03:14 PM
Selenium	2.0	0.084	0.50	μg/L	1	5/10/2013 04:08 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



Print Date: 17-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-64BR-192

Lab Order: N010156 **Collection Date:** 5/1/2013 11:30:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010156-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

DISSOLVED METALS BY ICP-MS

EPA 3010A EPA 6020

RunID: ICP7_130510B QC Batch: 42887 PrepDate: 5/3/2013 Analyst: CEI

Arsenic 3.4 0.035 0.10 μg/L 1 5/10/2013 02:25 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



Print Date: 17-May-13

Advanced Technology Laboratories, Inc.

 CLIENT:
 CH2M HILL
 Client Sample ID: MW-65-160-192

 Lab Order:
 N010156
 Collection Date: 5/1/2013 1:52:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010156-003

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130510B	QC Batch: 428	87		PrepDate:	5/3/2013	Analyst: CEI
Arsenic	1.1	0.035	0.10	μg/L	1	5/10/2013 02:30 PM
Manganese	16	0.16	0.50	μg/L	1	5/10/2013 02:30 PM
Molybdenum	23	0.074	0.50	μg/L	1	5/10/2013 02:30 PM
Selenium	7.3	0.084	0.50	μg/L	1	5/10/2013 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



Print Date: 17-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-73-080-192

Lab Order: N010156 **Collection Date:** 5/1/2013 10:22:00 AM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010156-004

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130510B	QC Batch: 428	387		PrepDate:	5/3/2013	Analyst: CEI
Arsenic	1.6	0.035	0.10	μg/L	1	5/10/2013 02:36 PM
Manganese	ND	0.16	0.50	μg/L	1	5/10/2013 02:36 PM
Molybdenum	20	0.37	2.5	μg/L	5	5/10/2013 03:40 PM
Selenium	4.8	0.084	0.50	μg/L	1	5/10/2013 02:36 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



Print Date: 17-May-13

Advanced Technology Laboratories, Inc.

CH2M HILL Client Sample ID: MW-127-192

Lab Order: N010156 **Collection Date:** 5/2/2013 4:25:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010156-006

CLIENT:

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130510B	QC Batch: 428	387		PrepDate:	5/3/2013	Analyst: CEI
Arsenic	2.6	0.035	0.10	μg/L	1	5/10/2013 02:41 PM
Manganese	ND	0.16	0.50	μg/L	1	5/10/2013 02:41 PM
Molybdenum	36	0.37	2.5	μg/L	5	5/10/2013 03:46 PM
Selenium	6.5	0.084	0.50	μg/L	1	5/10/2013 02:41 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



Print Date: 17-May-13

Advanced Technology Laboratories, Inc.

 CLIENT:
 CH2M HILL
 Client Sample ID: MW-61-110-192

 Lab Order:
 N010156
 Collection Date: 5/2/2013 3:06:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010156-008

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130510B	QC Batch: 428	87		PrepDate:	5/3/2013	Analyst: CEI
Arsenic	3.3	0.035	0.10	μg/L	1	5/10/2013 02:47 PM
Manganese	110	0.16	0.50	μg/L	1	5/10/2013 02:47 PM
Molybdenum	23	0.37	2.5	μg/L	5	5/10/2013 03:51 PM
Selenium	0.88	0.084	0.50	μg/L	1	5/15/2013 08:24 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



Print Date: 17-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-65-225-192

Lab Order: N010156 **Collection Date:** 5/2/2013 1:16:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER
Lab ID: N010156-009

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY IC	P-MS					
	EPA 3010A		EPA	A 6020		
RunID: ICP7_130510B	QC Batch: 428	87		PrepDate:	5/3/2013	Analyst: CEI
Arsenic	2.5	0.035	0.10	μg/L	1	5/10/2013 02:52 PM
Manganese	ND	0.16	0.50	μg/L	1	5/10/2013 02:52 PM
Molybdenum	36	0.37	2.5	μg/L	5	5/10/2013 03:57 PM
Selenium	6.9	0.42	2.5	μg/L	5	5/10/2013 03:57 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



Print Date: 17-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-66-165-192

Lab Order: N010156 **Collection Date:** 5/2/2013 11:14:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010156-010

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130510B	QC Batch: 428	887		PrepDate:	5/3/2013	Analyst: CEI
Arsenic	1.6	0.035	0.10	μg/L	1	5/10/2013 02:58 PM
Manganese	ND	0.16	0.50	μg/L	1	5/10/2013 02:58 PM
Molybdenum	5.6	0.074	0.50	μg/L	1	5/10/2013 02:58 PM
Selenium	37	0.084	0.50	μg/L	1	5/10/2013 02:58 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



Print Date: 17-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-74-240-192

Lab Order: N010156 **Collection Date:** 5/2/2013 8:21:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010156-011

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130510B	QC Batch: 428	887		PrepDate:	5/3/2013	Analyst: CEI
Arsenic	11	0.035	0.10	μg/L	1	5/10/2013 04:02 PM
Manganese	ND	0.16	0.50	μg/L	1	5/10/2013 04:02 PM
Molybdenum	78	0.074	0.50	μg/L	1	5/10/2013 04:02 PM
Selenium	1.8	0.084	0.50	μg/L	1	5/10/2013 04:02 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



Advanced Technology Laboratories, Inc.

ANALYTICAL QC SUMMARY REPORT CH2M HILL N010156 Work Order: CLIENT:

TestCode: 6020_DIS

Date: 17-May-13

PG&E Topock, 423575.MP.07.TS Project:

Sample ID: MB-42887	SampType: MBLK	TestCod	TestCode: 6020_DIS	Units: µg/L		Prep Date	Prep Date: 5/3/2013		RunNo: 88833		
Client ID: PBW	Batch ID: 42887	TestN	TestNo: EPA 6020	EPA 3010A	•	Analysis Date: 5/10/2013	5/10/201;	8	SeqNo: 1574105	92	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit F	RPD Ref Val	%RPD RF	RPDLimit	Qual
Arsenic Manganese Molybdenum Selenium	O N O O	0.10 0.50 0.50 0.50									
Sample ID: LCS-42887 Client ID: LCSW	SampType: LCS Batch ID: 42887	TestCod	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date: 5/3/2013 Analysis Date: 5/10/2013	Prep Date: 5/3/2013 Ilysis Date: 5/10/201 3	, m	RunNo: 88833 SeqNo: 1574106	90	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit F	RPD Ref Val	%RPD RF	RPDLimit	Qual
Arsenic Manganese	10.093 101.739	0.10	10.00	0	101	85 85	115				
Molybdenum Selenium	10.355 8.917	0.50	10.00	0	104	85	115				
· ·	SampType: MS	TestCod	TestCode: 6020_DIS	Units: µg/L		Prep Date:	e: 5/3/2013		RunNo: 88833		
Client ID: ZZZZZ	Batch ID: 42887	TestN	TestNo: EPA 6020	EPA 3010A		Analysis Date:	5/10/20		4		-
Analyte	Kesult	PQL	SPK value	SPK Ket Val	%KEC	LowLimit	HighLimit	RPD Ref Val	%KPD K	RPDLimit	Qual
Arsenic Manganese	20.533 88.192	0.10	10.00	11.08	94.5	75 75	125 125				
Molybdenum Selenium	84.970 10.720	0.50	10.00	78.46 1.831	65.1 88.9	75 75	125 125				S
Sample ID: N010156-011A-MSD	SampType: MSD	TestCod	TestCode: 6020_DIS	Units: µg/L		Prep Date:	e: 5/3/2013		RunNo: 88833		
Client ID: ZZZZZZ	Batch ID: 42887	TestN	TestNo: EPA 6020	EPA 3010A	•	Analysis Date: 5/10/2013	5/10/2013	ဗ	SeqNo: 1574141	Σ	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit		RPD Ref Val	%RPD RF	RPDLimit	Qual
Arsenic	21.085	0.10	10.00	11.08	100	75	125	20.53	2.65	20	

B Analyte detected in the associated Method Blank ND Not Detected at the Reporting Limit Advanced Technology DO Surrogate Diluted Out Laboratories, Inc. Qualifiers:

RPD outside accepted recovery limits Calculations are based on raw values ы ч

Value above quantitation range

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matric inter-

Spike/Surrogate outside of limits due to matrix interference

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

PG&E Topock, 423575.MP.07.TS Project:

CH2M HILL

N010156

CLIENT: Work Order:

Sample ID: N010156-011A-MSD SampType: MSD	SampType: MSD	TestCo	TestCode: 6020_DIS	Units: µg/L		Prep Date:	e: 5/3/2013	_	RunNo: 88833	333	
Client ID: ZZZZZZ	Batch ID: 42887	Test	TestNo: EPA 6020	EPA 3010A		Analysis Date: 5/10/2013	e: 5/10/20	2	SeqNo: 1574141	74141	
Analyte	Result	PQL		SPK value SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit Qual	Qual
Manganese	89.499	0.50	100.0	0	89.5	75	125	88.19	1.47	20	
Molybdenum	84.658	0.50	10.00	78.46	62.0	75	125	84.97	0.367	20	S
Selenium	10.849	0.50	10.00	1.831	90.2	75	125	10.72	1.20	20	

iers:	
) Jualifi	
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- B Analyte detected in the associated Method Blank
 - ND Not Detected at the Reporting Limit
 - DO Surrogate Diluted Out

Advanced Technology 3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691 Laboratories, Inc.

- E Value above quantitation rangeR RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded S Ppike/Surrogate outside of limits due to matrix interference

CH2MHILL

CHAIN OF CUSTODY RECORD

5/2/2013 4:08:54 PM

Page 1 OF 1

Project Name PG	RE Topos	k	Container:	500 ml	500 ml	1 Liter	1Liter		Ī	
Location Topoci				Poly	Poly	Poly	Poly			
Project Manager		Pres	servatives:	HNO3, 4°C	HNO3, 4°C	4°C	4°C			
Sample Manager		ffv	Filtered:	Field	Field	NA.	NA			
			ding Time:		180	14	30			
Project Number 423575.MP.07.TS Task Order Project 2013-GMP-192-Q2 Turnaround Time 10 Days Shipping Date: 5/2/2013 COC Number: 14 DATE TIME Matrix			Arsenic (6020A) Field Filtered	Metals (6020A) Field Filtered Mo, Se, Mn	Specific Conductance (E120.1)	Extra (*)		Number of Containers	COMMENTS	
MW-40D-192	5/1/2013	15:20	Water	×	ж	Х		4010156 -1	2	
MW-64BR-	5/1/2013	11:30	Water	х		X		1 -2	2	
MW-65-160-192	5/1/2013	13:52	Water	х	Х	Х	Х	-3	3	
MW-73-080-192	5/1/2013	10:22	Water	х	х	Х	Х	-4	3	
MW-120-192	5/2/2013	9:30	Water			Х		-\$	1	
MW-127-192	5/2/2013	16:25	Water	х	х	Х	Х	-6	3	
MW-19-192	5/2/2013	10:10	Water			X		- 7:	1	
MW-61-110-192	5/2/2013	15:06	Water	х	х	Х	Х	- 8	3	
MW-65-225-192	5/2/2013	13:16	Water	Х	Х	х	Х	-9'	3	
MW-66-165-192	5/2/2013	11:14	Water	Х	Х	Х	х	- 10	3	
MW-74-240-192	5/2/2013	8:21	Water	Х	×	Х	Х		3	
		-			 				<u>.</u>	

Approved by Sampled by Relinquished by

Received by Relinquished by Received by

Signatures 1610

Date/Time 5-2-13

J-2-13 1610

Shipping Details Method of Shipment:

On ice: yes

Airbill No:

Lab Name: ADVANCED TECHNOLOGY LABORATO

Lab Phone: (702) 307-2659

ATTN:

Special Instructions:

Sample Custody

and

Marion

April 15 to May 9, 2013

Report Copy to

Shawn Duffy (530) 229-3303

Please review the checklist as having an impact on the If you have any questions of Cooler Received/Opened On: Rep sample Temp (Deg C): Temp Blank:	quality of	the data. All tes	sts will be perfo	ormed as red				
Cooler Received/Opened On: Rep sample Temp (Deg C):	5/2/2013	nstruction, pleas	e contact our F	Project Coord				
Rep sample Temp (Deg C):					dinator at (702) 307-2659.		
, , , , , , , , , , , , , , , , , , , ,	5.2				Workorder:	N010156		
Tomp Blank					IR Gun ID:	1		
Temp blank.	Yes	∀ No						
Carrier name:	ATL.							
Last 4 digits of Tracking No.:	NA			Packing	Material Used:	None		
Cooling process:	✓ Ice	☐ Ice Pack	Dry Ice	Other	None			
		<u>s</u>	ample Recei	ot Checklis	ţ			
1. Shipping container/cooler in	good cond	ition?			Yes 🗹	No 🗀	Not Present	
2. Custody seals intact, signed	f, dated on	shippping contain	er/cooler?		Yes 🗌	No 🗌	Not Present	V
3. Custody seals intact on sam	ple bottles	?			Yes []	No 🗌	Not Present	V
4. Chain of custody present?					Yes 🔽	No 🗀		
5. Sampler's name present in 0	COC?				Yes 🗸	No 🗌		
6. Chain of custody signed who	en relinquis	hed and received	?		Yes 🗸	No 🗀		
7. Chain of custody agrees with	h sample la	bels?			Yes 🗸	No 🗔		
8. Samples in proper container	r/bottle?				Yes 🗹	No 🗌		
9. Sample containers intact?					Yes 🗸	No 🗀		
10. Sufficient sample volume f	or indicated	test?			Yes 🗸	No 🗆		
11. All samples received within	n holding tìn	ne?			Yes 🗸	No 🗀		
12. Temperature of rep sample	e or Temp E	Blank within accep	table limit?		Yes 🗸	No 🗌	NA	
13. Water - VOA vials have ze	ro headspa	ice?			Yes 🗌	No 🗌	NA	V
14. Water - pH acceptable upo Example: pH > 12 for (C	•	for Metals			Yes 🗸	No 🗌	NA	
15. Did the bottle labels indicate	te correct p	reservatives used	?		Yes 🗸	No 🗌	NA	
16. Were there Non-Conforma W	ince issues las Client no				Yes 🗌	No 🗌 No 🗌	NA NA	
Comments:								

Mac 5/0/13

MBC

Checklist Completed B

Reviewed By:

Sample Calculation

METHOD: EPA 6020

TEST NAME: Heavy Metals by ICP-MS

MATRIX: Aqueous

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

Arsenic, ug/L

A * DF * PF

where:

A = ug/L, calculated concentration

DF = dilution factor

PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N010156-002A, the concentration in ug/L is calculated as follows:

Arsenic, ug/L

3.35232955414993 * 1 * (25/25)

DECEMBER OF THE PERSONS ASSESSED.

3.35232955414993

Reporting results in two significant figures,

Arsenic, ug/L

3.4

Ms for sharly

ICP-Metals in Water

Dilution Test Summary

Work Order No.:

N010156

Test Method: Analysis Date: EPA 6020 05/10/13 Matrix:

Water

Batch No.:

42887

Instrument ID:

nent ID:

ICP-MS #2

Instrument Description:

Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Mn and Se. The calculated values are <25X RL. PS @2X passed criteria.

Dilution test of As failed. However, PS@2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N010156-011A-DT 5X	Arsenic	μg/L	12.42766893	FAILED	11.0805065	12.16%	10
N010156-011A-DT 5X	Manganese	μg/L	0	NA.	0	0.00%	10
N010156-011A-DT 5X	Molybdenum	μg/L	80.64137298	PASSED	78.45765653	2.78%	10
N010156-011A-DT 5X	Selenium	μg/L	1.661406065	NA	1.830514354	9.24%	10

Note: NA - Not applicable

CLIENT:

CH2M HILL

Work Order:

N010156

Project:

PG&E Topock, 423575.MP.07.TS

Date: 16-May-13

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N010156-011A-PS Client ID: ZZZZZZ	SampType: PS Batch ID: 42887		de: 6020_DIS No: EPA 6020			Prep Da Analysis Da	te: 5/3/201 te: 5/10/20		RunNo: 888 SeqNo: 157		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	30.776	0.20	20.00	11.08	98.5	75	125				, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Manganese	189.276	1.0	200.0	0	94.6	75	125				
Molybdenum	98.657	1.0	20.00	78.46	101	75	125				
Selenium	19.802	1.0	20.00	1.831	89.9	75	125				











- 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

May 22, 2013

Shawn P. Duffy

CH2M HILL

155 Grand Avenue, Suite 1000

Oakland, CA 94612

TEL: (530) 229-3303

FAX: (530) 339-3303

RE: PG&E Topock, 423575.MP.07.TS

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on May 07, 2013 by Advanced Technology Laboratories, Inc. . 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,

Jose Tenorio Jr.

& Grogesmundo

Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



CA-ELAP No.: 2676

NV Cert. No.: NV-009222007A

Workorder No.: N010190

CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.07.TS CASE NARRATIVE

Date: 22-May-13

Lab Order: N010190

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.



CLIENT: CH2M HILL

Work Order Sample Summary Project: PG&E Topock, 423575.MP.07.TS

Date: 22-May-13

N010190 Lab Order: **Contract No:** 2013-GMP-192-

Lab Sample ID Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N010190-001A MW-57-070-192	Water	5/6/2013 1:39:00 PM	5/7/2013	5/22/2013
N010190-001B MW-57-070-192	Water	5/6/2013 1:39:00 PM	5/7/2013	5/22/2013
N010190-002A MW-60-125-192	Water	5/6/2013 11:30:00 AM	5/7/2013	5/22/2013
N010190-002B MW-60-125-192	Water	5/6/2013 11:30:00 AM	5/7/2013	5/22/2013
N010190-002C MW-60-125-192	Water	5/6/2013 11:30:00 AM	5/7/2013	5/22/2013
N010190-003A MW-69-195-192	Water	5/6/2013 2:50:00 PM	5/7/2013	5/22/2013
N010190-003B MW-69-195-192	Water	5/6/2013 2:50:00 PM	5/7/2013	5/22/2013
N010190-003C MW-69-195-192	Water	5/6/2013 2:50:00 PM	5/7/2013	5/22/2013
N010190-004A MW-24BR-192	Water	5/7/2013 9:32:00 AM	5/7/2013	5/22/2013
N010190-005A MW-26-192	Water	5/7/2013 10:57:00 AM	5/7/2013	5/22/2013
N010190-005B MW-26-192	Water	5/7/2013 10:57:00 AM	5/7/2013	5/22/2013
N010190-006A MW-31-060-192	Water	5/7/2013 3:36:00 PM	5/7/2013	5/22/2013
N010190-007A MW-60BR-245-192	Water	5/7/2013 8:38:00 AM	5/7/2013	5/22/2013
N010190-007B MW-60BR-245-192	Water	5/7/2013 8:38:00 AM	5/7/2013	5/22/2013
N010190-007C MW-60BR-245-192	Water	5/7/2013 8:38:00 AM	5/7/2013	5/22/2013
N010190-008A MW-70BR-225-192	Water	5/7/2013 1:55:00 PM	5/7/2013	5/22/2013
N010190-008B MW-70BR-225-192	Water	5/7/2013 1:55:00 PM	5/7/2013	5/22/2013
N010190-008C MW-70BR-225-192	Water	5/7/2013 1:55:00 PM	5/7/2013	5/22/2013



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-57-070-192

Lab Order: N010190 **Collection Date:** 5/6/2013 1:39:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010190-001

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130508A
 QC Batch:
 R88768
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 2100
 0.10
 umhos/cm
 1
 5/8/2013

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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-60-125-192

Lab Order: N010190 **Collection Date:** 5/6/2013 11:30:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010190-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130508A
 QC Batch:
 R88768
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 8600
 0.10
 0.10
 umhos/cm
 1
 5/8/2013

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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-69-195-192

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010190-003

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130508A
 QC Batch:
 R88768
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 3600
 0.10
 0.10
 umhos/cm
 1
 5/8/2013

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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-24BR-192

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010190-004

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130508A
 QC Batch:
 R88768
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 14000
 0.10
 0.10
 umhos/cm
 1
 5/8/2013

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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-26-192

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010190-005

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130508A
 QC Batch:
 R88768
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 3900 0.10 0.10 umhos/cm
 1 5/8/2013

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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-31-060-192

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010190-006

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130508A
 QC Batch:
 R88768
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 3600
 0.10
 0.10
 umhos/cm
 1
 5/8/2013

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



Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

Lab Order: N010190

Project: PG&E Topock, 423575.MP.07.TS

Lab ID: N010190-007

Client Sample ID: MW-60BR-245-192

Print Date: 22-May-13

Collection Date: 5/7/2013 8:38:00 AM

Matrix: WATER

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130508A
 QC Batch:
 R88768
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 18000
 0.10
 0.10
 umhos/cm
 1
 5/8/2013

Qualifiers:

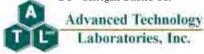
Analyte detected in the associated Method Blank

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



Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

Lab Order: N010190

Project: PG&E Topock, 423575.MP.07.TS

Lab ID: N010190-008

Client Sample ID: MW-70BR-225-192

Print Date: 22-May-13

Collection Date: 5/7/2013 1:55:00 PM

Matrix: WATER

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130508A
 QC Batch:
 R88768
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 13000
 0.10
 0.10
 umhos/cm
 1
 5/8/2013

Qualifiers:

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



CH2M HILL

CLIENT:

N010190

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Date: 22-May-13

PG&E Topock, 423575.MP.07.TS Work Order: Project:

Qual %RPD RPDLimit SeqNo: 1571223 RunNo: 88768 %REC LowLimit HighLimit RPD Ref Val Analysis Date: 5/8/2013 Prep Date: 85 107 TestCode: 120.1_WPGE Units: umhos/cm SPK value SPK Ref Val 0 TestNo: EPA 120.1 9992 PQL 0.10 Batch ID: R88768 Result 10720.000 SampType: LCS Sample ID: LCS-R88768 Specific Conductance Client ID: LCSW Analyte

Sample ID: N010190-001A-DUP SampType: DUP	SampType: DUP	TestCode: 120.1_W	TestCode: 120.1_WPGE Units: umhos/cm	/cm	Prep Date:	RunNo: 88768	
Client ID: ZZZZZZ	Batch ID: R88768	TestNo: EPA 120.1	₹.		Analysis Date: 5/8/2013	SeqNo: 1571233	
Analyte	Result	PQL SPK value	SPK Ref Val	%REC	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Specific Conductance	2100.000	0.10			2100	0 10	
Sample ID: N010190-002B MS Client ID: ZZZZZZ	SampType: MS Batch ID: R88768	TestCode: 120.1_WP TestNo: EPA 120.1	TestCode: 120.1_WPGE Units: umhos/cm TestNo: EPA 120.1		Prep Date: Analysis Date: 5/8/2013	RunNo: 88768 SeqNo: 1571234	
Analyte	Result	PQL SPK value	SPK value SPK Ref Val	%REC	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Specific Conductance	18540.000	0.20 9992	8630	99.2	75 125		
Sample ID: N010190-002B MSD SampType: MSD Client ID: ZZZZZZ Batch ID: R887	SampType: MSD Batch ID: R88768	TestCode: 120.1_WP - TestNo: EPA 120.1	TestCode: 120.1_WPGE Units: umhos/cm TestNo: EPA 120.1		Prep Date: Analysis Date: 5/8/2013	RunNo: 88768 SeqNo: 1571235	
Analyte	Result	PQL SPK value	SPK Ref Val	%REC	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit	Qual

В Qualifiers:

Analyte detected in the associated Method Blank ND Not Detected at the Reporting Limit

RPD outside accepted recovery limits Calculations are based on raw values ы к

Value above quantitation range

Spike/Surrogate outside of limits due to matrix interference Holding times for preparation or analysis exceeded H

10

0.108

18540

125

75

99.4

8630

9992

0.20

18560.000

Specific Conductance

Advanced Technology DO Surrogate Diluted Out Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-60-125-192

Lab Order: N010190 **Collection Date:** 5/6/2013 11:30:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010190-002

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY IC	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130521A	QC Batch: 429	974		PrepDate:	5/13/2013	Analyst: CEI
Arsenic	2.0	0.035	0.10	μg/L	1	5/21/2013 06:00 PM
Manganese	ND	0.16	0.50	μg/L	1	5/21/2013 06:00 PM
Molybdenum	14	0.074	0.50	μg/L	1	5/21/2013 06:00 PM
Selenium	5.0	0.084	0.50	μg/L	1	5/21/2013 06:00 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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

 CLIENT:
 CH2M HILL
 Client Sample ID: MW-69-195-192

 Lab Order:
 N010190
 Collection Date: 5/6/2013 2:50:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010190-003

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130521A	QC Batch: 429	974		PrepDate:	5/13/2013	Analyst: CEI
Arsenic	2.6	0.035	0.10	μg/L	1	5/21/2013 07:00 PM
Manganese	ND	0.16	0.50	μg/L	1	5/21/2013 07:00 PM
Molybdenum	53	0.074	0.50	μg/L	1	5/21/2013 07:00 PM
Selenium	11	0.084	0.50	μg/L	1	5/21/2013 07:00 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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-26-192

Lab Order: N010190 **Collection Date:** 5/7/2013 10:57:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010190-005

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130521A	QC Batch: 429	74		PrepDate:	5/13/2013	Analyst: CEI
Arsenic	2.2	0.035	0.10	μg/L	1	5/21/2013 07:05 PM
Manganese	ND	0.16	0.50	μg/L	1	5/21/2013 07:05 PM
Molybdenum	24	0.074	0.50	μg/L	1	5/21/2013 07:05 PM
Selenium	43	0.084	0.50	μg/L	1	5/21/2013 07:05 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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL
Lab Order: N010190

Project: PG&E Topock, 423575.MP.07.TS

Lab ID: N010190-007

Client Sample ID: MW-60BR-245-192

Collection Date: 5/7/2013 8:38:00 AM

Matrix: WATER

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130521A	QC Batch: 429	974		PrepDate:	5/13/2013	Analyst: CEI
Arsenic	7.7	0.035	0.10	μg/L	1	5/21/2013 07:11 PM
Manganese	ND	0.16	0.50	μg/L	1	5/21/2013 07:11 PM
Molybdenum	51	0.37	2.5	μg/L	5	5/21/2013 09:20 PM
Selenium	1.9	0.084	0.50	μg/L	1	5/21/2013 07:11 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



Print Date: 22-May-13

Advanced Technology Laboratories, Inc.

 CLIENT:
 CH2M HILL
 Client Sample ID: MW-70BR-225-192

 Lab Order:
 N010190
 Collection Date: 5/7/2013 1:55:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010190-008

Analyses	Result Mi	DL PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY IC	CP-MS				
	EPA 3010A	E	EPA 6020		
RunID: ICP7_130521A	QC Batch: 42974		PrepDate:	5/13/2013	Analyst: CEI
Arsenic	3.1 0.	035 0.10	μg/L	1	5/21/2013 07:16 PM
Manganese	ND 0	.16 0.50	μg/L	1	5/21/2013 07:16 PM
Molybdenum	16 0	.37 2.5	μg/L	5	5/21/2013 09:30 PM
Selenium	2.9 0.	0.50	μg/L	1	5/21/2013 07:16 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



ANALYTICAL QC SUMMARY REPORT TestCode: 6020_DIS PG&E Topock, 423575.MP.07.TS CH2M HILL N010190 Work Order: CLIENT: Project:

Date: 22-May-13

Sample ID: LCS-42974	SampType: LCS	TestCod	TestCode: 6020_DIS	Units: µg/L		Prep Date			RunNo: 88952	
Client ID: LCSW	Batch ID: 42974	TestN	TestNo: EPA 6020	EPA 3010A	•	Analysis Date:	5/21/2013		SeqNo: 1582348	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD	RPD Ref Val	%RPD RPDLimit	Qual
Arsenic Manganese Molybdenum Selenium	9.661 98.004 9.918 9.380	0.10 0.50 0.50 0.50	10.00 100.0 10.00	0000	96.6 98.0 99.2 93.8	85 85 85	115 115 115			
Sample ID: N010190-003A-MS Client ID: ZZZZZ	SampType: MS Batch ID: 42974	TestCod	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date: Analysis Date:	5/13/2013 5/21/2013		RunNo: 88952 SeqNo: 1582354	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD	RPD Ref Val	%RPD RPDLimit	Qual
Arsenic Manganese Molybdenum Selenium	10.439 112.375 61.276 19.314	0.10 0.50 0.50 0.50	10.00 100.0 10.00	2.641 0 53.15 11.31	78.0 112 81.2 80.1	75 75 75	125 125 125 125			
Sample ID: N010190-003A-MSD Client ID: ZZZZZ	SampType: MSD Batch ID: 42974	TestCod	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date: Analysis Date:	: 5/13/2013 : 5/21/2013		RunNo: 88952 SeqNo: 1582355	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD	RPD Ref Val	%RPD RPDLimit	Qual
Arsenic Manganese Molybdenum Selenium	10.695 116.201 61.294 20.062	0.10 0.50 0.50 0.50	10.00 100.0 10.00	2.641 0 53.15 11.31	80.5 116 81.4 87.6	57 57 57 57	125 125 125 125	10.44 112.4 61.28 19.31	2.42 20 3.35 20 0.0288 20 3.80 20	
Sample ID: MB-42974 Client ID: PBW	SampType: MBLK Batch ID: 42974	TestCod	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date: Analysis Date:	5/13/2013 5/21/2013		RunNo: 88952 SeqNo: 1582366	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD	RPD Ref Val	%RPD RPDLimit	Qual

Analyte detected in the associated Method Blank ND Not Detected at the Reporting Limit Advanced Technology Laboratories, Inc. DO Surrogate Diluted Out В Qualifiers:

RPD outside accepted recovery limits Calculations are based on raw values

Value above quantitation range

ы ч

0.10

S

Arsenic

Spike/Surrogate outside of limits due to matrix interference Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix inter

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

PG&E Topock, 423575.MP.07.TS Project:

CH2M HILL

N010190

Work Order: CLIENT:

Sample ID: MB-42974	SampType: MBLK	TestCode	TestCode: 6020_DIS	Units: µg/L		Prep Da	Prep Date: 5/13/2013		RunNo: 88952	52	
Client ID: PBW	Batch ID: 42974	TestNo	TestNo: EPA 6020	EPA 3010A		Analysis Da	Analysis Date: 5/21/2013		SeqNo: 1582366	2366	
Analyte	Result	PQL	SPK value	PQL SPK value SPK Ref Val	%REC	LowLimit	%REC LowLimit HighLimit RPD Ref Val	əf Val	%RPD	%RPD RPDLimit Qual	Qual
Manganese	QN	0.50									
Molybdenum	QN	0.50									
Selenium	QN	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691 Advanced Technology Laboratories, Inc.

Value above quantitation range

RPD outside accepted recovery limits Calculations are based on raw values ы ч

Spike/Surrogate outside of limits due to matrix interference Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix inter-

CH2MHIL	L							CHAIN OF CUSTODY RECORD 5/7/2013 3:36:33 PM Page 1	OF	1
Project Name PG Location Topoci Project Manager	k		Container: ervatives:	500 ml Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	1 Liter Poly 4°C	1Liter Poly 4°C			
Sample Manager	Sample Manager Shawn Duffy Filtered: Field Field NA NA Holding Time: 180 180 14 30			NA 14	NA 30					
Project Number Task Order Project 2013-GM Turnaround Time Shipping Date: 5 COC Number: 17	P-192-Q2 10 Days /7/2013	s	Matrix	Arsenic (6020A) Field Filtered	Metals (6020A) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Extra (*)		Number of Containers	COMMENTS
MW-57-070-192	5/6/2013	13:39	Water			х	х	NO10190-1	2	j.
MW-60-125-192	5/6/2013	11:30	Water	Х	ж	х	х	1 -2	3	1.
MW-69-195-192	5/6/2013	14:50	Water	ж	х	х	х	~3	3	·
MW-24BR-192	5/7/2013	9:32	Water			х		-4	1	
MW-26-192	5/7/2013	10:57	Water	х	х	х		-5	2	
MW-31-060-192	5/7/2013	15:36	Water			х		-6	1	

3

3

18

TOTAL NUMBER OF CONTAINERS

Date/Time |6|0 5-7-/3 **S**ignatures Special Instructions: **Shipping Details** Approved by ATTN: April 15 to May 9, 2013 Method of Shipment: courier Sampled by On Ice: (es) no 3.4 121 Sample Custody Relinquished by 5/7/13 1610 Airbill No: Received by Received by and Report Copy to Lab Name: ADVANCED TECHNOLOGY LABORATO Shawn Duffy Marlon Lab Phone: (702) 307-2659 Received by (530) 229-3303

MW-60BR-245-192

MW-70BR-225-192

5/7/2013

5/7/2013

8:38

13:55

Water

Water

X

X

X

X

X

X

X

X

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 of		istruction, pleas	se contact our l	Project Coord	·		
Cooler Received/Opened On:	5/7/2013				Workorder:		
Rep sample Temp (Deg C):	3.4	Ca			IR Gun ID:	1	
Temp Blank:	Yes	₩ No					
Carrier name:	ATL						
Last 4 digits of Tracking No.:	NA				Material Used:	None	
Cooling process:	✓ Ice	lce Pack	Dry Ice	Other	None		
		<u>s</u>	ample Recei	pt Checklist	<u> </u>		
1. Shipping container/cooler in	good cond	ition?			Yes 🗹	No 🗌	Not Present
2. Custody seals intact, signed	i, dated on	shippping contain	er/cooler?		Yes 🗌	No 🗀	Not Present
3. Custody seals intact on sam	nple 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 who	en relinquis	hed and received	?		Yes 🗹	No 🗌	
7. Chain of custody agrees wit	h sample la	bels?			Yes 🗸	No 🗌	
8. Samples in proper containe	r/bottle?				Yes 🔽	No 🗔	
9. Sample containers intact?					Yes 🗸	No 🗀	
10. Sufficient sample volume f	or indicated	I test?			Yes 🗸	No 🗔	
11. All samples received within	n holding tin	ne?			Yes 🗸	No 🗔	
12. Temperature of rep sample	e or Temp E	3lank within accep	otable limit?		Yes 🗸	No 🗆	NA 🗆
13. Water - VOA vials have ze	ro headspa	ce?			Yes	No 🗌	NA 🗹
14. Water - pH acceptable upon Example: pH > 12 for (C	·-	for Metals			Yes 🗹	No 🗌	NA 🗆
15. Did the bottle labels indica			1?		Yes 🗸	No 🗌	NA 🗀
16. Were there Non-Conforma	•				Yes []	No 🗀	NA 🗹
	/as Client n	-			Yes 🗌	No 🗌	NA 🗹
Comments:							
Checklist Completed B	мвс //	mc 5/2/1	3			Reviewed By:	Jos.

Sample Calculation

METHOD: EPA 6020

TEST NAME: Heavy Metals by ICP-MS

MATRIX: Aqueous

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

Arsenic, ug/L

: A * DF * PF

where:

A = ug/L, calculated concentration

DF = dilution factor

PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N010190-002A, the concentration in ug/L is calculated as follows:

Arsenic, ug/L

2.00666294159031 * 1 * (25/25)

= 2.00666294159031

Reporting results in two significant figures,

Arsenic, ug/L

2.0

Mgn otroh3

ICP-Metals in Water

Dilution Test Summary

Work Order No.: Test Method:

N010190

Analysis Date:

EPA 6020 05/21/13

Matrix:

Water Batch No.: 42974

Instrument ID:

ICP-MS #2

Instrument Description:

Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to As and Mn. The calculated values were <25X RL. PS @2X passed criteria. Dilution test of Mo and Se failed. However, PS@2X passed criteria.

M for Anliz

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N010190-003A-DT 5X	Arsenic	µg/L	2.2551	NA	2.6408	14.61%	10
N010190-003A-DT 5X	Manganese	μg/L	0.0000	NA	0.0000	0.00%	10
N010190-003A-DT 5X	Molybdenum	μg/L	61.9010	FAILED	53.1509	16.46%	10
N010190-003A-DT 5X	Selenium	μg/L	13.8397	FAILED	11.3068	22.40%	10

Note: NA - Not applicable

Date: 22-May-13

CLIENT:

CH2M HILL

Work Order:

N010190

Project:

PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N010190-003A-PS	SampType: PS	TestCo	de: 6020_DIS	Units: µg/L		Prep Dat	te:		RunNo: 889	52	
Client ID: ZZZZZZ	Batch ID: 42974	Test !	No: EPA 6020	EPA 3010A		Analysis Da	te: 5/21/2 0	13	SeqNo: 158	32360	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.449	0.20	20.00	2.641	89.0	75	125				
Manganese	142,784	1.0	200.0	0	71.4	75	125				(s `
Molybdenum	75.936	1.0	20.00	53.15	114	75	125				Camero Carrer
Selenium	30.780	1.0	20.00	11.31	97.4	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

May 29, 2013

Shawn P. Duffy

CH2M HILL

155 Grand Avenue, Suite 1000

Oakland, CA 94612

TEL: (530) 229-3303

FAX: (530) 339-3303

RE: PG&E Topock, 423575.MP.07.TS

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on May 09, 2013 by Advanced Technology Laboratories, Inc. . 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.

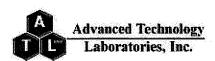
Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Jose Tenorio Jr.

Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



CA-ELAP No.: 2676

NV Cert. No.: NV-009222007A

Workorder No.: N010222

CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.07.TS CASE NARRATIVE

Date: 29-May-13

Lab Order: N010222

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike Duplicate (MSD) is outside recovery criteria for Antimony possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.07.TS Work Order Sample Summary

Date: 29-May-13

Lab Order: N010222

Contract No: 2013-GMP-192-

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N010222-001A	MW-62-110-192	Water	5/8/2013 2:39:00 PM	5/9/2013	5/29/2013
N010222-001B	MW-62-110-192	Water	5/8/2013 2:39:00 PM	5/9/2013	5/29/2013
N010222-001C	MW-62-110-192	Water	5/8/2013 2:39:00 PM	5/9/2013	5/29/2013
N010222-002A	MW-62-190-192	Water	5/8/2013 2:52:00 PM	5/9/2013	5/29/2013
N010222-002B	MW-62-190-192	Water	5/8/2013 2:52:00 PM	5/9/2013	5/29/2013
N010222-002C	MW-62-190-192	Water	5/8/2013 2:52:00 PM	5/9/2013	5/29/2013
N010222-003A	MW-68-240-192	Water	5/8/2013 11:46:00 AM	5/9/2013	5/29/2013
N010222-003B	MW-68-240-192	Water	5/8/2013 11:46:00 AM	5/9/2013	5/29/2013
N010222-003C	MW-68-240-192	Water	5/8/2013 11:46:00 AM	5/9/2013	5/29/2013
N010222-004A	MW-68BR-280-192	Water	5/8/2013 10:28:00 AM	5/9/2013	5/29/2013
N010222-004B	MW-68BR-280-192	Water	5/8/2013 10:28:00 AM	5/9/2013	5/29/2013
N010222-004C	MW-68BR-280-192	Water	5/8/2013 10:28:00 AM	5/9/2013	5/29/2013
N010222-005A	MW-12-192	Water	5/9/2013 11:22:00 AM	5/9/2013	5/29/2013
N010222-005B	MW-12-192	Water	5/9/2013 11:22:00 AM	5/9/2013	5/29/2013
N010222-006A	MW-128-192	Water	5/9/2013 6:42:00 AM	5/9/2013	5/29/2013
N010222-006B	MW-128-192	Water	5/9/2013 6:42:00 AM	5/9/2013	5/29/2013
N010222-006C	MW-128-192	Water	5/9/2013 6:42:00 AM	5/9/2013	5/29/2013
N010222-007A	MW-20-070-192	Water	5/9/2013 1:08:00 PM	5/9/2013	5/29/2013
N010222-007B	MW-20-070-192	Water	5/9/2013 1:08:00 PM	5/9/2013	5/29/2013
N010222-008A	MW-20-100-192	Water	5/9/2013 2:23:00 PM	5/9/2013	5/29/2013
N010222-008B	MW-20-100-192	Water	5/9/2013 2:23:00 PM	5/9/2013	5/29/2013
N010222-009A	MW-67-185-192	Water	5/9/2013 10:08:00 AM	5/9/2013	5/29/2013
N010222-009B	MW-67-185-192	Water	5/9/2013 10:08:00 AM	5/9/2013	5/29/2013
N010222-009C	MW-67-185-192	Water	5/9/2013 10:08:00 AM	5/9/2013	5/29/2013
N010222-010A	MW-67-225-192	Water	5/9/2013 9:11:00 AM	5/9/2013	5/29/2013
N010222-010B	MW-67-225-192	Water	5/9/2013 9:11:00 AM	5/9/2013	5/29/2013
N010222-010C	MW-67-225-192	Water	5/9/2013 9:11:00 AM	5/9/2013	5/29/2013
N010222-011A	MW-67-260-192	Water	5/9/2013 8:23:00 AM	5/9/2013	5/29/2013
N010222-011B	MW-67-260-192	Water	5/9/2013 8:23:00 AM	5/9/2013	5/29/2013



Page 1 of 2

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.07.TS

Lab Order: N010222

Contract No: 2013-GMP-192-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N010222-011C M	MW-67-260-192	Water	5/9/2013 8:23:00 AM	5/9/2013	5/29/2013



Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

 CLIENT:
 CH2M HILL
 Client Sample ID: MW-62-110-192

 Lab Order:
 N010222
 Collection Date: 5/8/2013 2:39:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010222-001

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130510B
 QC Batch:
 R88812
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 7800
 0.10
 umhos/cm
 1
 5/10/2013

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



Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

 CLIENT:
 CH2M HILL
 Client Sample ID: MW-62-190-192

 Lab Order:
 N010222
 Collection Date: 5/8/2013 2:52:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010222-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130510B
 QC Batch:
 R88812
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 1600
 0.10
 0.10
 umhos/cm
 1
 5/10/2013

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



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-68-240-192

Lab Order: N010222 **Collection Date:** 5/8/2013 11:46:00 AM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010222-003

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130510B
 QC Batch:
 R88812
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 14000
 0.10
 0.10
 umhos/cm
 1
 5/10/2013

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



Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-68BR-280-192

Lab Order: N010222 Collection Date: 5/8/2013 10:28:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010222-004

Result MDL **PQL** Analyses Units DF Qual Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

QC Batch: R88812 RunID: WETCHEM_130510B PrepDate: Analyst: LCC Specific Conductance 19000 0.10 0.10 umhos/cm 5/10/2013 1

Qualifiers: Analyte detected in the associated Method Blank

> Н Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

Value above quantitation range



Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-12-192

Lab Order: N010222 **Collection Date:** 5/9/2013 11:22:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010222-005

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130510B
 QC Batch:
 R88812
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 6300
 0.10
 0.10
 umhos/cm
 1
 5/10/2013

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



Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-128-192

Lab Order: N010222 **Collection Date:** 5/9/2013 6:42:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010222-006

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130510B
 QC Batch:
 R88812
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 16000
 0.10
 0.10
 umhos/cm
 1
 5/10/2013

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



Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL **Client Sample ID:** MW-20-070-192

Lab Order: N010222 Collection Date: 5/9/2013 1:08:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER Lab ID: N010222-007

PQL Analyses Result MDL Units DF **Date Analyzed** Qual

SPECIFIC CONDUCTANCE EPA 120.1

QC Batch: R88812 RunID: WETCHEM_130510B PrepDate: Analyst: LCC Specific Conductance 2000 0.10 0.10 umhos/cm 5/10/2013 1

Qualifiers: Analyte detected in the associated Method Blank

> Н Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

Value above quantitation range



Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

 CLIENT:
 CH2M HILL
 Client Sample ID: MW-20-100-192

 Lab Order:
 N010222
 Collection Date: 5/9/2013 2:23:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010222-008

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130510B
 QC Batch:
 R88812
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 2600
 0.10
 0.10
 umhos/cm
 1
 5/10/2013

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

11 Holding times for preparation of 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



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-67-185-192

Lab Order: N010222 **Collection Date:** 5/9/2013 10:08:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010222-009

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130510B
 QC Batch:
 R88812
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 4500
 0.10
 0.10
 umhos/cm
 1
 5/10/2013

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



Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-67-225-192

Lab Order: N010222 **Collection Date:** 5/9/2013 9:11:00 AM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010222-010

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130510B
 QC Batch:
 R88812
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 6800
 0.10
 0.10
 umhos/cm
 1
 5/10/2013

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



Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-67-260-192

Lab Order: N010222 **Collection Date:** 5/9/2013 8:23:00 AM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010222-011

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130510B
 QC Batch:
 R88812
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 16000
 0.10
 0.10
 umhos/cm
 1
 5/10/2013

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



ANALYTICAL QC SUMMARY REPORT CH2M HILL CLIENT:

PG&E Topock, 423575.MP.07.TS Work Order: Project:

N010222

TestCode: 120.1_WPGE

Date: 29-May-13

Sample ID: LCS-R88812	SampType: LCS	TestCoo	te: 120.1_WP	TestCode: 120.1_WPGE Units: umhos/cm	ns/cm	Prep Date:	te:	RunN	RunNo: 88812	2	
Client ID: LCSW	Batch ID: R88812	TestN	TestNo: EPA 120.1			Analysis Da	Analysis Date: 5/10/2013	SeqN	SeqNo: 1573036	336	
Analyte	Result	PQL		SPK value SPK Ref Val	%REC	LowLimit	%REC LowLimit HighLimit RPD Ref Val		RPD	%RPD RPDLimit Qual	Qual
Specific Conductance	9920.000	0.10	9992	0	8.66	85	115				

Sample ID: N010222-003B-DUP SampType: DUP	SampType: DUP	TestCode: 120.1_WPGE Units: umhos/cm	: umhos/cm	Prep Date:	RunNo: 88812
Client ID: ZZZZZZ	Batch ID: R88812	TestNo: EPA 120.1		Analysis Date: 5/10/2013	SeqNo: 1573050
Analyte	Result	PQL SPK value SPK Ref Val		%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Specific Conductance	14170.000	0.10		14170	0 10
Sample ID: N010222-001B MS	SampType: MS	TestCode: 120.1_WPGE Units: umhos/cm	: umhos/cm	Prep Date:	RunNo: 88812
Client ID: 222222 Analyte	Batch ID: K8812 Result	PQL SPK value SPK Ref Val		Analysis Date: 5/10/2013 %REC LowLimit HighLimit RPD Ref Val	Segivo: 15/3051 %RPD RPDLimit Qual
Specific Conductance	17680.000	0.20 9992 77	7750 99.4	75 125	
Sample ID: N010222-001B MSD SampType: MSD	SampType: MSD	TestCode: 120.1_WPGE Units: umhos/cm	: umhos/cm	Prep Date:	RunNo: 88812

Sample ID: N010222-001B MSD SampType: MSD	SampType: MSD	TestCo	de: 120.1_WP	TestCode: 120.1_WPGE Units: umhos/cm	/cm	Prep Date:			RunNo: 88812	312	
Client ID: ZZZZZ	Batch ID: R88812	Test	TestNo: EPA 120.1			Analysis Dat	Analysis Date: 5/10/2013	13	SeqNo: 1573052	73052	
Analyte	Result	PQL	SPK value	PQL SPK value SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit Qual	Qual
Specific Conductance	17640.000	0.20	9992	7750	0.66	75	125	17680	0.227	10	
Sample ID: N010222-011B-DUP SampType: DUP	SampType: DUP	TestCo	de: 120.1_WP	TestCode: 120.1_WPGE Units: umhos/cm	/cm	Prep Date:	. ө		RunNo: 88812	312	
Client ID: ZZZZZ	Batch ID: R88812	Test	TestNo: EPA 120.1		•	Analysis Dat	Analysis Date: 5/10/2013	13	SeqNo: 1573054	73054	
Analyte	Result	PQL	SPK value	SPK value SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit Qual	Qual
Conception Constitution Constit	16530,000	0,0						16500	0 1 00		

Sample ID: N010222-011B-DUP SampType: DU	SampType: DUP	TestCoc	de: 120.1_WP	TestCode: 120.1_WPGE Units: umhos/cm	s/cm	Prep Date:	te:		RunNo: 88812	1812	
Client ID: ZZZZZ	Batch ID: R88812	TestN	TestNo: EPA 120.1			Analysis Da	Analysis Date: 5/10/2013	13	SeqNo: 1573054	73054	
Analyte	Result	PQL	SPK value	PQL SPK value SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit	G
Specific Conductance	16530.000	0.10						16500	0.182	10	

Qualifiers:

- B Analyte detected in the associated Method Blank
 - ND Not Detected at the Reporting Limit
 - DO Surrogate Diluted Out

- RPD outside accepted recovery limits Value above quantitation range ы ч
- Calculations are based on raw values
- Spike/Surrogate outside of limits due to matrix interference Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matric inter-

CH2M HILL CLIENT:

N010222 Work Order:

PG&E Topock, 423575.MP.07.TS Project:

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1	ITICAL O
1	ALYIICAL Q
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TANTIA T	AINAL I IICAL Q

TestCode: 120.1_WPGE

Sample ID: N010222-011B MS	SampType: MS	TestCoo	le: 120.1_WPC	TestCode: 120.1_WPGE Units: umhos/cm	,cm	Prep Date:	:·		RunNo: 88812	12	
Client ID: ZZZZZZ	Batch ID: R88812	TestN	TestNo: EPA 120.1			Analysis Dat	Analysis Date: 5/10/2013	<u>2</u>	SeqNo: 1573055	3055	
Analyte	Result	PQL	SPK value	SPK value SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit Qual	Qual
Specific Conductance	118800.000	0.20	100000	16500	102	75	125				
Sample ID: N010222-011B MSD SampType: MSD Client ID: ZZZZZ Batch ID: R888	SampType: MSD Batch ID: R88812	TestCoc	sstCode: 120.1_WPC TestNo: EPA 120.1	TestCode: 120.1_WPGE Units: umhos/cm TestNo: EPA 120.1		Prep Date: Analysis Date:	Prep Date: Analysis Date: 5/10/2013	2	RunNo: 88812 SeqNo: 1573056	12 3056	
Analyte	Result	PQL	SPK value	SPK value SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit	Qual
Specific Conductance	118600.000	0.20	100000	16500	102	75	125	118800	0.168	10	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Value above quantitation range

RPD outside accepted recovery limits Calculations are based on raw values ы ч

H Holding times for preparation or analysis exceeded S Ppike/Surrogate outside of limits due to matrix interference

Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-12-192

Lab Order: N010222 **Collection Date:** 5/9/2013 11:22:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010222-005

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY ICP						
	EPA 3010A		EP	A 6010B		
RunID: ICP2_130517A	QC Batch: 429	67		PrepDate:	5/13/2013	Analyst: CEI
Barium	52	0.36	3.0	ug/L	1	5/17/2013 03:56 PM
Beryllium	ND	0.12	1.0	ug/L	1	5/17/2013 03:56 PM
Cadmium	ND	0.37	3.0	ug/L	1	5/17/2013 03:56 PM
Cobalt	ND	0.37	3.0	ug/L	1	5/17/2013 03:56 PM
Lead	ND	1.6	10	ug/L	1	5/17/2013 03:56 PM
Nickel	ND	0.70	5.0	ug/L	1	5/17/2013 03:56 PM
Silver	ND	0.39	3.0	ug/L	1	5/17/2013 03:56 PM
Vanadium	11	0.31	3.0	ug/L	1	5/17/2013 03:56 PM
Zinc	ND	1.4	10	ug/L	1	5/17/2013 03:56 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



ANALYTICAL QC SUMMARY REPORT TestCode: 6010_WDPGEPPB СН2М НІГГ N010222 Work Order: CLIENT:

Date: 29-May-13

PG&E Topock, 423575.MP.07.TS Project:

Sample ID: MB-42967	SampType: MBLK	TestCo	TestCode: 6010_WDPGE Units: ug/L	E Units: ug/L		Prep Date:	B: 5/13/2013	RunNo: 88920		
Client ID: PBW	Batch ID: 42967	Test	TestNo: EPA 6010B	EPA 3010A		Analysis Date:	e: 5/17/2013	SeqNo: 1579573	573	
Analyte	Result	PQL	SPK value S	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Val	%RPD	RPDLimit	Qual
Barium	QN	3.0								
Beryllium	QN	1.0								
Cadmium	QN	3.0								
Cobalt	QN	3.0								
Lead	QN	10								
Nickel	QN	5.0								
Silver	QN	3.0								
Vanadium	QN	3.0								
Zinc	ND	10								
Sample ID: LCS1-42967	SampType: LCS	TestCo	TestCode: 6010_WDPGE Units: ug/L	E Units: ug/L		Prep Date:	B: 5/13/2013	RunNo: 88920		
Client ID: LCSW	Batch ID: 42967	Test	TestNo: EPA 6010B	EPA 3010A	•	Analysis Date:	e: 5/17/2013	SeqNo: 1579574	57.4	
Analyte	Result	PQL	SPK value S	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Val	%RPD	RPDLimit	Qual
Barium	48.287	3.0	50.00	0	9.96	85	115			
Beryllium	8.593	1.0	10.00	0	85.9	82	115			
Cadmium	8.730	3.0	10.00	0	87.3	85	115			
Cobalt	11.092	3.0	10.00	0	111	85	115			
Lead	45.790	10	50.00	0	91.6	85	115			
Nickel	45.256	5.0	50.00	0	90.5	82	115			
Silver	47.467	3.0	50.00	0	94.9	82	115			
Vanadium	8.757	3.0	10.00	0	87.6	85	115			
Zinc	47.863	10	50.00	0	95.7	85	115			
Sample ID: N010181-001B-MS1	SampType: MS	TestCo	TestCode: 6010_WDPGE Units: ug/L	E Units: ug/L		Prep Date:	B: 5/13/2013	RunNo: 88920		
Client ID: ZZZZZ	Batch ID: 42967	Test	TestNo: EPA 6010B	EPA 3010A		Analysis Date:	e: 5/17/2013	SeqNo: 1579580	280	
Analyte	Result	PQL	SPK value S	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Val	%RPD	RPDLimit	Qual

B Analyte detected in the associated Method Blank E Value above quantitation range ND Not Detected at the Reporting Limit R RPD outside accepted recovery DO Surrogate Diluted Out Calculations are based on raw values.	Qualifiers:	:S:				
oort	В	В		Value	above quantitatic	on range
	NE	Ž Q	Not Detected at the Reporting Limit	RPD (RPD outside accepted recovery limits	ecovery limits
An	DC	S O	Surrogate Diluted Out	Calcu	Calculations are based on raw values	on raw values
2151 W Don't D.J. 1702 07 110 Tol. 702 207 2650 Equ. 702 207 3601	₹	Adva	16	10 ToI.	0396 208 602	East 703 207

RPD outside accepted recovery limits Calculations are based on raw values Value above quantitation range

Spike/Surrogate outside of limits due to matrix interference Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matric inter-

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

PG&E Topock, 423575.MP.07.TS

CH2M HILL N010222

Work Order: CLIENT:

Project:

Sample ID: N010181-001B-MS1	SampType: MS	TestCo	TestCode: 6010_WDPGE Units: ug/L	E Units: ug/L		Prep Date	Prep Date: 5/13/2013	3	RunNo: 88920	20	
Client ID: ZZZZZ	Batch ID: 42967	Test	TestNo: EPA 6010B	EPA 3010A		Analysis Date: 5/17/2013	e: 5/17/201	n	SeqNo: 1579580	9580	
Analyte	Result	PQL	SPK value S	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	202.427	3.0	20.00	154.8	95.3	75	125				
Beryllium	8.922	1.0	10.00	0	89.2	75	125				
Cadmium	7.806	3.0	10.00	0	78.1	75	125				
Cobalt	10.219	3.0	10.00	0	102	75	125				
Lead	42.475	10	50.00	0	85.0	75	125				
Nickel	43.581	5.0	50.00	0	87.2	75	125				
Silver	47.843	3.0	50.00	0.8072	94.1	75	125				
Vanadium	9.719	3.0	10.00	0	97.2	75	125				
Zinc	51.209	10	50.00	0	102	75	125				
Sample ID: N010181-001B-MSD	SampType: MSD	TestCo	TestCode: 6010_WDPGE Units: ug/L	E Units: ug/L		Prep Date	Prep Date: 5/13/2013	3	RunNo: 88920	20	
Client ID: ZZZZZ	Batch ID: 42967	Test	TestNo: EPA 6010B	EPA 3010A		Analysis Date:	e: 5/17/2013	ဗ	SeqNo: 1579581	9581	
Analyte	Result	PQL	SPK value S	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	202.393	3.0	50.00	154.8	95.3	75	125	202.4	0.0166	20	
Beryllium	8.747	1.0	10.00	0	87.5	75	125	8.922	1.98	20	
Cadmium	7.645	3.0	10.00	0	76.5	75	125	7.806	2.09	20	
Cobalt	10.169	3.0	10.00	0	102	75	125	10.22	0.496	20	
Lead	41.318	10	20.00	0	82.6	75	125	42.48	2.76	20	
Nickel	43.221	2.0	20.00	0	86.4	75	125	43.58	0.829	20	
Silver	47.132	3.0	20.00	0.8072	97.6	75	125	47.84	1.50	20	
Vanadium	9.645	3.0	10.00	0	96.4	75	125	9.719	0.770	20	
Zinc	46.361	10	20.00	0	92.7	75	125	51.21	9.94	20	

Qualifiers:	rs:			
	B Analyte	Analyte detected in the associated Method Blank	Э	E Value above quantitation range
_	VD Not Det	ND Not Detected at the Reporting Limit	В	RPD outside accepted recovery limits
4	O Surrogat	DO Surrogate Diluted Out		Calculations are based on raw values

H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

 CLIENT:
 CH2M HILL
 Client Sample ID: MW-62-110-192

 Lab Order:
 N010222
 Collection Date: 5/8/2013 2:39:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010222-001

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130523A	QC Batch: 430	045		PrepDate:	5/22/2013	Analyst: CEI
Arsenic	8.5	0.035	0.10	μg/L	1	5/23/2013 02:49 PM
Manganese	66	0.16	0.50	μg/L	1	5/23/2013 02:49 PM
Molybdenum	40	0.074	0.50	μg/L	1	5/23/2013 02:49 PM
Selenium	2.4	0.084	0.50	μg/L	1	5/23/2013 02:49 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



Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

 CLIENT:
 CH2M HILL
 Client Sample ID: MW-62-190-192

 Lab Order:
 N010222
 Collection Date: 5/8/2013 2:52:00 leads on the control of the con

Lab Order:N010222Collection Date: 5/8/2013 2:52:00 PMProject:PG&E Topock, 423575.MP.07.TSMatrix: WATER

Lab ID: N010222-002

Analyses	Result	MDI	POL	Oual Units	DF	Date Analyzed
Analyses	Kesuit	MIDL	TQL	Quai Onits	DI	Date Analyzeu
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130523A	QC Batch: 430	45		PrepDate:	5/22/2013	Analyst: CEI
Arsenic	4.1	0.035	0.10	μg/L	1	5/23/2013 12:49 PM
Manganese	510	0.80	2.5	μg/L	5	5/23/2013 12:54 PM
Molybdenum	68	0.37	2.5	μg/L	5	5/23/2013 12:54 PM
Selenium	ND	0.42	2.5	μg/L	5	5/23/2013 12:54 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



Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-68-240-192

Lab Order: N010222 **Collection Date:** 5/8/2013 11:46:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010222-003

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130523A	QC Batch: 430	45		PrepDate:	5/22/2013	Analyst: CEI
Arsenic	1.9	0.035	0.10	μg/L	1	5/23/2013 03:00 PM
Manganese	ND	0.16	0.50	μg/L	1	5/23/2013 03:00 PM
Molybdenum	20	0.37	2.5	μg/L	5	5/23/2013 02:55 PM
Selenium	3.6	0.084	0.50	μg/L	1	5/23/2013 03:00 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



Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

 CLIENT:
 CH2M HILL
 Client Sample ID: MW-68BR-280-192

 Lab Order:
 N010222
 Collection Date: 5/8/2013 10:28:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010222-004

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130523A	QC Batch: 430)45		PrepDate:	5/22/2013	Analyst: CEI
Arsenic	1.6	0.035	0.10	μg/L	1	5/23/2013 03:59 PM
Manganese	94	0.16	0.50	μg/L	1	5/23/2013 03:59 PM
Molybdenum	71	0.074	0.50	μg/L	1	5/23/2013 03:59 PM
Selenium	ND	0.084	0.50	μg/L	1	5/23/2013 03:59 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



Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-12-192

Lab Order: N010222 **Collection Date:** 5/9/2013 11:22:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010222-005

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130523A	QC Batch: 430)45		PrepDate:	5/22/2013	Analyst: CEI
Antimony	ND	0.084	0.50	μg/L	1	5/23/2013 02:38 PM
Arsenic	33	0.035	0.10	μg/L	1	5/23/2013 02:38 PM
Molybdenum	10	0.074	0.50	μg/L	1	5/23/2013 02:38 PM
Selenium	12	0.084	0.50	μg/L	1	5/23/2013 02:38 PM
Thallium	ND	0.075	0.50	μg/L	1	5/23/2013 02:38 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



Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

CH2M HILL

PG&E Topock, 423575.MP.07.TS

Client Sample ID: MW-128-192

Lab Order: N010222 **Collection Date:** 5/9/2013 6:42:00 AM

Matrix: WATER

Lab ID: N010222-006

CLIENT:

Project:

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130523A	QC Batch: 430	045		PrepDate:	5/22/2013	Analyst: CEI
Arsenic	11	0.035	0.10	μg/L	1	5/23/2013 04:10 PM
Manganese	41	0.16	0.50	μg/L	1	5/23/2013 04:10 PM
Molybdenum	78	0.37	2.5	μg/L	5	5/23/2013 04:05 PM
Selenium	ND	0.42	2.5	μg/L	5	5/23/2013 04:05 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



Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-20-070-192

Lab Order: N010222 **Collection Date:** 5/9/2013 1:08:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010222-007

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY IC	P-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130523A	QC Batch: 43	045		PrepDate:	5/22/2013	Analyst: CEI
Molybdenum	36	0.074	0.50	μg/L	1	5/23/2013 04:16 PM
Selenium	5.4	0.084	0.50	μg/L	1	5/23/2013 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



Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-20-100-192

Lab Order: N010222 **Collection Date:** 5/9/2013 2:23:00 PM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010222-008

Analyses	Result MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY ICP	-MS				
	EPA 3010A	EPA 6	020		
RunID: ICP7_130523A	QC Batch: 43045		PrepDate:	5/22/2013	Analyst: CEI
Molybdenum	3.3 0.074	0.50	μg/L	1	5/23/2013 04:21 PM
Selenium	6.8 0.084	0.50	μg/L	1	5/23/2013 04:21 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



Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-67-185-192

Lab Order: N010222 **Collection Date:** 5/9/2013 10:08:00 AM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010222-009

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130523A	QC Batch: 430	145		PrepDate:	5/22/2013	Analyst: CEI
Arsenic	1.9	0.035	0.10	μg/L	1	5/23/2013 04:32 PM
Manganese	ND	0.16	0.50	μg/L	1	5/23/2013 04:32 PM
Molybdenum	9.2	0.074	0.50	μg/L	1	5/23/2013 04:32 PM
Selenium	140	0.084	0.50	μg/L	1	5/23/2013 04:32 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



Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-67-225-192

Lab Order: N010222 **Collection Date:** 5/9/2013 9:11:00 AM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010222-010

A wolveges	Dogult	MDL	DOI	Ovel Unite	DE	Data Analyzad
Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130523A	QC Batch: 430)45		PrepDate:	5/22/2013	Analyst: CEI
Arsenic	2.8	0.035	0.10	μg/L	1	5/23/2013 05:29 PM
Manganese	ND	0.16	0.50	μg/L	1	5/23/2013 05:29 PM
Molybdenum	29	0.074	0.50	μg/L	1	5/23/2013 05:29 PM
Selenium	59	0.084	0.50	μg/L	1	5/23/2013 05:29 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



Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-67-260-192

Lab Order: N010222 **Collection Date:** 5/9/2013 8:23:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010222-011

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130523A	QC Batch: 43	045		PrepDate:	5/22/2013	Analyst: CEI
Arsenic	11	0.035	0.10	μg/L	1	5/23/2013 05:40 PM
Manganese	43	0.16	0.50	μg/L	1	5/23/2013 05:40 PM
Molybdenum	76	0.37	2.5	μg/L	5	5/23/2013 05:35 PM
Selenium	1.2	0.084	0.50	μg/L	1	5/23/2013 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



ANALYTICAL QC SUMMARY REPORT TestCode: 6020_DIS PG&E Topock, 423575.MP.07.TS CH2M HILL N010222 Work Order: CLIENT: Project:

Date: 29-May-13

Sample ID: LCS-43045	SampType: LCS	TestCoc	TestCode: 6020_DIS	Units: µg/L		Prep Date	Prep Date: 5/22/2013		RunNo: 88998	
Client ID: LCSW	Batch ID: 43045	TestN	TestNo: EPA 6020	EPA 3010A	-	Analysis Date	Analysis Date: 5/23/2013		SeqNo: 1584193	
Analyte	Result	PQL	SPK value	SPK value SPK Ref Val	%REC	LowLimit	%REC LowLimit HighLimit RPD Ref Val	Ref Val	%RPD RPDLimit Qual	t Qual
Antimony	8.683	0.50	10.00	0	86.8	85	115			
Arsenic	9.753	0.10	10.00	0	97.5	82	115			
Manganese	97.453	0.50	100.0	0	97.5	82	115			
Molybdenum	9.531	0.50	10.00	0	95.3	85	115			
Selenium	9.926	0.50	10.00	0	99.3	85	115			
Thallium	9.955	0.50	10.00	0	9.66	85	115			
Sample ID: N010222-002A-MSD SampType: MSD Client ID: ZZZZZZ Batch ID: 4304	SampType: MSD Batch ID: 43045	TestCoc	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date Analysis Date	Prep Date: 5/22/2013 Analysis Date: 5/23/2013		RunNo: 88998 SeqNo: 1584198	

Qual

%RPD RPDLimit

%REC LowLimit HighLimit RPD Ref Val

SPK value SPK Ref Val

Pal

Result

10.00

ഗ

11.75 605.2 79.17 9.530

20 20 20 20 20 20 20 20

7.24 0.780 0.501 9.95

125 125 125 125

75 75 75

126 98.4 120 86.3

511.5 67.60

10.00

2.5 2.5 2.5 2.5

79.565 8.627

Molybdenum Manganese

Selenium

Antimony

Analyte

12.627 609.902

0

Thallium	10.566	2.5	10.00	0	106	75	125	10.93	3.41	20	
Sample ID: N010222-002A-MS	SampType: MS	TestCo	TestCode: 6020_DIS	Units: µg/L		Prep Dat	Prep Date: 5/22/2013	13	RunNo: 88998	86	
Client ID: ZZZZZ	Batch ID: 43045	Test	TestNo: EPA 6020	EPA 3010A		Analysis Date: 5/23/2013	te: 5/23/20	13	SeqNo: 1584200	4200	
Analyte	Result	PQL	SPK value	SPK value SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit Qual	Qual
Antimony	11.745	2.5	10.00	0	117	75	125				
Manganese	605.166	2.5	100.0	511.5	93.6	75	125				
Molybdenum	79.168	2.5	10.00	09.29	116	75	125				
Selenium	9.530	2.5	10.00	0	95.3	75	125				
Thallium	10.932	2.5	10.00	0	109	75	125				

Qualifiers:	iers:				
	В	Analyte detected in the associated Method Blank	E	'alue above quantitation range	
	ND	ting Limit	R	RPD outside accepted recovery limits	imits
4	D0	DO Surrogate Diluted Out	J	Calculations are based on raw values	lues
∢ \	A. B.	Advanced Technology 3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691	8111	Tel: 702-307-2659 Fax: 702	2-307-2691

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Spike/Surrogate outside of limits due to matrix interference H Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix inter

Laboratories, Inc.

CLIENT: CH2M HILL

Work Order: N010222

Project: PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N010222-002A-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 43045	TestCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A	P Anal	Prep Date: 5/22/2013 Analysis Date: 5/23/2013	5/22/2013 5/23/2013	Se Ru	RunNo: 88998 SeqNo: 1584204	40	
Analyte	Result	PQL SPK value	SPK Ref Val	%REC Lov	vLimit Higi	%REC LowLimit HighLimit RPD Ref Val	/al	%RPD R	RPDLimit	Qual
Arsenic	12.611	0.10 10.00	4.127	84.8	75	125				
Sample ID: N010222-002A-MSD SampType: MSD	SampType: MSD	TestCode: 6020_DIS		G -	Prep Date: 5/22/2013	5/22/2013	Ru Ru	RunNo: 88998		
Client ID: 222222 Analyte	Batcn ID: 43045 Result	PQL SPK value	EPA 3010A SPK Ref Val	Anai, %REC Lov	Analysis Date: 3/23/2013 LowLimit HighLimit R	Analysis Date: 5/23/2013 %REC LowLimit HighLimit RPD Ref Val		SeqINO: 1584205 %RPD RPC	Limit	Qual
Arsenic	12.854	0.10 10.00	4.127	87.3	75	125 12.61	61	1.91	20	
Sample ID: MB-43045	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	<u>a</u>	Prep Date: 5/22/2013	5/22/2013	Ru	RunNo: 88998		
Client ID: PBW	Batch ID: 43045	TestNo: EPA 6020	EPA 3010A	Anal	Analysis Date: 5/23/2013	5/23/2013	Se	SeqNo: 1584234	34	
Analyte	Result	PQL SPK value	SPK Ref Val	%REC Lov	vLimit High	%REC LowLimit HighLimit RPD Ref Val	/al	%RPD R	RPDLimit	Qual
Antimony	QN	0.50								
Arsenic	QN	0.10								
Manganese	QN	0.50								
Molybdenum	QN	0.50								
Selenium	QN	0.50								
Thallium	QZ	0.50								

 Qualifiers:
 B
 Analyte detected in the associated Method Blank
 E
 Value above quantitation range

 ND
 Not Detected at the Reporting Limit
 R
 RPD outside accepted recovery limits

 DO
 Surrogate Diluted Out
 Calculations are based on raw values

H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Print Date: 29-May-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-12-192

Lab Order: N010222 **Collection Date:** 5/9/2013 11:22:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010222-005

Analyses Result MDL PQL Qual Units DF Date Analyzed

DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE

EPA 7470A

RunID: AA1_130515B QC Batch: 42979 PrepDate: 5/14/2013 Analyst: LCC Mercury ND 0.028 0.20 μg/L 1 5/15/2013

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



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL QC SUMMARY REPORT CH2M HILL N010222 Work Order: CLIENT:

PG&E Topock, 423575.MP.07.TS Project:

TestCode: 7470_W_DISSPGE

Date: 29-May-13

Sample ID: LCS-42979	SampType: LCS	TestCod	e: 7470_W_DI	FestCode: 7470_W_DIS Units: µg/L		Prep Da	Prep Date: 5/14/2013	113	RunNo: 88874	74	
Client ID: LCSW	Batch ID: 42979	TestN	TestNo: EPA 7470A		`	Analysis Da	Analysis Date: 5/15/2013	113	SeqNo: 1576009	6009	
Analyte	Result	PQL	SPK value SPK Ref Val	SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit Qual	Qual
Mercury	5.492	0.20	5.000	0	110	85	115				

SeqNo: 1576015	Analysis Date: 5/15/2013 S	TestNo: EPA 7470A	Batch ID: 42979	Client ID: ZZZZZZ
RunNo: 88874	Prep Date: 5/14/2013 R	TestCode: 7470_W_DIS Units: µg/L	SampType: MS	Sample ID: N010122-002A-MS
		0.20	QN	Mercury
%RPD RPDLimit Qual	%REC LowLimit HighLimit RPD Ref Val	PQL SPK value SPK Ref Val	Result	Analyte
SeqNo: 1576012	Analysis Date: 5/15/2013 S	TestNo: EPA 7470A	Batch ID: 42979	Client ID: PBW
RunNo: 88874	Prep Date: 5/14/2013 Re	TestCode: 7470_W_DIS Units: µg/L	SampType: MBLK	Sample ID: MB-42979

Sample ID: N010122-002A-MS	SampType: MS	TestCoc	e: 7470_W_DI	TestCode: 7470_W_DIS Units: µg/L		Prep Dat	Prep Date: 5/14/2013	RunNo: 88874	74	
Client ID: ZZZZZZ	Batch ID: 42979	TestN	TestNo: EPA 7470A		1	Analysis Dat	Analysis Date: 5/15/2013	SeqNo: 1576015	6015	
Analyte	Result	PQL	PQL SPK value SPK Ref Val	SPK Ref Val	%REC	LowLimit	%REC LowLimit HighLimit RPD Ref Val		%RPD RPDLimit Qual	Qual
Mercury	5.438	0.20	2.000	0	109	75	125			
Sample ID: N010122-002A-MSD SampType: MSD Client ID: ZZZZZZ Batch ID: 42978	SampType: MSD Batch ID: 42979	TestCoc	stCode: 7470_W_DI : TestNo: EPA 7470A	TestCode: 7470_W_DIS Units: µg/L TestNo: EPA 7470A	ď	Prep Dat	Prep Date: 5/14/2013 Analysis Date: 5/15/2013	RunNo: 88874 SeqNo: 1576016	74 6016	
Analyte	Result	PQL	SPK value SPK Ref Val	SPK Ref Val	%REC	LowLimit	%REC LowLimit HighLimit RPD Ref Val		%RPD RPDLimit	Qual

20

1.72

5.438

125

75

111

0

5.000

0.20

5.532

Mercury

Qualifiers:

Analyte detected in the associated Method Blank В

ND Not Detected at the Reporting Limit

RPD outside accepted recovery limits Calculations are based on raw values ы ч

Value above quantitation range

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

H Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix inter

Spike/Surrogate outside of limits due to matrix interference

	<u> </u>							4.1	.,	39/2013 3.57.44 FW Fage	. 01	1
Project Name PG Location Topock Project Manager	k		ntainer: vatives:	500 ml Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	1 Liter Poly 4°C	1Liter Poly 4°C			
Sample Manager S	Shawn Duff	У г	iltered:	Field	Field	Field	Field	NA	NA NA			
		Holding	g Time:	180	180	180	180	14	30			
Project Number 4 Task Order Project 2013-GMF Turnaround Time	P-192-Q2	07.TS		Arsenic (6020A)	Metals (60108/6020A/7470Adis)	Metals (60	Metals (80	Specific Co			Number	
Shipping Date: 5/				0204	Filte)20A)20A	ondu	Extra			
COC Number: 19	•	TIME N	/latrix	V) Field Filtered	tals 57470Adis) Field red *	Metals (6020A) Field Filtered Mo,Se	Metals (8020A) Field Filtered Mo.Se.Mn	Specific Conductance (E120.1)	*		of Containers	COMN
MVV-62-110-192	5/8/2013	14:39 V	Nater	х			х	х	х		3	
MW-62-190-192	5/8/2013	14:52 V	Nater	ж			ж	х	x		3	
MW-68-240-192	5/8/2013	11:46 V	Nater	x			х	х	Х		3	
MW-68BR-280-192	5/8/2013	10:28 V	Vater	х			ж	×	ж		3	ĺ
MW-12-192	5/9/2013	11:22 V	Nater		x			x			2	
MW-128-192	5/9/2013	6:42 V	Vater	Х			ж	х	X		3	
MW-20-970-192	5/9/2013	13:08 V	Vater			х		ж			2	
MW-20-100-192	5/9/2013	14:23 V	Vater			х		х			2	
MW-67-185-192	5/9/2013	10:08 V	Vater	x			х	х	x		3	
MW-67-225-192	5/9/2013	9:11 V	Vater	х			х	х	Х		3	
MW-67-260-192	5/9/2013	8:23 V	Vater	X			x	х	х		3	
										TOTAL NUMBER OF CONTAINERS	30	i

^{*} Metals list - Sb, As, Ba, Be, Cd, Co, Pb, Hg, Mo, Ni, Se, Ag, Tl, Va, Zn

Approved by Sampled by Relinquished by Received by Relinquished by

Received by

Date/Time 5-9-13 1630 09114413 1630

Signatures

Shipping Details

Method of Shipment: courier On Ice: (1851 no 32 174

Airbill No:

Lab Name: ADVANCED TECHNOLOGY LABORATO

Lab Phone: (702) 307-2659

ATTN:

Special Instructions: April 15 to May 9, 2013

Sample Custody

and

Marion

Report Copy to Shawn Duffy (530) 229-3303

	M	н	

CHAIN OF CUSTODY RECORD

5/9/2013 3:57:44 PM

Page 1 OF 1

CHZIVINIL	.L							OI.	IAIN OI	COSTODI RECORD	5/9/2013 3.57.44 PM Page 1	_ OF ,	
Project Name PG Location Topoci Project Manager	:k	-	Container: servatives:	Poly HNO3,	500 ml Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	1 Liter Poly 4°C	1Liter Poly 4°C				
Sample Manager	Shawn Du	ıffy	Filtered:	Field	Field	Field	Field	NA	NA			1	1
		Hoir	ding Time:	L	180	180	180	14	30			1	1
Project Number of Task Order Project 2013-GM Turnaround Time Shipping Date: 5 COC Number: 19	IP-192-Q2 • 10 Days 5/9/2013	/s	Matrix .	Arsenic (6020A) Field Filtered	Metals (6010B/6020A/7470Adis) Field Filtered	Metals (6020A) Field Filtered Mo,Se	Metals (6020A) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Extra (*)			Number of Containers	COMMENT
MW-62-110-192	5/8/2013	14:39	Water	х			х	х	х	NO10222 = 1		3	
MW-62-190-192	5/8/2013	14:52	Water	х			х	х	х	1 -2		3	
MW-68-240-192	5/8/2013	11:46	Water	х			х	х	х	- 3		3	
MW-68BR-280-192	5/8/2013	10:28	Water	х			х	х	х	- 2		3	
MW-12-192	5/9/2013	11:22	Water	1.	х			х		-5		2	
MW-128-192	5/9/2013	6:42	Water	х			х	х	х	- 6	9	3	
	45 5 5 5 5		\rightarrow					х		- 7	-	2	
MW-20-070-192	5/9/2013	13:08	Water	1	1	X	· 1	' ^ '					
	5/9/2013 5/9/2013					x		x		-8		2	
MW-20-070-192 MW-20-100-192 MW-67-185-192	1 A 1 1 A 1 A 1 A 1 A 1 A 1 A 1 A 1 A 1	14:23	Water	X			х		х	-8		2	
MW-20-100-192	5/9/2013	14:23 10:08	Water	X			x	х	x	9			
MW-20-100-192 MW-67-185-192	5/9/2013 5/9/2013	14:23 10:08 9:11	Water Water Water					x x	-	-9		3	

Approved by
Sampled by
Relinquished by
Received by
Received by
Received by

Date/Time 5-9-/3 /630

Signatures

09114413 1630

amny 1840

Shipping Details

Method of Shipment: courier
On Ice: (PS) no 32 1F

Airbill No:

Lab Name: ADVANCED TECHNOLOGY LABORATO

Lab Phone: (702) 307-2659

ATTN:

Special Instructions: April 15 to May 9, 2013

Sample Custody

and Marlon

Report Copy to
Shawn Duffy
(530) 229-3303

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 of	r turtiner in	istruction, pleas	e contact our r	Project Coord	umator at (702) 307-2009.	
Cooler Received/Opened On:	5/9/2013				Workorder:	N010222	
Rep sample Temp (Deg C):	3.2				IR Gun ID:	1	
Temp Blank:	Yes	☑ No					
Carrier name:	ATL				•		
Last 4 digits of Tracking No.:	NA			Packing	Material Used:	None	
Cooling process:	✓ Ice	C Ice Pack	Dry Ice	Other	☐ None		
		<u>s</u>	ample Recei	ot Checklis	<u>t</u>		
1. Shipping container/cooler in	good condi				Yes 🗹	No 🗀	Not Present
2. Custody seals intact, signed	l, dated on s	shippping contain	er/cooler?		Yes 🗌	No 🗌	Not Present
3. Custody seals intact on sam	ple 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 wh	en relinquis	hed and received	?		Yes 🗹	No 🗀	
7. Chain of custody agrees wit	h sample la	bels?			Yes 🗹	No 🗀	
8. Samples in proper containe	r/bottle?				Yes 🗸	No 🗌	
9. Sample containers intact?					Yes 🗹	No 🗀	
10. Sufficient sample volume f	or indicated	test?			Yes 🗹	No 🗀	
11. All samples received within	n holding tin	ne?			Yes 🗹	No 🗀	
12. Temperature of rep sample	e or Temp E	Blank within accep	otable limit?		Yes 🗹	No 🗆	NA \square
13. Water - VOA vials have ze	ro headspa	ce?			Yes 🗔	No 🗔	NA 🗹
14. Water - pH acceptable upo					Yes 🗹	No 🗀	NA 🗆
Example: pH > 12 for (C					🗀	[1	🗖
15. Did the bottle labels indica			! ?		Yes 🗹	No 🗆	NA · 🗀
16. Were there Non-Conforma W	ince issues las Client no				Yes ∐ Yes ☐	No ∐ No □	NA ⊻ NA ☑
Comments:							
Checklist Completed B	мвс //	14C 5/10	13			Reviewed By:	Ö

Marlon Cartin

From:

Shawn.Duffy@CH2M.com

Sent:

Friday, May 10, 2013 11:23 AM

To:

marlon@atl-labs.com

Cc:

Barry.Collom@CH2M.com; samplecontrol@atl-labs.com

Subject:

RE: Metal List

Attachments:

2013-GMP-192 5-19-2013.pdf

Hi Marlon,

Attached is a corrected COC with the Title 22 metals listed. (except Cr)

Shawn

From: Marlon B. Cartin [mailto:marlon@atl-labs.com]

Sent: Friday, May 10, 2013 10:27 AM

To: Duffy, Shawn/RDD

Cc: Collom, Barry/RIV; Sample Control

Subject: Metal List

Hi Shawn!

Good morning!

For the attached COC, please confirm the list of metals you want us to run for sample MW-12-192.

Thanks,

Marlon B. Cartin

Advanced Technology Laboratories, Inc.

3151 W. Post Road

Las Vegas, NV 89118

Phone: 702-307-2659 ext 410

Mobile: 702-439-0421

www.atl-labs.com

Advanced Technology Laboratories, Inc. is a full-service environmental lab providing organic and inorganic analyses of soil, water, wastewater, storm water and hazardous waste samples. ATL is accredited by the State of California, NELAP and State of Nevada and holds various SBE, DBE and MBE certificates and a USDA soil permit. ATL takes pride in providing our customers with quick turnaround time, excellent customer service and defensible data while offering very competitive rates. Advanced Technology Labs, Inc. - Your Partner for Quality Environmental Testing

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Sample Calculation

METHOD: EPA 6010

TEST NAME: Heavy Metals by ICP

MATRIX: Aqueous

FORMULA:

Calculate the Barium concentration, in ug/L, in the original sample as follows:

Barium, ug/L

A * DF * PF * CF

where:

A = mg/L, calculated concentration

DF = dilution factor

PF = Final Vol. of Digestate in mL / Vol. of Sample used in MI

CF = Conversion Factor

For Sample N010222-005A, the concentration in ug/L is calculated as follows:

Barium, ug/L

= 0.05209595149 * 1 * (25/25) * 1000

= 52.09595149ug/L

Reporting results in two significant figures,

Barium, ug/L = 52 ug/L

m fi strahz

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N010222 Test Method: EPA 6010 Analysis Date: 05/17/13

Matrix: 42967 Batch No.:

Instrument ID:

ICP-02

Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to Be,Cd,Co,Cu,Pb, Ni, Ag, V and Zn. The calculated values were <25X RL. However, PS @2X

passed criteria.

Dilution test for Ba failed. However, PS @2x passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N010181-001B DT 5X	Barium	ug/L	171.8860029	FAILED	154.7651428	11.06%	10
N010181-001B DT 5X	Beryllium	ug/L	0	NA	0	0.00%	10
N010181-001B DT 5X	Cadmium	ug/L	0	NA	0	0.00%	10
N010181-001B DT 5X	Cobalt	ug/L	0	NA	0	0.00%	10
N010181-001B DT 5X	Copper	ug/L	0	NA	0	0.00%	10
N010181-001B DT 5X	Lead	ug/L	0	NA	0	0.00%	10
N010181-001B DT 5X	Nickel	ug/L	0	NA	0	0.00%	10
N010181-001B DT 5X	Silver	ug/L	2.472377108	NA	0.807186717	206.30%	10
N010181-001B DT 5X	Vanadium	ug/L	0	NA	0	0.00%	10
N010181-001B DT 5X	Zinc	ug/L	0	NA	0	0.00%	10

Note: NA - Not Applicable

CLIENT:

CH2M HILL

Work Order:

N010222

Project:

PG&E Topock, 423575.MP.07.TS

Date: 20-May-13

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: N010181-00	01B-PS	SampType: PS	TestCode	e: 6010_WD	PGE Units: ug/L		Prep Da	te:		RunNo: 889	920	
Client ID: ZZZZZZ		Batch ID: 42967	TestNo	o: EPA 6010	B EPA 3010A		Analysis Da	te: 5/17/20	13	SeqNo: 157	79577	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium		425.741	6.0	250.0	154.8	108	75	125				
Beryllium		254.547	2.0	250.0	0	102	75	125				
Cadmium		266.444	6.0	250.0	0	107	75	125				
Cobalt		255.155	6.0	250.0	0	102	75	125				
Copper		255.336	10	250.0	0	102	75	125				
Lead		252.021	20	250.0	0	101	75	125				
Nickel		253.028	10	250.0	0	101	75	125				
Silver		250,731	6.0	250.0	0.8072	100	75	125				
Vanadium		257.404	6.0	250.0	0	103	75	125				
Zinc		260.646	20	250.0	0	104	75	125				

Qualifiers:

- Analyte detected in the associated Method Blank
- Not Detected at the Reporting Limit
- DO Surrogate Diluted Out

- Value above quantitation range
- RPD outside accepted recovery limits Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- Spike/Surrogate outside of limits due to matrix interference

Sample Calculation

METHOD: EPA 6020

TEST NAME: Heavy Metals by ICP-MS

MATRIX: Water

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

Arsenic, ug/L

A * DF * PF

where:

A = ug/L, calculated concentration

DF = dilution factor

PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N010222-002A, the concentration in ug/L is calculated as follows:

Arsenic, ug/L

4.12665601822107 * 1 * (25/25)

= 4.12665601822107

Reporting results in two significant figures,

Arsenic, ug/L

4.1

NS fr 5/28hz

ICP-Metals in Water

Dilution Test Summary

Work Order No.:

N010222

Test Method:

EPA 6020 05/23/13

Matrix:

Water 43045

Analysis Date:

Batch No.:

Instrument ID:

ICP-MS #2

Instrument Description:

Agilent 7700x

Analyzed By: Mary Claire Ignacio

Comments:

Dilution test is not applicable to Sb,Tl and Se. The calculated values are <25X RL. PS @5X passed criteria.

Dilution test of As and Mn failed. PS @2X and 5X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N010222-002A-DT 5X	Arsenic	μg/L	5.059332	FAILED	4.126656	22.60%	10
N010222-002A-DT 25X	Manganese	μg/L	575.5142	FAILED	511.5477	12.50%	10
N010222-002A-DT 25X	Molybdenum	μg/L	68.23402	PASSED	67.59754	0.94%	10
N010222-002A-DT 25X	Selenium	μg/L	0.0000	NA	0.0000		10
N010222-002A-DT 25X	Antimony	μg/L	0.0000	NA	0.0000		10
N010222-002A-DT 25X	Thallium	μg/L	0.0000	NA	0.0000		10

Note: NA - Not applicable

CLIENT:

CH2M HILL

Work Order:

N010222

Project:

PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Date: 24-May-13

Sample ID: N010222-002A-PS	SampType: PS	TestCod	de: 6020_DIS	Units: µg/L		Prep Da	te:		RunNo: 889	998	
Client ID: ZZZZZZ	Batch ID: 43045	TestN	lo: EPA 6020	EPA 3010A		Analysis Da	te: 5/23/2 0	113	SeqNo: 15 8	34196	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	26.287	0.20	20.00	4.127	111	75	125				
Sample ID: N010222-002A-PS	SampType: PS	TestCod	de: 6020_DIS	Units: µg/L		Prep Da	te:		RunNo: 889	998	·
Client ID: ZZZZZZ	Batch ID: 43045	TestN	lo: EPA 6020	EPA 3010A		Analysis Da	te: 5/23/2 0	113	SeqNo: 158	34199	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	44.300	2.5	50.00	0	88.6	75	125				
Manganese	972.969	2.5	500.0	511.5	92.3	75	125				
Molybdenum	123.850	2.5	50.00	67.60	113	75	125				
Selenium	41.468	2.5	50.00	0	82.9	75	125				
Thallium	50.140	2.5	50.00	0	100	75	125				

Qualifiers:

Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

DO Surrogate Diluted Out

Value above quantitation range

RPD outside accepted recovery limits Calculations are based on raw values

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference

Sample Calculation

METHOD: EPA 7471

TEST NAME: Mercury in Solid by Cold-Vapor Technique

MATRIX: Water/Aqueous

FORMULA:

Mercury, ug/L = A * DF

where:

A = ug/L, calculated concentration DF = dilution factor

To calculate the Mercury concentration, in ug/L in a sample is as follows:

For Sample: N010222-005A

A =

0.01463

ug/L

DF =

•

Using the given formula:

Mercury, ug/L = A * DF

The concentration in ug/L will be equal to:

Mercury, ug/L =

0.01463

Reporting results in two significant figures,

Mercury, ug/L =

0.015

Mercury, ug/L =

ND

June 04, 2013

Shawn P. Duffy CA-ELAP No.: 2676

CH2M HILL NV Cert. No.: NV-009222007A

155 Grand Avenue, Suite 1000

Oakland, CA 94612 TEL: (530) 229-3303

FAX: (530) 339-3303 Workorder No.: N010249

RE: PG&E Topock, 423575.MP.07.TS

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on May 14, 2013 by Advanced Technology Laboratories, Inc. . 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,

Jose Tenorio Jr.

& Geogermundo

Laboratory Director

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CLIENT: CH2M HILL

PG&E Topock, 423575.MP.07.TS Project: **CASE NARRATIVE**

Date: 04-Jun-13

Lab Order: N010249

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.



CLIENT: CH2M HILL

Work Order Sample Summary Project: PG&E Topock, 423575.MP.07.TS

Date: 04-Jun-13

N010249 Lab Order: **Contract No:** 2013-GMP-192-

Lab Sample ID Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N010249-001A MW-51-192	Water	5/13/2013 3:05:00 PM	5/14/2013	6/4/2013
N010249-001B MW-51-192	Water	5/13/2013 3:05:00 PM	5/14/2013	6/4/2013
N010249-002A MW-59-100-192	Water	5/13/2013 12:52:00 PM	5/14/2013	6/4/2013
N010249-002B MW-59-100-192	Water	5/13/2013 12:52:00 PM	5/14/2013	6/4/2013
N010249-002C MW-59-100-192	Water	5/13/2013 12:52:00 PM	5/14/2013	6/4/2013
N010249-003A MW-66-230-192	Water	5/13/2013 9:05:00 AM	5/14/2013	6/4/2013
N010249-003B MW-66-230-192	Water	5/13/2013 9:05:00 AM	5/14/2013	6/4/2013
N010249-003C MW-66-230-192	Water	5/13/2013 9:05:00 AM	5/14/2013	6/4/2013
N010249-004A MW-68-180-192	Water	5/13/2013 10:56:00 AM	5/14/2013	6/4/2013
N010249-004B MW-68-180-192	Water	5/13/2013 10:56:00 AM	5/14/2013	6/4/2013
N010249-004C MW-68-180-192	Water	5/13/2013 10:56:00 AM	5/14/2013	6/4/2013
N010249-005A MW-10-192	Water	5/14/2013 11:11:00 AM	5/14/2013	6/4/2013
N010249-005B MW-10-192	Water	5/14/2013 11:11:00 AM	5/14/2013	6/4/2013
N010249-006A MW-20-130-192	Water	5/14/2013 8:20:00 AM	5/14/2013	6/4/2013
N010249-006B MW-20-130-192	Water	5/14/2013 8:20:00 AM	5/14/2013	6/4/2013
N010249-007A MW-50-200-192	Water	5/14/2013 3:11:00 PM	5/14/2013	6/4/2013
N010249-008A TW-01-192	Water	5/14/2013 1:52:00 PM	5/14/2013	6/4/2013
N010249-008B TW-01-192	Water	5/14/2013 1:52:00 PM	5/14/2013	6/4/2013



Print Date: 04-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-51-192

Lab Order: N010249 Collection Date: 5/13/2013 3:05:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010249-001

PQL DF Result MDL Units **Date Analyzed** Analyses Qual

SPECIFIC CONDUCTANCE

EPA 120.1

QC Batch: R88868 RunID: WETCHEM_130515A PrepDate: Analyst: LCC Specific Conductance 9300 0.10 0.10 umhos/cm 5/15/2013 1

Qualifiers: Analyte detected in the associated Method Blank

> Н Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

Value above quantitation range





Print Date: 04-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-59-100-192

Lab Order: N010249 **Collection Date:** 5/13/2013 12:52:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010249-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130515A
 QC Batch:
 R88868
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 8800
 0.10
 0.10
 umhos/cm
 1
 5/15/2013

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



Print Date: 04-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-66-230-192

Lab Order: N010249 **Collection Date:** 5/13/2013 9:05:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010249-003

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130515A
 QC Batch:
 R88868
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 17000
 0.10
 umhos/cm
 1
 5/15/2013

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



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 04-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-68-180-192

Lab Order: N010249 **Collection Date:** 5/13/2013 10:56:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010249-004

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130515A
 QC Batch:
 R88868
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 2800
 0.10
 0.10
 umhos/cm
 1
 5/15/2013

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



Print Date: 04-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-10-192

Lab Order: N010249 **Collection Date:** 5/14/2013 11:11:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010249-005

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130515A
 QC Batch:
 R88868
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 10000
 0.10
 umhos/cm
 1
 5/15/2013

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



Print Date: 04-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-20-130-192

Lab Order: N010249 **Collection Date:** 5/14/2013 8:20:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010249-006

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130515A
 QC Batch:
 R88868
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 10000
 0.10
 0.10
 umhos/cm
 1
 5/15/2013

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



Print Date: 04-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-50-200-192

Lab Order: N010249 Collection Date: 5/14/2013 3:11:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010249-007

Result MDL **PQL** Units DF Analyses Qual Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

QC Batch: R88868 RunID: WETCHEM_130515A PrepDate: Analyst: LCC Specific Conductance 19000 0.10 0.10 umhos/cm 5/15/2013 1

Qualifiers:

Analyte detected in the associated Method Blank

Н Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

DO Surrogate Diluted Out

Value above quantitation range



Print Date: 04-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: TW-01-192

Lab Order: N010249 **Collection Date:** 5/14/2013 1:52:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010249-008

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130515A
 QC Batch:
 R88868
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 6500
 0.10
 0.10
 umhos/cm
 1
 5/15/2013

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



CLIENT:

ANALYTICAL QC SUMMARY REPORT CH2M HILL N010249 Work Order:

Date: 04-Jun-13

Project:	PG&E Topo	PG&E Topock, 423575.MP.07.TS							T	estCo	de: 120	TestCode: 120.1_WPGE	E		
Sample ID: No	Sample ID: N010249-001A-DUP SampType: DUP	SampType: DUP	TestCoc	de: 120.1_WF	GE Ur	TestCode: 120.1_WPGE Units: umhos/cm	_	Prep Date:				RunNo: 88868	368		
Client ID: ZZZZZZ	22222	Batch ID: R88868	Testh	TestNo: EPA 120.1	_		⋖	nalysis Da	Analysis Date: 5/15/2013	13		SeqNo: 1575815	75815		
Analyte		Result	PQL	PQL SPK value SPK Ref Val	SPK F		%REC	LowLimit	%REC LowLimit HighLimit RPD Ref Val	RPD R	ef Val	%RPD	%RPD RPDLimit Qual	Que	=
Specific Conductance	ductance	9345.000	0.10								9330	0.161	10		

Sample ID: N010249-001A MS	SampType: MS	TestCoc	le: 120.1_WPG	TestCode: 120.1_WPGE Units: umhos/cm	mo	Prep Date:	e:		RunNo: 88868		
Client ID: ZZZZZ	Batch ID: R88868	Test	TestNo: EPA 120.1			Analysis Date: 5/15/2013	e: 5/15/20	13	SeqNo: 1575816		
Analyte	Result	PQL	SPK value	SPK value SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD RPI	RPDLimit (Qual
Specific Conductance	19400.000	0.20	9992	9330	101	75	125				
Sample ID: N010249-001A MSD SampType: MSD	SampType: MSD	TestCoc	le: 120.1_WPG	TestCode: 120.1_WPGE Units: umhos/cm	u.	Prep Date:	.: •		RunNo: 88868		
Client ID: ZZZZZ	Batch ID: R88868	Test	TestNo: EPA 120.1			Analysis Date: 5/15/2013	e: 5/15/20	13	SeqNo: 1575817		
Analyte	Result	PQL	SPK value	SPK value SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD RPI	RPDLimit (Qual
Specific Conductance	19360.000	0.20	9992	9330	100	75	125	19400	0.206	10	
Sample ID: LCS-R88868	SampType: LCS	TestCoc	le: 120.1_WPG	TestCode: 120.1_WPGE Units: umhos/cm	u:	Prep Date:	:e		RunNo: 88868		
Client ID: LCSW	Batch ID: R88868	TestN	TestNo: EPA 120.1			Analysis Date: 5/15/2013	e: 5/15/20	13	SeqNo: 1575818		
Analyte	Result	PQL	SPK value	SPK value SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD RPI	RPDLimit (Qual
Specific Conductance	10050.000	0.10	9992	0	101	85	115				

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

Advanced Technology Laboratories, Inc.

Calculations are based on raw values ы ч

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RPD outside accepted recovery limits

Value above quantitation range

H Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix inter-

Spike/Surrogate outside of limits due to matrix interference

Print Date: 04-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-10-192

Lab Order: N010249 **Collection Date:** 5/14/2013 11:11:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010249-005

Analyses Result MDL PQL Qual Units DF Date Analyzed

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130515A QC Batch: R88902 PrepDate: Analyst: QBM Fluoride 4.3 0.060 2.5 mg/L 5 5/15/2013 12:24 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



ANALYTICAL QC SUMMARY REPORT CH2M HILL N010249 Work Order: CLIENT:

Date: 04-Jun-13

TestCode: 300_W_FPGE

PG&E Topock, 423575.MP.07.TS Project:

Sample ID: MB-R88902_F	SampType: MBLK	TestCode: 300_W_FPGE Units: mg/L	Prep Date:	RunNo: 88902
Client ID: PBW	Batch ID: R88902	TestNo: EPA 300.0	Analysis Date: 5/15/2013	SeqNo: 1578317
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	QN	0.50		

Sample ID: LCS-R88902_F Client ID: LCSW	SampType: LCS Batch ID: R88902	TestCode: 300_W_FPGE Units: mg/L TestNo: EPA 300.0	Prep Date: Analysis Date: 5/15/2013	RunNo: 88902 SeqNo: 1578318
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	2.310	0.50 2.500 0	92.4 90 110	
Sample ID: N010249-005ADUP Client ID: ZZZZZ	SampType: DUP Batch ID: R88902	TestCode: 300_W_FPGE Units: mg/L TestNo: EPA 300.0	Prep Date: Analysis Date: 5/15/2013	RunNo: 88902 SeqNo: 1578322
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	4.485	2.5	4.335	3.40 20
Sample ID: N010249-005AMS Client ID: ZZZZZZ	SampType: MS Batch ID: R88902	TestCode: 300_W_FPGE Units: mg/L TestNo: EPA 300.0	Prep Date: Analysis Date: 5/15/2013	RunNo: 88902 SeqNo: 1578323
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	16.280	2.5 12.50 4.335	95.6 80 120	
Sample ID: N010249-005AMSD	SampType: MSD	TestCode: 300_W_FPGE Units: mg/L	Prep Date:	RunNo: 88902
Client ID: ZZZZZZ	Batch ID: R88902	TestNo: EPA 300.0	Analysis Date: 5/15/2013	SeqNo: 1578324

Client ID: ZZZZZZ Batch ID: R8902 TestNo: EPA 300. Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual Fluoride 16.305 2.5 12.50 4.335 95.8 80 120 16.28 0.153 20	Sample ID: N010249-005AMSD	SampType: MSD	TestCoo	de: 300_W_FP	TestCode: 300_W_FPGE Units: mg/L		Prep Date:	te:		RunNo: 88902	902	
Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val 16.305 2.5 12.50 4.335 95.8 80 120 16.28	Client ID: ZZZZZZ	Batch ID: R88902	Test	10: EPA 300.0			Analysis Da	te: 5/15/2013		SeqNo: 15	78324	
16.305 2.5 12.50 4.335 95.8 80 120 16.28 0.153	Analyte	Result	PQL		SPK Ref Val	%REC	LowLimit	HighLimit RPD	Ref Val	%RPD	RPDLimit	Qual
	Fluoride	16.305	2.5	12.50	4.335	92.8	80	120	16.28	0.153	20	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

RPD outside accepted recovery limits Calculations are based on raw values Value above quantitation range ы ч

Spike/Surrogate outside of limits due to matrix interference H Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix inter

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Print Date: 04-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-51-192

Lab Order: N010249 **Collection Date:** 5/13/2013 3:05:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010249-001

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130603A	QC Batch: 430	46		PrepDate:	5/21/2013	Analyst: CEI
Arsenic	3.6	0.035	0.10	μg/L	1	6/3/2013 02:01 PM
Manganese	ND	0.16	0.50	μg/L	1	6/3/2013 02:01 PM
Molybdenum	41	0.074	0.50	μg/L	1	6/3/2013 02:01 PM
Selenium	17	0.084	0.50	μg/L	1	6/3/2013 02:01 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



Print Date: 04-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-59-100-192

Lab Order: N010249 **Collection Date:** 5/13/2013 12:52:00 PM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010249-002

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130603A	QC Batch: 430	46		PrepDate:	5/21/2013	Analyst: CEI
Arsenic	1.9	0.035	0.10	μg/L	1	6/3/2013 02:07 PM
Manganese	ND	0.16	0.50	μg/L	1	6/3/2013 04:02 PM
Molybdenum	5.3	0.074	0.50	μg/L	1	6/3/2013 02:07 PM
Selenium	3.9	0.084	0.50	μg/L	1	6/3/2013 02:07 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



Print Date: 04-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-66-230-192

Lab Order: N010249 **Collection Date:** 5/13/2013 9:05:00 AM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010249-003

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130603A	QC Batch: 430	46		PrepDate:	5/21/2013	Analyst: CEI
Arsenic	5.6	0.035	0.10	μg/L	1	6/3/2013 02:12 PM
Manganese	ND	0.16	0.50	μg/L	1	6/3/2013 02:12 PM
Molybdenum	77	0.074	0.50	μg/L	1	6/3/2013 02:12 PM
Selenium	12	0.084	0.50	μg/L	1	6/3/2013 02:12 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



Print Date: 04-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-68-180-192

Lab Order: N010249 **Collection Date:** 5/13/2013 10:56:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010249-004

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130603A	QC Batch: 430	046		PrepDate:	5/21/2013	Analyst: CEI
Arsenic	2.5	0.035	0.10	μg/L	1	6/3/2013 02:18 PM
Manganese	ND	0.16	0.50	μg/L	1	6/3/2013 04:07 PM
Molybdenum	38	0.074	0.50	μg/L	1	6/3/2013 02:18 PM
Selenium	10	0.084	0.50	μg/L	1	6/3/2013 02:18 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



Print Date: 04-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-10-192

Lab Order: N010249 **Collection Date:** 5/14/2013 11:11:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010249-005

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY IC	P-MS					
	EPA 3010A		EPA	A 6020		
RunID: ICP7_130603A	QC Batch: 43	046		PrepDate:	5/21/2013	Analyst: CEI
Molybdenum	32	0.074	0.50	μg/L	1	6/3/2013 02:24 PM
Selenium	6.4	0.084	0.50	μg/L	1	6/3/2013 02:24 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



Print Date: 04-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-20-130-192

Lab Order: N010249 **Collection Date:** 5/14/2013 8:20:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010249-006

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
DISSOLVED METALS BY I	CP-MS					
	EPA 3010A		EP.	A 6020		
RunID: ICP7_130603A	QC Batch: 430)46		PrepDate:	5/21/2013	Analyst: CEI
Arsenic	4.6	0.035	0.10	μg/L	1	6/3/2013 02:29 PM
Manganese	ND	0.16	0.50	μg/L	1	6/3/2013 02:29 PM
Molybdenum	41	0.074	0.50	μg/L	1	6/3/2013 02:29 PM
Selenium	24	0.084	0.50	μg/L	1	6/3/2013 02:29 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



Print Date: 04-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: TW-01-192

Lab Order: N010249 **Collection Date:** 5/14/2013 1:52:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010249-008

Analyses	Resi	ult	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY IC	P-MS							
	EPA 3010A			EP	A 6020			
RunID: ICP7_130603A	QC Batch:	430	46		PrepDa	ate:	5/21/2013	Analyst: CEI
Molybdenum		13	0.074	0.50		μg/L	1	6/3/2013 02:35 PM
Selenium		19	0.084	0.50		μg/L	1	6/3/2013 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



ANALYTICAL QC SUMMARY REPORT CH2M HILL N010249 Work Order: CLIENT:

TestCode: 6020_DIS

Date: 04-Jun-13

PG&E Topock, 423575.MP.07.TS Project:

Sample ID: MB-43046	SampType: MBLK	TestCode: 6020_DIS	3020_DIS	Units: µg/L		Prep Date:	e: 5/21/2013	RunNo: 89088	
Client ID: PBW	Batch ID: 43046	TestNo: E	TestNo: EPA 6020	EPA 3010A		Analysis Date: 6/3/2013	ə: 6/3/2013	SeqNo: 1587612	
Analyte	Result	PQL SI	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Val	%RPD RPDLimit	imit Qual
Arsenic Manganese Molybdenum Selenium	ON ON ON ON ON ON ON ON ON ON ON ON ON O	0.10 0.50 0.50 0.50							
Sample ID: LCS-43046 Client ID: LCSW	SampType: LCS Batch ID: 43046	TestCode: 6020_DIS TestNo: EPA 6020	stCode: 6020_DIS TestNo: EPA 6020	Units: µg/L EPA 3010A		Prep Date: 5/21/201 : Analysis Date: 6/3/2013	e: 5/21/2013 e: 6/3/2013	RunNo: 89088 SeqNo: 1587613	
Analyte	Result	PQL SI	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Val	%RPD RPDLimit	imit Qual
Arsenic	9.548	0.10	10.00	0	95.5	85	115		
Molybdenum	9.381	0.50	10.00	0	93.8	82	115		
Selenium	8.846	0.50	10.00	0	88.5	85	115		
	SampType: MS	TestCode: 6020_DIS	3020_DIS	Units: µg/L		Prep Date:		RunNo: 89088	
Client ID: ZZZZZZ	Batch ID: 43046	TestNo: E	TestNo: EPA 6020	EPA 3010A		Analysis Date:	e: 6/3/2013	SeqNo: 1587617	
Analyte	Result	PQL SI	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Val	%RPD RPDLimit	imit Qual
Arsenic	10.912	0.10	10.00	1.242	2.96	75	125		
Manganese Molybdenum	94.653	0.50	100.0	0.3006	94.4	75	125 125		
Selenium	9.335	0.50	10.00	0.2242	91.1	75	125		
Sample ID: N010257-001B-MSD	SampType: MSD Batch ID: 43046	TestCode: 6020_DIS	stCode: 6020_DIS	Units: µg/L		Prep Date:	e: 5/21/2013	RunNo: 89088 SegNo: 1587618	
	Result	PQL SI		SPK Ref Val	%REC	LowLimit	٠,	%RPD RPDLimit	imit Qual
Arsenic	10.821	0.10	10.00	1.242	95.8	75	125 10.91	0.840	20

	Analyte detected in the ass	Not Detected at the Report	Surrogate Diluted Out	vanced Technolog	iboratories, Inc.
Qualifiers:	B A	N QN	S OO	Adva	12

RPD outside accepted recovery limits

Value above quantitation range

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sted in the associated Method Blank

at the Reporting Limit

Spike/Surrogate outside of limits due to matrix interference

H Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix inter-

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Calculations are based on raw values

ANALYTICAL QC SUMMARY REPORT

PG&E Topock, 423575.MP.07.TS

CH2M HILL

N010249

CLIENT: Work Order:

Project:

TestCode: 6020_DIS

Sample ID: N010257-001B-MSD SampType: MSD	SampType: MSD	TestCod	TestCode: 6020_DIS	Units: µg/L		Prep Date:	e: 5/21/2013	13	RunNo: 89088	88	
Client ID: ZZZZZZ	Batch ID: 43046	TestN	TestNo: EPA 6020	EPA 3010A	•	Analysis Da	Analysis Date: 6/3/2013	e	SeqNo: 1587618	7618	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit	Qual
Manganese	94.731	0.50	100.0	0.3006	94.4	75	125	94.65	0.0818	20	
Molybdenum	12.853	0.50	10.00	2.194	107	75	125	12.88	0.209	20	
Selenium	9.251	0.50	10.00	0.2242	90.3	75	125	9.335	0.903	20	

Qualifiers:

B Analyte detected in the associated Method Blank

ы ч

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Value above quantitation range H Holding tir

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

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CHAIN OF CUSTODY RECORD

5/14/2013 3:50:25 PM

Page 1 OF 1

								U .	., O	OGGIODI REGORD	3/14/2013 3.30.23 FW Fage 1	. 🗥 .	<u> </u>
Project Name PC Location Topoc Project Manager	:k		Container: servatives:	Poly HNO3,	500 ml Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	1 Liter Poly 4°C	1 Liter Poly 4°C	1Liter Poly 4°C				
Sample Manager	Shawn Du	ffy	Filtered:	Field	Field	Field	NA	NA	NA				
		Holo	ding Time:	180	180	180	14	14	30				
Project Number Task Order Project 2013-GM Turnaround Time Shipping Date: 5 COC Number: 2:	IP-192-Q2 • 10 Day: 5/14/2013	s	Matrix	Arsenic (6020A) Field Filtered	Metals (6020A) Field Filtered Mo,Se	Metals (6020A) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Anions (E300.0) Fluoride	Extra (*)			Number of Containers	COMMENT
MW-51-192	5/13/2013	15:05	Water	Х		х	Х			NO10249-1		2	
MW-59-100-192	5/13/2013	12:52	Water	ж		Х	х		х	1 -2,		3	
MW-66-230-192	5/13/2013	9:05	Water	х		х	х		х	- 3		3	
MW-68-180-192	5/13/2013	10:56	Water	х		х	X		x :	- 4		3	
MW-10-192	5/14/2013	11:11	Water		х		х	х		- 2		2	:
MW-20-130-192	5/14/2013	8:20	Water	х	-	Х	х			- G		2	
MW-50-200-192	5/14/2013	15:11	Water				х			- 7		4	
TW-01-192	5/14/2013	13:52	Water		x		х			_ 8		2	
						, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					TOTAL NUMBER OF CONTAINERS	18	

Approved by Sampled by Relinquished by Reseived by

Received by

/Signatures

Date/Time 5ーパー3

Shipping Details

Method of Shipment: courier

On Ice: @1 no 3.0 1121

Sample Custody

ATTN:

and Marion Report Copy to Shawn Duffy (530) 229-3303

Special Instructions:

April 15 to May 9, 2013

Reinquished by

14M4413 /635 Airbill No: 14M4413 /900 Lab Name: Lab Phone

Lab Name: ADVANCED TECHNOLOGY LABORATO

Lab Phone: (702) 307-2659

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 o	r further in	struction, pleas	e contact our F	Project Coord	linator at (702)) 307-2659.			
Cooler Received/Opened On:	5/14/2013	}			Workorder:	N010249			
Rep sample Temp (Deg C):	3.0				IR Gun ID:	1			
Temp Blank:	Yes	✓ No							
Carrier name:	ATL								
Last 4 digits of Tracking No.:	NA			Packing	Material Used:	None			
Cooling process:	✓ Ice	lce Pack	Dry Ice	Other	[] None				
		<u>S</u>	ample Receip	ot Checklist	•				
1. Shipping container/cooler in	good condi	tion?			Yes 🗹	No 🗌	Not Present		
2. Custody seals intact, signed	, dated on s	shippping containe	er/cooler?		Yes 🗌	No 🗌	Not Present	✓	
3. Custody seals intact on sam	nple botties?	>			Yes 🗌	No 🗆	Not Present	\checkmark	
4. Chain of custody present?					Yes 🗹	No 🗀			
5. Sampler's name present in 0	COC?				Yes 🗸	No 🗀			
6. Chain of custody signed who	en relinquis	hed and received	?		Yes 🗹	No 🗆			
7. Chain of custody agrees wit	h sample la	bels?			Yes 🗹	No 🗆			
8. Samples in proper container	r/bottle?				Yes 🗸	No 🗆			
9. Sample containers intact?					Yes 🗹	No 🗆			
10. Sufficient sample volume f	or indicated	I test?			Yes 🗹	No 🗀			
11. All samples received within	n holding tin	ne?			Yes 🗹	No 🗆			
12. Temperature of rep sample	e or Temp E	Blank within accep	table limit?		Yes 🗹	No 🗀	NA		
13. Water - VOA vials have ze	ro headspa	ce?			Yes 🗌	No 🗔	NA	Y	
14. Water - pH acceptable upo Example: pH > 12 for (C	•	for Metals			Yes 🗸	No 🗌	NA		
15. Did the bottle labels indica	te correct p	reservatives used	?		Yes 🗹	No 🗀	NA		
16. Were there Non-Conforma W	ince issues /as Client n				Yes ☐ Yes ☐	No □ No □	NA NA	y	
Comments:									
Checklist Completed B	мвс //	nov 5/15/1	3			Reviewed By:			

Sample Calculation

METHOD: EPA 300

TEST NAME: INORGANIC ANIONS BY IC

MATRIX: WATER

FORMULA:

Calculate the Fluoride concentration, in mg/L, in the original sample as follows:

Fluoride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration DF = dilution factor

For N010249-005A, concentration in mg/L are calculated as follows:

Fluoride, mg/L = 0.867 * 5

= 4.335

Adrsh

Reporting N010249-005A results in two significant figures,

Fluoride, mg/L = 4.3

Sample Calculation

METHOD: EPA 6020

TEST NAME: Heavy Metals by ICP-MS

MATRIX: Water

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

Arsenic, ug/L

A * DF * PF

where:

A = ug/L, calculated concentration

DF = dilution factor

PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N010249-001B, the concentration in ug/L is calculated as follows:

Arsenic, ug/L

= 3.5650720155 * 1 * (25/25)

= 3.5650720155

Reporting results in two significant figures,

Arsenic, ug/L

3.6

cluhz

ICP-Metals in Water

Dilution Test Summary

Work Order No.:

N010249

Test Method: EPA 6020

Matrix: Batch No.: Water 43046

Analysis Date:

Instrument ID:

06/03/13

Instrument Description:

ICP-MS #2 Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to As, Mn, Mo and Se. The calculated values were <25X RL. However, PS@2X passed criteria.

	Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
	N010257-001B-DT 5X	Arsenic	μg/L	1.222504946	NA	1.241655693	1.54%	10
- [N010257-001B-DT 5X	Manganese	μg/L	0	NA	0.300590346	100.00%	10
Г	N010257-001B-DT 5X	Molybdenum	μg/L	1.967115745	NA	2.193829049	10.33%	10
	N010257-001B-DT 5X	Selenium	μg/L	0.575201462	NA	0.224246454	156.50%	10

Note: NA - Not applicable

Date: 04-Jun-13

CLIENT:

CH2M HILL

Work Order:

N010249

Project:

PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N010257-001B-PS Client ID: ZZZZZZ	SampType: PS Batch ID: 43046		de: 6020_DIS No: EPA 6020			Prep Da Analysis Da		3	RunNo: 890 SeqNo: 158		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.749	0.20	20.00	1.242	103	75	125				
Manganese	193.985	1.0	200.0	0.3006	96.8	75	125				
Molybdenum	23.425	1.0	20.00	2.194	106	75	125				
Selenium	19.366	1.0	20.00	0.2242	95.7	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

June 05, 2013

Shawn P. Duffy CA-ELAP No.: 2676

CH2M HILL NV Cert. No.: NV-009222007A

155 Grand Avenue, Suite 1000

Oakland, CA 94612

TEL: (530) 229-3303 FAX: (530) 339-3303 Workorder No.: N010265

RE: PG&E Topock, 423575.MP.07.TS

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on May 16, 2013 by Advanced Technology Laboratories, Inc. . 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,

Jose Tenorio Jr.

in gegenmends

Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.07.TS CASE NARRATIVE

Date: 05-Jun-13

Lab Order: N010265

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6010B_Dissolved

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Cadmium possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Dilution was necessary on Matrix Spike (MS) and Matrix Spike Duplicate (MSD) since plasma was extinguished when matrix spike was analyzed at no dilution. Sample was reported at a dilution same as the matrix spikes.



CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.07.TS Work Order Sample Summary

Date: 05-Jun-13

Lab Order: N010265
Contract No: 2013-GMP-192-

Lab Sample ID Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N010265-001A MW-22-192	Water	5/15/2013 12:06:00 PM	5/16/2013	6/5/2013
N010265-001B MW-22-192	Water	5/15/2013 12:06:00 PM	5/16/2013	6/5/2013
N010265-002A MW-36-090-192	Water	5/15/2013 2:17:00 PM	5/16/2013	6/5/2013
N010265-002B MW-36-090-192	Water	5/15/2013 2:17:00 PM	5/16/2013	6/5/2013
N010265-003A MW-52D-192	Water	5/16/2013 10:45:00 AM	5/16/2013	6/5/2013
N010265-003B MW-52D-192	Water	5/16/2013 10:45:00 AM	5/16/2013	6/5/2013
N010265-004A MW-52M-192	Water	5/16/2013 10:42:00 AM	5/16/2013	6/5/2013
N010265-004B MW-52M-192	Water	5/16/2013 10:42:00 AM	5/16/2013	6/5/2013
N010265-005A MW-52S-192	Water	5/16/2013 11:29:00 AM	5/16/2013	6/5/2013
N010265-005B MW-52S-192	Water	5/16/2013 11:29:00 AM	5/16/2013	6/5/2013
N010265-006A MW-53D-192	Water	5/16/2013 9:15:00 AM	5/16/2013	6/5/2013
N010265-006B MW-53D-192	Water	5/16/2013 9:15:00 AM	5/16/2013	6/5/2013
N010265-007A MW-53M-192	Water	5/16/2013 9:29:00 AM	5/16/2013	6/5/2013
N010265-007B MW-53M-192	Water	5/16/2013 9:29:00 AM	5/16/2013	6/5/2013



Print Date: 05-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-22-192

Lab Order: N010265 **Collection Date:** 5/15/2013 12:06:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010265-001

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130517A
 QC Batch:
 R88909
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 13000
 0.10
 0.10
 umhos/cm
 1
 5/17/2013

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

11 Holding times for preparation of analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 05-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-36-090-192

Lab Order: N010265 **Collection Date:** 5/15/2013 2:17:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010265-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130517A
 QC Batch:
 R88909
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 980
 0.10
 0.10
 umhos/cm
 1
 5/17/2013

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



Print Date: 05-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-52D-192

Lab Order: N010265 **Collection Date:** 5/16/2013 10:45:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010265-003

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130517A
 QC Batch:
 R88909
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 20000
 0.10
 0.10
 umhos/cm
 1
 5/17/2013

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



Print Date: 05-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-52M-192

Lab Order: N010265 **Collection Date:** 5/16/2013 10:42:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010265-004

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130517A
 QC Batch:
 R88909
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 14000
 0.10
 0.10
 umhos/cm
 1
 5/17/2013

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



Print Date: 05-Jun-13

Advanced Technology Laboratories, Inc.

CH2M HILL Client Sample ID: MW-52S-192

Lab Order: N010265 **Collection Date:** 5/16/2013 11:29:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010265-005

CLIENT:

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130517A
 QC Batch:
 R88909
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 8400
 0.10
 0.10
 umhos/cm
 1
 5/17/2013

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



Print Date: 05-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-53D-192

Lab Order: N010265 **Collection Date:** 5/16/2013 9:15:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010265-006

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130517A
 QC Batch:
 R88909
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 24000
 0.10
 0.10
 umhos/cm
 1
 5/17/2013

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



Print Date: 05-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-53M-192

Lab Order: N010265 **Collection Date:** 5/16/2013 9:29:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010265-007

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 WETCHEM_130517A
 QC Batch:
 R88909
 PrepDate:
 Analyst:
 LCC

 Specific Conductance
 19000
 0.10
 0.10
 umhos/cm
 1
 5/17/2013

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



CLIENT:

ANALYTICAL QC SUMMARY REPORT CH2M HILL N010265 Work Order:

TestCode: 120.1_WPGE

Date: 05-Jun-13

PG&E Topock, 423575.MP.07.TS Project:

Sample ID: LCS-R88909	SampType: LCS	TestCo	ide: 120.1_WPG	TestCode: 120.1_WPGE Units: umhos/cm	/cm	Prep Date:			RunNo: 88909	60	
Client ID: LCSW	Batch ID: R88909	Test	TestNo: EPA 120.1			Analysis Date:	: 5/17/2013		SeqNo: 1578830	8830	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	%REC LowLimit HighLimit RPD Ref Val	HighLimit F	PD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	10230.000	0.10	9992	0	102	85	115				
Sample ID: N010265-005B-DUP	SampType: DUP	TestCo	ide: 120.1_WPG	TestCode: 120.1_WPGE Units: umhos/cm	/cm	Prep Date:			RunNo: 88909	60	
Client ID: ZZZZZ	Batch ID: R88909	Test	TestNo: EPA 120.1		•	Analysis Date: 5/17/2013	5/17/2013		SeqNo: 1578836	8836	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit R	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	8370.000	0.10						8350	0.239	10	
Sample ID: N010265-005B MS	SampType: MS	TestCo	ide: 120.1_WPG	TestCode: 120.1_WPGE Units: umhos/cm	/cm	Prep Date:			RunNo: 88909	60	
Client ID: ZZZZZZ	Batch ID: R88909	Test	TestNo: EPA 120.1		*	Analysis Date:	: 5/17/2013		SeqNo: 1578838	8838	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Val	PD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	17960.000	0.20	9992	8350	96.2	75	125				
Sample ID: N010265-005B MSD	SampType: MSD	TestCo	TestCode: 120.1_WPGE	E Units: umhos/cm	/cm	Prep Date:			RunNo: 88909	60	
Client ID: ZZZZZZ	Batch ID: R88909	Test	TestNo: EPA 120.1			Analysis Date:	: 5/17/2013		SeqNo: 1578839	8839	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit R	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	17960.000	0.20	9992	8350	96.2	75	125	17960	0	10	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691 Advanced Technology Laboratories, Inc.

Value above quantitation range ы ч

RPD outside accepted recovery limits Calculations are based on raw values

Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix inter

Spike/Surrogate outside of limits due to matrix interference

Print Date: 05-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-22-192

Lab Order: N010265 **Collection Date:** 5/15/2013 12:06:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010265-001

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY IC	CP						
	EPA 3010A		EP	A 6010B			
RunID: ICP2_130524C	QC Batch: 430	016		PrepD	ate:	5/20/2013	Analyst: CEI
Barium	75	0.72	6.0		ug/L	2	5/24/2013 04:33 PM
Beryllium	ND	0.24	2.0		ug/L	2	5/24/2013 04:33 PM
Cadmium	ND	0.74	6.0		ug/L	2	5/24/2013 04:33 PM
Cobalt	ND	0.74	6.0		ug/L	2	5/24/2013 04:33 PM
Copper	ND	4.3	10		ug/L	2	5/24/2013 04:33 PM
Lead	ND	3.2	20		ug/L	2	5/24/2013 04:33 PM
Nickel	ND	1.4	10		ug/L	2	5/24/2013 04:33 PM
Silver	ND	0.78	6.0		ug/L	2	5/24/2013 04:33 PM
Vanadium	ND	0.62	6.0		ug/L	2	5/24/2013 04:33 PM
Zinc	ND	2.7	20		ug/L	2	5/24/2013 04:33 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



ANALYTICAL QC SUMMARY REPORT CH2M HILL N010265 Work Order: CLIENT:

TestCode: 6010_WDPGEPPB

Date: 05-Jun-13

PG&E Topock, 423575.MP.07.TS Project:

Sample ID: MB-43016	SampType: MBLK	TestCode: 6010_V	TestCode: 6010_WDPGE Units: ug/L		Prep Date: 5/20/2013	/2013	RunNo: 89025		
Client ID: PBW	Batch ID: 43016	TestNo: EPA 6010B	010B EPA 3010A	An	Analysis Date: 5/24/2013	/2013	SeqNo: 1585576		
Analyte	Result	PQL SPK val	SPK value SPK Ref Val	%REC Lo	%REC LowLimit HighLimit RPD Ref Val	iit RPD Ref Val	%RPD RPDLimit Qual	mit	ual
Barium	QN	3.0							
Beryllium	QN	1.0							
Cadmium	QN	3.0							
Cobalt	QN	3.0							
Copper	QN	5.0							
Lead	QN	10							
Nickel	QN	5.0							
Silver	QN	3.0							
Vanadium	QN	3.0							
Zinc	QN	10							

Client ID: LCSW Batch ID: 43016 TestNo: EPA 6010B EPA 3010A Analysis Date: 5/24/2013 5/24/2013 Analyste Result PQL SPK value SPK Ref Val %REC LowLimit High Limit RPD Ref Val Barvillium 9.421 1.0 10.00 0 94.2 85 115 Cadmium 9.244 3.0 10.00 0 92.4 85 115 Cobalt 11.329 3.0 10.00 0 10.1 85 115 Lead 46.792 6.0 10.00 0 10.1 85 115 Nickel 48.363 5.0 60.00 0 96.7 85 115 Vanadium 9.372 3.0 10.00 0 96.7 85 115 Lead 9.372 3.0 60.00 0 96.7 85 115 Vanadium 9.372 3.0 10.00 0 96.7 85 115	Sample ID: LCS-43016	SampType: LCS	TestCo	de: 6010_WDP	TestCode: 6010_WDPGE Units: ug/L		Prep Date	Prep Date: 5/20/2013	RunNo: 89025	25	
Result PQL SPK value SPK Ref Val n 9.421 1.0 50.00 0 m 9.244 3.0 10.00 0 11.329 3.0 10.00 0 10.052 5.0 10.00 0 46.792 10 50.00 0 48.363 5.0 50.00 0 9.372 3.0 10.00 0 10 50.00 0	Client ID: LCSW	Batch ID: 43016	Test	Vo: EPA 6010E			Analysis Date	e: 5/24/2013	SeqNo: 1585581	5581	
n 50.617 3.0 50.00 0 101 85 m 9.421 1.0 10.00 0 94.2 85 m 9.244 3.0 10.00 0 92.4 85 11.329 3.0 10.00 0 113 85 46.792 10 50.00 0 93.6 85 48.363 5.0 50.00 0 96.7 85 m 9.372 3.0 10.00 0 93.7 85 m 50.476 10 50.00 0 101 85	Analyte	Result	PQL	SPK value		%REC	LowLimit	HighLimit RPD Ref Va		%RPD RPDLimit Qual	Qual
m 9.421 1.0 10.00 0 94.2 85 m 9.244 3.0 10.00 0 92.4 85 11.329 3.0 10.00 0 11.3 85 46.792 10 50.00 0 10.1 85 48.363 5.0 50.00 0 96.7 85 m 9.372 3.0 10.00 0 93.7 85 m 50.476 10 50.00 0 101 85	Barium	50.617	3.0	50.00	0	101	85	115			
m 9.244 3.0 10.00 0 92.4 85 11.329 3.0 10.00 0 113 85 10.052 5.0 10.00 0 101 85 46.792 10 50.00 0 93.6 85 48.825 3.0 50.00 0 96.7 85 m 9.372 3.0 10.00 0 93.7 85 m 50.476 10 50.00 0 101 85	Beryllium	9.421	1.0	10.00	0	94.2	85	115			
11.329 3.0 10.00 0 113 85 10.052 5.0 10.00 0 101 85 46.792 10 50.00 0 93.6 85 48.363 5.0 50.00 0 96.7 85 1m 9.372 3.0 10.00 0 93.7 85 50.476 10 50.00 0 101 85	Cadmium	9.244	3.0	10.00	0	92.4	85	115			
10.052 5.0 10.00 0 10.1 85 46.792 10 50.00 0 93.6 85 48.363 5.0 50.00 0 96.7 85 1m 9.372 3.0 10.00 0 93.7 85 50.476 10 50.00 0 10.1 85	Cobalt	11.329	3.0	10.00	0	113	85	115			
46.792 10 50.00 0 93.6 85 48.363 5.0 50.00 0 96.7 85 48.825 3.0 50.00 0 97.6 85 um 9.372 3.0 10.00 0 93.7 85 50.476 10 50.00 0 101 85	Copper	10.052	2.0	10.00	0	101	85	115			
48.363 5.0 50.00 0 96.7 85 48.825 3.0 50.00 0 97.6 85 um 9.372 3.0 10.00 0 93.7 85 50.476 10 50.00 0 101 85	Lead	46.792	10	50.00	0	93.6	85	115			
48.825 3.0 50.00 0 97.6 85 lium 9.372 3.0 10.00 0 93.7 85 50.476 10 50.00 0 101 85	Nickel	48.363	2.0	50.00	0	2.96	85	115			
adium 9.372 3.0 10.00 0 93.7 85 85 85 86.00 101 85	Silver	48.825	3.0	50.00	0	9.76	85	115			
50.476 10 50.00 0 101 85	Vanadium	9.372	3.0	10.00	0	93.7	85	115			
	Zinc	50.476	10	50.00	0	101	85	115			

H Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix interference RPD outside accepted recovery limits Calculations are based on raw values Value above quantitation range ы ч B Analyte detected in the associated Method Blank ND Not Detected at the Reporting Limit Advanced Technology Laboratories, Inc. DO Surrogate Diluted Out Qualifiers:

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Project: PG&E Topock, 423575.MP.07.TS

CH2M HILL

N010265

CLIENT: Work Order:

Sample ID: N010265-001A-MS	SampType: MS	TestCo	de: 6010_WDP	TestCode: 6010_WDPGE Units: ug/L		Prep Dat	Prep Date: 5/20/2013	RunNo: 89025	
Client ID: ZZZZZZ	Batch ID: 43016	Test	TestNo: EPA 6010B	EPA 3010A		Analysis Dat	Analysis Date: 5/24/2013	SeqNo: 1585586	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit	HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Barium	124.343	0.9	20.00	74.57	99.2	75	125		
Beryllium	10.533	2.0	10.00	0	105	75	125		
Cadmium	4.618	0.9	10.00	0	46.2	75	125		S
Cobalt	11.832	0.9	10.00	0	118	75	125		
Copper	16.171	10	10.00	5.212	110	75	125		
Lead	38.119	20	20.00	0	76.2	75	125		
Nickel	49.152	10	20.00	0	98.3	75	125		
Silver	61.714	0.9	20.00	5.671	112	75	125		
Vanadium	10.871	0.9	10.00	0	109	75	125		
Zinc	54.686	20	20.00	5.028	99.3	75	125		
Sample ID: N010265-001A-MSD SampType: MSD	SampType: MSD	TestCo	de: 6010_WDP	TestCode: 6010_WDPGE Units: ug/L		Prep Date:	e: 5/20/2013	RunNo: 89025	
Client ID: ZZZZZZ	Batch ID: 43016	Test	TestNo: EPA 6010B	EPA 3010A		Analysis Date:	e: 5/24/2013	SeqNo: 1585587	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit	HighLimit RPD Ref Val	%RPD RPDLimit	Qual

Sample ID: N010265-001A-MSD SampType: MSD	SampType: MSD	TestCo	TestCode: 6010_WDPGE Units: ug/L	E Units: ug/L		Prep Date:	e: 5/20/2013	13	RunNo: 89025	25	
Client ID: ZZZZZZ	Batch ID: 43016	Test	TestNo: EPA 6010B	EPA 3010A		Analysis Date:	e: 5/24/2013	3	SeqNo: 1585587	5587	
Analyte	Result	PQL	SPK value S	SPK Ref Val	%REC	LowLimit HighLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	126.754	0.9	50.00	74.57	104	75	125	124.3	1.92	20	
Beryllium	10.484	2.0	10.00	0	105	75	125	10.53	0.472	20	
Cadmium	4.521	0.9	10.00	0	45.2	75	125	4.618	0	20	S
Cobalt	12.462	0.9	10.00	0	125	75	125	11.83	5.19	20	
Copper	16.644	10	10.00	5.212	114	75	125	16.17	2.89	20	
Lead	38.074	20	20.00	0	76.1	75	125	38.12	0.117	20	
Nickel	48.843	10	20.00	0	7.76	75	125	49.15	0.631	20	
Silver	62.007	0.9	20.00	5.671	113	75	125	61.71	0.475	20	
Vanadium	10.620	0.9	10.00	0	106	75	125	10.87	2.33	20	
Zinc	57.720	20	20.00	5.028	105	75	125	54.69	5.40	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

Advanced Technology 3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691 Laboratories, Inc.

Print Date: 05-Jun-13

Advanced Technology Laboratories, Inc.

CH2M HILL Client Sample ID: MW-22-192

Lab Order: N010265 **Collection Date:** 5/15/2013 12:06:00 PM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010265-001

CLIENT:

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY IC	CP-MS						
	EPA 3010A		EP.	A 6020			
RunID: ICP7_130603A	QC Batch: 430)46		PrepDa	te:	5/21/2013	Analyst: CEI
Antimony	ND	0.084	0.50		μg/L	1	6/3/2013 12:46 PM
Arsenic	13	0.035	0.10		μg/L	1	6/3/2013 12:46 PM
Manganese	2200	4.0	12		μg/L	25	6/3/2013 01:22 PM
Molybdenum	38	0.074	0.50		μg/L	1	6/3/2013 12:46 PM
Selenium	0.57	0.084	0.50		μg/L	1	6/4/2013 11:23 AM
Thallium	ND	0.075	0.50		μg/L	1	6/3/2013 12:46 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



Print Date: 05-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-36-090-192

Lab Order: N010265 **Collection Date:** 5/15/2013 2:17:00 PM

Project: PG&E Topock, 423575.MP.07.TS **Matrix:** WATER

Lab ID: N010265-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

DISSOLVED METALS BY ICP-MS

EPA 3010A EPA 6020

RunID: ICP7_130603A QC Batch: 43046 PrepDate: 5/21/2013 Analyst: CEI

Arsenic 17 0.035 0.10 µg/L 1 6/3/2013 02:40 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



Print Date: 05-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-52D-192

Lab Order: N010265 **Collection Date:** 5/16/2013 10:45:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010265-003

Analyses	Result	MDL	PQL	Qual Uni	ts DF	Date Analyzed
DISSOLVED METALS BY IC	P-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130603A	QC Batch: 430)46		PrepDate:	5/21/2013	Analyst: CEI
Arsenic	3.2	0.035	0.10	μg/L	1	6/3/2013 02:58 PM
Manganese	94	0.16	0.50	μg/L	1	6/3/2013 02:58 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



Print Date: 05-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-52M-192

Lab Order: N010265 **Collection Date:** 5/16/2013 10:42:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010265-004

Analyses Result MDL PQL Qual Units DF Date Analyzed

DISSOLVED METALS BY ICP-MS

EPA 3010A EPA 6020

RunID: ICP7_130603A QC Batch: 43046 PrepDate: 5/21/2013 Analyst: CEI

Arsenic 1.3 0.035 0.10 µg/L 1 6/3/2013 03:04 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



Print Date: 05-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-52S-192

Lab Order: N010265 **Collection Date:** 5/16/2013 11:29:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010265-005

Analyses Result MDL PQL Qual Units DF Date Analyzed

DISSOLVED METALS BY ICP-MS

EPA 3010A EPA 6020

RunID: ICP7_130603A QC Batch: 43046 PrepDate: 5/21/2013 Analyst: CEI

Arsenic 0.21 0.035 0.10 µg/L 1 6/3/2013 03:20 PM

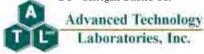
Qualifiers: B Analyte detected in the associated Method Blank

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



Print Date: 05-Jun-13

Client Sample ID: MW-53D-192

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL

Lab Order: N010265 **Collection Date:** 5/16/2013 9:15:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010265-006

Analyses	Result	MDL	PQL	Qual Unit	s DF	Date Analyzed
DISSOLVED METALS BY IC	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130604A	QC Batch: 430	46		PrepDate:	5/21/2013	Analyst: CEI
Arsenic	2.8	0.17	0.50	μg/L	5	6/4/2013 11:40 AM
Manganese	1500	4.0	12	μg/L	25	6/3/2013 03:45 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



Print Date: 05-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-53M-192

Lab Order: N010265 **Collection Date:** 5/16/2013 9:29:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010265-007

Analyses	Result	MDL	PQL	Qual Unit	s DF	Date Analyzed
DISSOLVED METALS BY IC	CP-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130603A	QC Batch: 430)46		PrepDate:	5/21/2013	Analyst: CEI
Arsenic	0.80	0.035	0.10	μg/L	1	6/3/2013 03:51 PM
Manganese	290	0.80	2.5	μg/L	5	6/3/2013 03:56 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



ANALYTICAL QC SUMMARY REPORT TestCode: 6020_DIS CH2M HILL N010265 Work Order: CLIENT:

Date: 05-Jun-13

PG&E Topock, 423575.MP.07.TS Project:

Sample ID: MB-43046	SampType: MBLK	TestCo	TestCode: 6020_DIS	Units: µg/L		Prep Date:	5/21/2013	RunNo: 89088	
Client ID: PBW	Batch ID: 43046	Test	TestNo: EPA 6020	EPA 3010A		Analysis Date: 6/3/2013	6/3/2013	SeqNo: 1587612	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit RPD Ref Val	%RPD RPDLimit Qual	a
Antimony	QN	0.50							
Arsenic	QN	0.10							
Manganese	QN	0.50							
Molybdenum	QN	0.50							
Selenium	QN	0.50							
Thallium	ND	0.50							
Sample ID: LCS-43046	SampType: LCS	TestCo	TestCode: 6020_DIS	Units: µg/L		Prep Date:	Prep Date: 5/21/2013	RunNo: 89088	
Client ID: LCSW	Batch ID: 43046	Test	TestNo: EPA 6020	EPA 3010A		Analysis Date: 6/3/2013	6/3/2013	SeqNo: 1587613	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit RPD Ref Val	%RPD RPDLimit Qual	
Antimony	9:396	0.50	10.00	0	94.0	85	115		
Arsenic	9.548	0.10	10.00	0	92.5	85	115		
Manganese	91.414	0.50	100.0	0	91.4	85	115		
Molybdenum	9.381	0.50	10.00	0	93.8	85	115		
Selenium	8.846	0.50	10.00	0	88.5	85	115		
Thallium	9.587	0.50	10.00	0	95.9	85	115		
Sample ID: N010257-001B-MS	SampType: MS	TestCo	TestCode: 6020_DIS	Units: µg/L		Prep Date:	5/21/2013	RunNo: 89088	
Client ID: ZZZZZ	Batch ID: 43046	Test	TestNo: EPA 6020	EPA 3010A		Analysis Date: 6/3/2013	6/3/2013	SeqNo: 1587617	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit RPD Ref Val	%RPD RPDLimit Qual	al
Antimony	9.952	0.50	10.00	0.09480	98.6	75	125		
Arsenic	10.912	0.10	10.00	1.242	2.96	75	125		
Manganese	94.653	0.50	100.0	0.3006	94.4	75	125		
Molybdenum	12.880	0.50	10.00	2.194	107	75	125		
Selenium	9.335	0.50	10.00	0.2242	91.1	75	125		
Thallium	10.088	0.50	10.00	0.07721	100	75	125		

RPD outside accepted recovery limits	Calculations are based on raw values	1151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691
rting Limit R		3151 W. Post Rd Las Vegas, NV 89118
ND Not Detected at the Reporting Limit	DO Surrogate Diluted Out	Advanced Technology Laboratories, Inc.

Value above quantitation range

П

B Analyte detected in the associated Method Blank

Qualifiers:

Spike/Surrogate outside of limits due to matrix interference

Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix inter-

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

PG&E Topock, 423575.MP.07.TS Project:

CH2M HILL

N010265

Work Order: CLIENT:

Sample ID: N010257-001B-MSD SampType: MSD	SampType: MSD	TestCo	TestCode: 6020_DIS	Units: µg/L		Prep Dat	Prep Date: 5/21/2013	13	RunNo: 89088	388	
Client ID: ZZZZZ	Batch ID: 43046	Test	TestNo: EPA 6020	EPA 3010A		Analysis Date: 6/3/2013	te: 6/3/201	ဗ	SeqNo: 1587618	37618	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.711	0.50	10.00	0.09480	96.2	75	125	9.952	2.45	20	
Arsenic	10.821	0.10	10.00	1.242	92.8	75	125	10.91	0.840	20	
Manganese	94.731	0.50	100.0	0.3006	94.4	75	125	94.65	0.0818	20	
Molybdenum	12.853	0.50	10.00	2.194	107	75	125	12.88	0.209	20	
Selenium	9.251	0.50	10.00	0.2242	90.3	75	125	9.335	0.903	20	
Thallium	10.226	0.50	10.00	0.07721	101	75	125	10.09	1.36	20	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

Advanced Technology Laboratories, Inc. DO Surrogate Diluted Out

Value above quantitation range ы ч

RPD outside accepted recovery limits Calculations are based on raw values 3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

H Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix interference

Print Date: 05-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-22-192

Lab Order: N010265 **Collection Date:** 5/15/2013 12:06:00 PM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER

Lab ID: N010265-001

Analyses Result MDL PQL Qual Units DF Date Analyzed

DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE

EPA 7470A

RunID: AA1_130517C QC Batch: 43006 PrepDate: 5/17/2013 Analyst: LCC Mercury ND 0.028 0.20 μg/L 1 5/17/2013

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



ANALYTICAL QC SUMMARY REPORT CH2M HILL N010265 Work Order: CLIENT:

TestCode: 7470_W_DISSPGE

Date: 05-Jun-13

PG&E Topock, 423575.MP.07.TS Project:

Sample ID: LCS-43006	SampType: LCS	TestCo	de: 7470_W_ [TestCode: 7470_W_DIS Units: µg/L		Prep Da	Prep Date: 5/17/2013	113	RunNo: 88928	128	
Client ID: LCSW	Batch ID: 43006	Test	TestNo: EPA 7470A	⋖	-	Analysis Da	Analysis Date: 5/17/2013	113	SeqNo: 1580536	10536	
Analyte	Result	PQL	SPK value	SPK value SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit Qual	Qual
Mercury	5.290	0.20	5.000	0	106	85	115				

Sample ID: MB-43006	SampType: MBLK	TestCode: 7470_W_DIS Units: µg/L	Prep Date: 5/17/2013	RunNo: 88928
Client ID: PBW	Batch ID: 43006	TestNo: EPA 7470A	Analysis Date: 5/17/2013	SeqNo: 1580537
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Mercury	ND	0.20		
Sample ID: N010265-001A-MS SampType: MS	SampType: MS	TestCode: 7470_W_DIS Units: µg/L	Prep Date: 5/17/2013	RunNo: 88928

Sample ID: N010265-001A-MS	SampType: MS	TestCoo	de: 7470_W_D	TestCode: 7470_W_DIS Units: µg/L		Prep Date	Prep Date: 5/17/2013		RunNo: 88928	8	
Client ID: ZZZZZZ	Batch ID: 43006	TestN	TestNo: EPA 7470A			Analysis Date: 5/17/2013	5/17/2013		SeqNo: 1580539	539	
Analyte	Result	PQL	SPK value	SPK value SPK Ref Val	%REC	LowLimit	%REC LowLimit HighLimit RPD Ref Val	ef Val	%RPD	%RPD RPDLimit Qual	Qual
Mercury	5.365	0.20	5.000	0	107	75	125				
Sample ID: N010265-001A-MSD SampType: MSD	SampType: MSD	TestCoo	de: 7470_W_D	TestCode: 7470_W_DIS Units: µg/L		Prep Date	Prep Date: 5/17/2013		RunNo: 88928	8	
Client ID: ZZZZZZ	Batch ID: 43006	TestN	TestNo: EPA 7470A	_	1	Analysis Date: 5/17/2013	5/17/2013		SeqNo: 1580540	540	
Analyte	Result	PQL	SPK value	SPK value SPK Ref Val	%REC	LowLimit	%REC LowLimit HighLimit RPD Ref Val	ef Val	%RPD	%RPD RPDLimit Qual	Qual
Mercury	5.311	0.20	5.000	0	106	75	125	5.365	1.01	20	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

RPD outside accepted recovery limits Value above quantitation range ы ч

Calculations are based on raw values

Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix into

Spike/Surrogate outside of limits due to matrix interference

CLIZIALUIT	. H							5/16/2013 1:52:03 PM Page 1	OF	
Project Name PC Location Topoc Project Manager	k		Container: servatives:	500 ml Poly HNO3. 4°C	500 ml Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	1 Liter Poly 4°C			
Sample Manager		ffy	Filtered:	Field	Field	Field	NA			
			ling Time:		180	180	14			
Project Number Task Order Project 2013-GM Turnaround Time Shipping Date: 5 COC Number: 25	P-192-Q2 10 Day: /16/2013	s	Matrix	Arsenic (6020A) Field Filtered	Metals (6010B/6020A/7470Acis) Field Filtered *	Metals (6020A) Field Filtered Mn	Specific Conductance (E120.1)		Number of Containers	соммен
MW-22-192	5/15/2013	12:06	Water		х	х	×		2	
MW-36-090-192	5/15/2013	14:17	Water	ж			х		2	
MW-52D-192	5/16/2013	10:45	Water	х		х	х		2	
MW-52M-192	5/16/2013	10:42	Water	· X			х		2	Ī
MW-52S-192	5/16/2013	11:29	Water	х			ж		2	
MW-53D-192	5/16/2013	9:15	Water	Х		х	х		2	
MW-53M-192	5/16/2013	9:29	Water	×		х	х		2	
	<u> </u>	<u> </u>		L		······································		TOTAL NUMBER OF CONTAINERS	14	

*Metals (6010B/6020A/7470Adis) FF T22:Sb,As,Ba,Be,Cd,Co,Cu,Pb,Hg,Mo,Ni,Se,Ag,Tl,V,Zn.

Please use the metals list here for

MW-22-192.

Date/Time 5~16~/3 /515 Signatures Approved by Sampled by Relinquished by Received by ROMPY 13 1545 Received by

Shipping Details

Method of Shipment: courier

On Ice: (esy no 4)

Lab Name: ADVANCED TECHNOLOGY LABORATO

Lab Phone: (702) 307-2659

Airbill No:

Special Instructions:

ATTN:

April 15 to May 9, 2013

Sample Custody

and Marlon

Report Copy to

Shawn Duffy (530) 229-3303

	19R		II I
Q	-	7	

CHAIN OF CUSTODY RECORD

5/16/2013 1:52:03 PM

Page 1 OF 1

CHZIVINIL	-L							3/10/2013 1.32.03 FM Fage	· -	
Project Name PG Location Topoc Project Manager	:k		ontainer: ervatives:	Poly HNO3,	500 ml Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	1 Liter Poly 4°C		į	
Sample Manager	Shawn Duf	ffy	Filtered:	Field	Field	Field	NA			1
		Holdir	ng Time:	180	180	180	14			
Project Number Task Order Project 2013-GM Turnaround Time Shipping Date: 5 COC Number: 25	1P-192-Q2 • 10 Days 5/16/2013		Matrix	Arsenic (6020A) Field Filtered	Metals (6010B/6020A/7470Adis) Field Filtered	Metals (6020A) Field Filtered Mn	Specific Conductance (E120.1)		Number of Containers	COMMENTS
MW-22-192	5/15/2013	12:06	Water		х	х	x	NO10265-1	2	
MW-36-090-192	5/15/2013	14:17	Water	х			х	2	2	
MW-52D-192	5/16/2013	10:45	Water	х		х	х	~ 3	2	
MW-52M-192	5/16/2013	10:42	Water	х			х	-4	2	
MW-52S-192	5/16/2013	11:29	Water	, X			х	- 5	2	
MW-53D-192	5/16/2013	9:15	Water	х		х	х	- 6	2	
MW-53M-192	5/16/2013	9:29	Water	х		х	х	- 7	2	
	-							TOTAL NUMBER OF CONTAINERS	14	

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ATTN: Special Instructions:
April 15 to May 9, 2013

Sample Custody

and Report Copy to
Marion Shawn Duffy
(530) 229-3303

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 o	r further inst	ruction, please	e contact our P	roject Coord	linator at (702) 307-2659.		
Cooler Received/Opened On:	5/16/2013				Workorder:	N010265		
Rep sample Temp (Deg C):	4.2				IR Gun ID:	1		
Temp Blank:	Yes	✓ No						
Carrier name:	ATL							
Last 4 digits of Tracking No.:	NA			Packing	Material Used:	None		
Cooling process:	✓ Ice	Ice Pack	Dry Ice	Other	None			
		<u>Sa</u>	ample Receip	t Checklist				
1. Shipping container/cooler in	good conditio	n?			Yes 🗹	No 🗌	Not Present	
2. Custody seals intact, signed	, dated on shi	ppping containe	r/cooler?		Yes	No 🗆	Not Present	
3. Custody seals intact on sam	ple bottles?				Yes 🗌	No 🗔	Not Present	
4. Chain of custody present?					Yes 🗹	No 🗆		
5. Sampler's name present in C	COC?				Yes 🗹	No 🗆		
6. Chain of custody signed who	en relinquishe	d and received?	•		Yes 🗹	No 🗀		
7. Chain of custody agrees with	n sample labe	ls?			Yes 🗸	No 🗆		
8. Samples in proper container	/bottle?				Yes 🗹	No 🗆		
9. Sample containers intact?					Yes 🗹	No 🗌		
10. Sufficient sample volume for	or indicated te	st?			Yes 🗸	No 🗔		
11. All samples received within	holding time?	?			Yes 🗹	No 🗌		
12. Temperature of rep sample	or Temp Bla	nk within accept	table limit?		Yes 🗹	No 🗌	NA \square	
13. Water - VOA vials have zer	ro headspace	?			Yes 🗌	No 🗆	NA 🗹	
14. Water - pH acceptable upo Example: pH > 12 for (Cl	-	r Metals			Yes 🗹	No 🗆	NA 🗆	
15. Did the bottle labels indicat	e correct pres	servatives used?	?		Yes 🗹	No 🗆	NA 🗆	
16. Were there Non-Conformal Wa	nce issues at as Client notif				Yes Yes	No 🗌 No 🗆	NA 🗹	
Comments:								

Checklist Completed B

MBC MAC 5/17/13

Reviewed By:

Nancy Sibucao

From: Sent:

Marlon B. Cartin [marlon@atl-labs.com] Wednesday, June 05, 2013 1:21 PM

To: Subject: Nancy Sibucao FW: List of Metals

Attachments:

2013-GMP-192-Q2_COC_5-15-2013.pdf

Forwarding.

From: Shawn.Duffy@CH2M.com [mailto:Shawn.Duffy@CH2M.com]

Sent: Thursday, May 23, 2013 12:24 PM

To: marlon@atl-labs.com

Cc: samplecontrol@atl-labs.com; Barry.Collom@CH2M.com

Subject: RE: List of Metals

Hi Marlon,

Attached is the corrected COC with the metals list.

Shawn

From: Marlon B. Cartin [mailto:marlon@atl-labs.com]

Sent: Friday, May 17, 2013 9:22 AM

To: Duffy, Shawn/RDD

Cc: Sample Control; Collom, Barry/RIV

Subject: List of Metals

Hi Shawn!

Good morning!

Just checking the list of metals you want us to report for sample MW-22-192. Please see attached COC.

Thanks,

Marlon B. Cartin

Advanced Technology Laboratories, Inc.

3151 W. Post Road

Las Vegas, NV 89118

Phone: 702-307-2659 ext 410

Mobile: 702-439-0421

www.atl-labs.com

Sample Calculation

METHOD: EPA 6010

TEST NAME: Heavy Metals by ICP

MATRIX: Aqueous

FORMULA:

Calculate the Barium concentration, in ug/L, in the original sample as follows:

Barium, ug/L

A * DF * PF * CF

where:

A = mg/L, calculated concentration

DF = dilution factor

PF = Final Vol. of Digestate in mL / Vol. of Sample used in MI

CF = Conversion Factor

For Sample N010265-001B, the concentration in ug/L is calculated as follows:

Barium, ug/L

0.03728743106 * 2 * (25/25) * 1000

= 74.57486212 ug/L

Reporting results in two significant figures,

Barium, ug/L = 75 ug/L

NSFN

ICP-Metals in Water

Dilution Test Summary

Work Order No.:	N010265
Test Method:	EPA 6010
Analysis Date:	05/24/13

Matrix:	Water	
Batch No.:	43016	

Instrument ID:

ICP-02

Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By:

Mary Claire Ignacio

Dilution Test is not applicable to Ba, Be, Cd, Co, Cu, Pb, Ni, Ag, V and Zn. The calculated value was <25X RL. However, PS@2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N010265-001B DT 10X	Barium	ug/L	82.90739692	NA	74.57486212	11.17%	10
N010265-001B DT 10X	Beryllium	ug/L	0	NA	0		10
N010265-001B DT 10X	Cadmium	ug/L	0	NA	0		10
N010265-001B DT 10X	Cobalt	ug/L	0	NA	0		10
N010265-001B DT 10X	Copper	ug/L	0	NA	5.211832746	100.00%	10
N010265-001B DT 10X	Lead	ug/L	0	NA	0		10
N010265-001B DT 10X	Nickel	ug/L	0	NA	0		10
N010265-001B DT 10X	Silver	ug/L	4.584596732	NA	5.671207754	19.16%	10
N010265-001B DT 10X	Vanadium	ug/L	0	NA	0		10
N010265-001B DT 10X	Zinc	ug/L	0	NA	5.02795392	100.00%	10

Note: NA - Not Applicable

CLIENT:

CH2M HILL

N010265

Work Order:

Project:

PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Date: 28-May-13

Sample ID: N010265-001A-PS	SampType: PS	TestCo	de: 6010_WD I	PGE Units: ug/L		Prep Da	te:		RunNo: 890	25	
Client ID: ZZZZZZ	Batch ID: 43016	Testi	No: EPA 6010	B EPA 3010A		Analysis Da	te: 5/24/20	13	SeqNo: 15 8	35580	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	325.460	6.0	250.0	74.57	100	75	125				
Beryllium	253.161	2.0	250.0	0	101	75	125				
Cadmium	250.000	6.0	250.0	0	100	75	125				
Cobalt	243.258	6.0	250.0	0	97.3	75	125				
Copper	265.457	10	250.0	5.212	104	75	125				
Lead	224.679	20	250.0	0	89.9	75	125				
Nickel	245.297	10	250.0	0	98.1	75	125				
Silver	271.920	6.0	250.0	5.671	106	75	125				
Vanadium	269.857	6.0	250.0	0	108	75	125				
Zinc	258.064	20	250.0	5.028	101	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

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 Calculation

METHOD: EPA 6020

TEST NAME: Heavy Metals by ICP-MS

MATRIX: Water

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

Arsenic, ug/L

= A * DF * PF

where:

A = ug/L, calculated concentration

DF = dilution factor

PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N010265-002A, the concentration in ug/L is calculated as follows:

Arsenic, ug/L

= 16.960829187 * 1 * (25/25)

= 16.960829187

17

Reporting results in two significant figures,

Arsenic, ug/L =

us for alshor

ICP-Metals in Water

Dilution Test Summary

Work Order No.:

N010265

Test Method: Analysis Date: EPA 6020 06/03/13 Matrix:

Water

Batch No.:

43046

Instrument ID:

ICP-MS #2

Instrument Description:

Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to As, Mn, Mo, Sb, Tl and Se. The calculated values were <25X RL. However, PS@2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N010257-001B-DT 5X	Arsenic	μg/L	1.222504946	NA	1.241655693	1.54%	10
N010257-001B-DT 5X	Manganese	μg/L	0	NA	0.300590346	100.00%	10
N010257-001B-DT 5X	Molybdenum	µg/L	1.967115745	NA	2.193829049	10.33%	10
N010257-001B-DT 5X	Selenium	μg/L	0.575201462	NA NA	0.224246454	156.50%	10
N010257-001B-DT 5X	Antimony	μg/L	0	NA	0.094798752	100.00%	10
N010257-001B-DT 5X	Thallium	μg/L	0	NA	0.0772125	100.00%	10

Note: NA - Not applicable

CLIENT:

CH2M HILL

Work Order:

N010265

Project:

PG&E Topock, 423575.MP.07.TS

Date: 05-Jun-13

TestCode: 6020_DIS

ANALYTICAL QC SUMMARY REPORT

Sample ID: N010257-001B-PS	SampType: PS	TestCod	de: 6020_DIS	Units: μg/L		Prep Da	te:		RunNo: 890	088	
Client ID: ZZZZZZ	Batch ID: 43046	TestN	lo: EPA 6020	EPA 3010A		Analysis Da	te: 6/3/20 1	3	SeqNo: 15 8	37616	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	19.620	1.0	20.00	0.09480	97.6	75	125				
Arsenic	21.749	0.20	20.00	1.242	103	75	125				
Manganese	193.985	1.0	200.0	0.3006	96.8	75	125				
Molybdenum	23.425	1.0	20.00	2.194	106	75	125				
Selenium	19.366	1.0	20.00	0.2242	95.7	75	125				
Thallium	20.348	1.0	20.00	0.07721	101	75	125				

- 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

- Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

Sample Calculation

METHOD: EPA 7471

TEST NAME: Mercury in Solid by Cold-Vapor Technique

MATRIX: Water/Aqueous

FORMULA:

Mercury, ug/L = A * DF

where:

A = ug/L, calculated concentration DF = dilution factor

To calculate the Mercury concentration, in ug/L in a sample is as follows:

For Sample: N010265-001A

A = 0.02182 ug/L DF = 1

Using the given formula:

Mercury, ug/L = A * DF

The concentration in ug/L will be equal to:

Mercury, ug/L = 0.02182

Reporting results in two significant figures,

Mercury, ug/L = 0.022

Mercury, ug/L = ND

6/4/13

CH2M Hill

Project: PG&E TOPOCK Project No.: 423575.MP.07.TS

ATL Work Order: N010435

ANALYTICAL and QC RESULTS SAMPLE RECEIVING ITEMS RAW DATA

PRIVILEGED AND CONFIDENTIAL



Table of Contents

ATL Work Order: N010435

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Sample Receiving Items	10-13
Raw Data	
EPA 120.1	14-24
EPA 6020_Dissolved	25-166

June 27, 2013

Shawn P. Duffy CA-ELAP No.: 2676

CH2M HILL NV Cert. No.: NV-009222007A

155 Grand Avenue, Suite 1000

Oakland, CA 94612 TEL: (530) 229-3303

FAX: (530) 339-3303 Workorder No.: N010435

RE: PG&E Topock, 423575.MP.07.TS

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on June 20, 2013 by Advanced Technology Laboratories, Inc. . 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,

in Geogenmunds

Jose Tenorio Jr.

Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.07.TS CASE NARRATIVE

Date: 27-Jun-13

Lab Order: N010435

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.



CLIENT: CH2M HILL

Project: PG&E Topock, 423575.MP.07.TS Work Order Sample Summary

Date: 27-Jun-13

Lab Order: N010435 **Contract No:** 2013-GMP-192-

Lab Sample ID Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N010435-001A MW-66BR-270-192	Water	6/18/2013 10:56:00 AM	6/20/2013	6/27/2013
N010435-001B MW-66BR-270-192	Water	6/18/2013 10:56:00 AM	6/20/2013	6/27/2013
N010435-001C MW-66BR-270-192	Water	6/18/2013 10:56:00 AM	6/20/2013	6/27/2013



ANALYTICAL RESULTS

Print Date: 27-Jun-13

Advanced Technology Laboratories, Inc.

CLIENT: CH2M HILL Client Sample ID: MW-66BR-270-192 Lab Order: N010435

Collection Date: 6/18/2013 10:56:00 AM

Project: PG&E Topock, 423575.MP.07.TS Matrix: WATER Lab ID: N010435-001

Analyses	Result	MDL	PQL	Qual Uni	ts DF	Date Analyzed
SPECIFIC CONDUCTANCE						
			EPA	A 120.1		
RunID: WETCHEM_130621A	QC Batch: R8	9325		PrepDate:		Analyst: LCC
Specific Conductance	17000	0.10	0.10	umho	s/cm 1	6/21/2013
DISSOLVED METALS BY ICF	P-MS					
	EPA 3010A		EP	A 6020		
RunID: ICP7_130626A	QC Batch: 43:	263		PrepDate:	6/21/2013	Analyst: CEI
Arsenic	0.24	0.035	0.10	μg/L	1	6/26/2013 02:49 PM
Manganese	ND	0.16	0.50	μg/L	1	6/26/2013 12:57 PM
Molybdenum	29	0.074	0.50	μg/L	1	6/26/2013 12:57 PM
Selenium	0.52	0.084	0.50	μg/L	1	6/26/2013 12:57 PM

Qualifiers: Analyte detected in the associated Method Blank

> Н Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

Value above quantitation range

Not Detected at the Reporting Limit Results are wet unless otherwise specified



Advanced Technology Laboratories, Inc.

Date: 27-Jun-13

CH2M HILL CLIENT:

Qual ANALYTICAL QC SUMMARY REPORT %RPD RPDLimit SeqNo: 1597582 RunNo: 89325 TestCode: 120.1_WPGE 0.120 %REC LowLimit HighLimit RPD Ref Val 16600 Analysis Date: 6/21/2013 Prep Date: TestCode: 120.1_WPGE Units: umhos/cm SPK value SPK Ref Val TestNo: EPA 120.1 PQL 0.10 PG&E Topock, 423575.MP.07.TS Batch ID: R89325 Result 16620.000 Sample ID: N010435-001B-DUP SampType: DUP N010435 Specific Conductance Client ID: ZZZZZZ Work Order: Project: Analyte

Qualifiers:

Analyte detected in the associated Method Blank В

ND Not Detected at the Reporting Limit DO Surrogate Diluted Out

Advanced Technology

Laboratories, Inc.

RPD outside accepted recovery limits ы к

Value above quantitation range

Calculations are based on raw values

H Holding times for preparation or analysis exceeded S Spike/Surrogate outside of limits due to matrix inte

Spike/Surrogate outside of limits due to matrix interference

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

PG&E Topock, 423575.MP.07.TS

CH2M HILL N010435

Work Order:

Project:

CLIENT:

		Qual
RunNo: 89382	SeqNo: 1600862	%RPD RPDLimit (
Prep Date: 6/21/2013	Analysis Date: 6/26/2013	%REC LowLimit HighLimit RPD Ref Val
Units: µg/L	EPA 3010A	SPK Ref Val
TestCode: 6020_DIS	TestNo: EPA 6020	PQL SPK value
SampType: MBLK	Batch ID: 43263	Result
Sample ID: MB-43263	Client ID: PBW	Analyte

0.10 0.50 0.50 0.50

ND ND 0.121

Molybdenum Manganese

Arsenic

Selenium

Sample ID: LCS-43263	SampType: LCS	TestCoo	TestCode: 6020_DIS	Units: µg/L		Prep Dat∈	Prep Date: 6/21/2013		RunNo: 89382	82	
Client ID: LCSW	Batch ID: 43263	Test	TestNo: EPA 6020	EPA 3010A		Analysis Date	Analysis Date: 6/26/2013		SeqNo: 1600863	0863	
Analyte	Result	PQL	SPK value	SPK value SPK Ref Val	%REC	LowLimit	%REC LowLimit HighLimit RPD Ref Val	∂ef Val	%RPD	%RPD RPDLimit Qual	Qual
Arsenic	10.552	0.10	10.00	0	106	85	115				
Manganese	102.761	0.50	100.0	0	103	85	115				
Molybdenum	10.348	0.50	10.00	0	103	85	115				
Selenium	9.670	0.50	10.00	0	2.96	85	115				
Sample ID: N010439-001B-MS SampType: MS	SampType: MS	TestCoo	TestCode: 6020_DIS	Units: µg/L		Prep Date	Prep Date: 6/21/2013		RunNo: 89382	82	
Client ID: ZZZZZ	Batch ID: 43263	Test	TestNo: EPA 6020	EPA 3010A		Analysis Date	Analysis Date: 6/26/2013		SeqNo: 1600867	10867	
(† · · · · · · · · · · · · · · · · · ·	1	Č) 	700) 	11.00	-	10/190			

Sample ID: N010439-001B-MS	SampType: MS	TestCo	TestCode: 6020_DIS	Units: µg/L		Prep Date	Prep Date: 6/21/2013	RunNo	RunNo: 89382	
Client ID: ZZZZZZ	Batch ID: 43263	Test	TestNo: EPA 6020	EPA 3010A		Analysis Date	Analysis Date: 6/26/2013	SeqNo	SeqNo: 1600867	
Analyte	Result	PQL	SPK value	SPK value SPK Ref Val	%REC	LowLimit	%REC LowLimit HighLimit RPD Ref Val		%RPD RPDLimit Qual	nit Qu
Arsenic	13.073	0.10	10.00	3.360	97.1	75	125			
Manganese	94.497	0.50	100.0	0	94.5	75	125			
Molybdenum	14.194	0.50	10.00	3.457	107	75	125			
Selenium	9.087	0.50	10.00	0.2828	88.0	75	125			
Sample ID: N010439-001B-MSD SampType: MSD	SampType: MSD	TestCo	TestCode: 6020_DIS	Units: µg/L		Prep Date	Prep Date: 6/21/2013	RunNo	RunNo: 89382	
Client ID: ZZZZZZ	Batch ID: 43263	Testl	TestNo: EPA 6020	EPA 3010A		Analysis Date	Analysis Date: 6/26/2013	SeqNo	SeqNo: 1600868	

sample ID:	Sample ID: N010439-001B-MSD Samplype: MSD	samplype: MSD	l estCod	estCode: e020_DIS	UNITS: hg/L		Ргер Џа	Prep Date: 6/21/2013	13	KUNNO: 89382	82	
Client ID: ZZZZZZ	22222	Batch ID: 43263	TestN	TestNo: EPA 6020	EPA 3010A		Analysis Dai	Analysis Date: 6/26/2013	13	SeqNo: 1600868	0868	
Analyte		Result	PQL	SPK value	PQL SPK value SPK Ref Val	%REC	LowLimit	HighLimit	%REC LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit Qual	Qual
Arsenic		13.402	0.10	10.00	3.360	100	75	125	13.07	2.49	20	
Manganese	(I)	94.613	0.50	100.0	0	94.6	75	125	94.50	0.122	20	
Qualifiers:												
В	B Analyte detected in the associated Method Blank	associated Method Blank	田	Value above	Value above quantitation range			H Hole	Holding times for preparation or analysis exceeded	aration or analy	sis exceeded	
ND	ND Not Detected at the Reporting Limit	orting Limit	R	RPD outside	RPD outside accepted recovery limits	nits		S Spik	Spike/Surrogate outside of limits due to matrix interference	e of limits due t	o matrix inter	erence
DO	DO Surrogate Diluted Out			Calculations	Calculations are based on raw values	ies						

Advanced Technology 3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691 Laboratories, Inc.

CLIENT: CH2M HILL

Work Order: N010435

Project: PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N010439-001B-MSD SampType: MSD	SampType: MSD	TestCo	TestCode: 6020_DIS	Units: µg/L		Prep Date:	ie: 6/21/2013	13	RunNo: 89382	382	
Client ID: ZZZZZZ	Batch ID: 43263	Test	TestNo: EPA 6020	EPA 3010A	`	Analysis Dat	Analysis Date: 6/26/2013	13	SeqNo: 1600868	99800	
Analyte	Result	PQL	SPK value	SPK value SPK Ref Val	%REC	LowLimit	HighLimit	LowLimit HighLimit RPD Ref Val	%RPD	%RPD RPDLimit Qual	Qual
Molybdenum	14.157	0.50	10.00	3.457	107	75	125	14.19	0.262	20	
Selenium	8.803	0.50	10.00	0.2828	85.2	75	125	9.087	3.18	20	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

Advanced Technology 3151 W. Post Rd Las Vegas, N'
Laboratories, Inc.

E Value above quantitation rangeR RPD outside accepted recovery limits

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

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Sample Receiving Items

CH2N	/IHILL
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CHAIN OF CUSTODY RECORD

6/18/2013 10:38:41 AM

Page 1 OF 1

· · · · · · · · · · · · · · · · · · ·			,				
Project Name PG&E Topock Container:	500 ml Poly	500 ml Poly	1 Liter Poly	1Liter Poly			
Location Topock	HNO3,	HNO3,	4°C	4°C		I	l
Project Manager Jay Piper Preservatives:	4°C	4°C					
Sample Manager Shawn Duffy Filtered:	Field	Field	NA	NA		l	l
Holding Time:	180	180	14	30			
Project Number 423575.MP.07.TS	A		Sp				1
Task Order	Arsenic	Metals	Specific				
Project 2013-GMP-192-Q2	nic	als (fic (•	νZ	
Turnaround Time 10 Days	(602	602 M	Con	m		Number	
Shipping Date: 4/11/2013	(6020A)	(6020A) Field Mo,Se,Mn	Conductance	Extra			
COC Number: ATL-192-Q2	Field	e, ≝ ≅	anc	*		of C	
		э <u>с</u>				Contain	
	Filtered	Filtered	(E120.1)			ain	
DATE TIME Matrix	e. O	ed	0.1			eľs	COMMENTS
MW-66BR-270-192 6/18/2013 10:56 Water	х	х	х	х	1010435-1	3	
		·			TOTAL NUMBER OF CONTAINERS	3	

Approved by Sampled by Relinquished by Received by Rablinquished by Received by

Date/Time 6ースレー/ろ Signatures 1520

Shipping Details FedEx Method of Shipment: On Ice: yes I no 4.20C ICE IRHI Airbill No:

Lab Name: ADVANCED TECHNOLOGY LABORATO Lab Phone: (702) 307-2659

Special Instructions: ATTN: April 15 to May 9, 2013 Sample Custody

Report Copy to

and Marion Shawn Duffy (530) 229-3303

Advanced Technology Laboratories, Inc.

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.

in you have any questions t		dollors, picase	o contact our r	roject occit	1110101 01 (102)	00. <u>200</u> 0.		
Cooler Received/Opened On:	6/20/2013				Workorder:	N010435		
Rep sample Temp (Deg C):	4.2				IR Gun ID:	1		
Temp Blank:	☐ Yes	✓ No						
Carrier name:	ATL							
Last 4 digits of Tracking No.:	NA			Packing	Material Used:	None		
Cooling process:	✓ Ice	Ice Pack	Dry Ice	Other	None			
		s	ample Recei	ot Checklist	•			
Shipping container/cooler in	good condition		ampio 10001		Yes ☑	No 🗌	Not Present	
2. Custody seals intact, signed	d, dated on ship	ppping containe	er/cooler?		Yes 🗌	No 🗌	Not Present	V
3. Custody seals intact on san	nple bottles?				Yes 🗌	No 🗌	Not Present	V
4. Chain of custody present?					Yes 🗹	No 🗀		
5. Sampler's name present in	COC?				Yes 🗸	No 🗌		
6. Chain of custody signed wh	en relinquishe	d and received	?		Yes 🗹	No 🗌		
7. Chain of custody agrees wi	th sample labe	ls?			Yes 🗹	No 🗌		
8. Samples in proper containe	er/bottle?				Yes 🛂	No 🗌		
9. Sample containers intact?					Yes 🗹	No 🗌		
10. Sufficient sample volume	for indicated te	st?			Yes 🗹	No 🗌		
11. All samples received withi	n holding time?	?			Yes 🗹	No 🗀		
12. Temperature of rep sample	le or Temp Bla	nk within accep	table limit?		Yes 🗸	No 🗀	NA	
13. Water - VOA vials have ze	ero headspace	?			Yes 🗌	No 🗌	NA	Y
14. Water - pH acceptable up Example: pH > 12 for (0	•	r Metals			Yes 🗹	No 🗀	NA	
15. Did the bottle labels indica	ate correct pres	servatives used	?		Yes 🗸	No 🗌	NA	
16. Were there Non-Conforma	ance issues at Vas Client notif				Yes 🗌 Yes 🗍	No 🗌 No 🔲	NA NA	V
Comments:								
Checklist Completed By	MBC Mag	- alzela				Reviewed By:	Ċ	

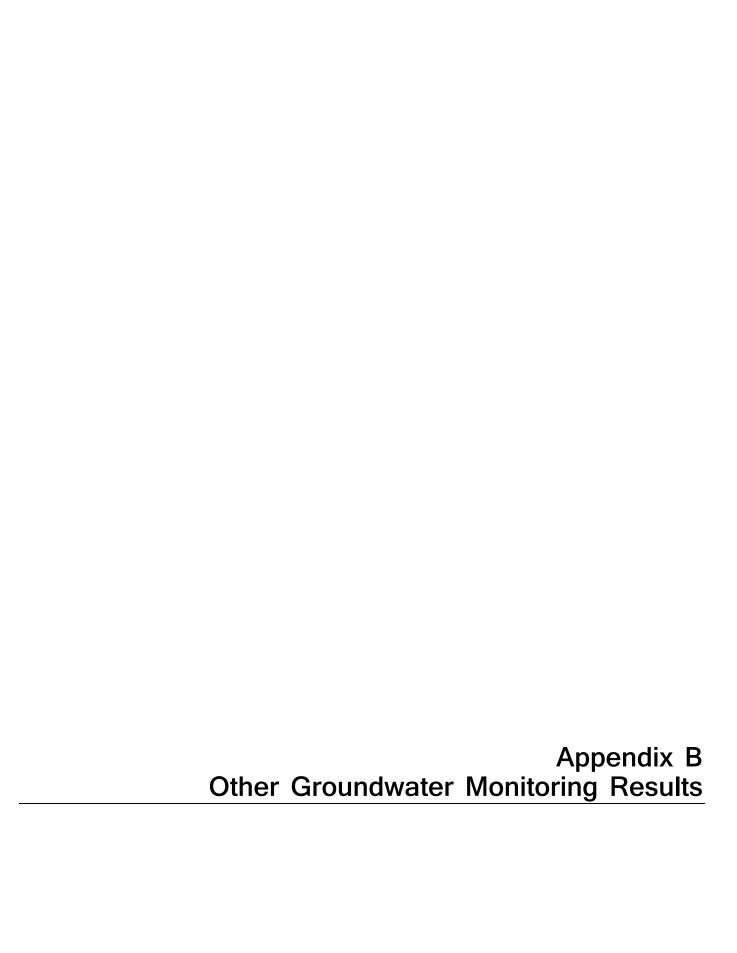


Table B-1
Arsenic Results in Monitoring Wells, June 2012 through June 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (μg/L)	
MW-10	SA	10-Dec-12		5.4	
MW-12	SA	02-Oct-12		42.4	
		27-Nov-12		38.5	
		26-Feb-13		46.5	
		26-Feb-13	FD	45.9	
		09-May-13		33.0	
MW-13	SA	11-Dec-12		2.0	
MW-16	SA	08-Nov-12		11.0	
		24-Apr-13		9.7	
MW-17	SA	03-Dec-12		1.4	
		24-Apr-13		1.6	
MW-19	SA	04-Oct-12		0.83	
		26-Nov-12		1.0	
		12-Mar-13		1.0	
MW-20-70	SA	04-Oct-12		2.6	
		27-Nov-12		1.9	
		12-Mar-13		2.4	
MW-20-100	MA	04-Oct-12		1.7	
		29-Nov-12		2.9	
		13-Mar-13		2.0	
MW-20-130	DA	09-Oct-12		5.6	
		29-Nov-12		5.3 J	
		29-Nov-12	FD	1.3 J	
		14-Mar-13		5.2	
		14-May-13		4.6	
MW-22	SA	10-Dec-12		16.0	
		15-May-13		13.0	
MW-23-060	BR	12-Sep-12		5.9	
		08-Nov-12		5.3	
		18-Feb-13		5.5	
		23-Apr-13		4.3	
MW-23-080	BR	12-Sep-12		3.3	
		12-Sep-12	FD	3.0	
		08-Nov-12		2.7	
		18-Feb-13		3.1	
		23-Apr-13		3.6	

Table B-1
Arsenic Results in Monitoring Wells, June 2012 through June 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (μg/L)	
MW-25	SA	11-Dec-12		1.3	
MW-26	SA	04-Oct-12		1.7	
		27-Nov-12		1.7	
		12-Mar-13		1.7	
		07-May-13		2.2	
MW-27-20	SA	03-Dec-12		2.4	
		15-Apr-13		1.6	
MW-27-60	MA	01-Oct-12		7.4	
		03-Dec-12		7.6	
		04-Feb-13		7.2	
		04-Feb-13	FD	7.3	
		15-Apr-13		6.8	
MW-27-85	DA	01-Oct-12		1.5	
		03-Dec-12		1.8	
		04-Feb-13		1.4	
		15-Apr-13		1.3	
		15-Apr-13	FD	1.4	
MW-28-25	SA	05-Dec-12		1.5	
		18-Apr-13		1.7	
MW-28-90	DA	10-Sep-12		2.0	
		05-Dec-12		2.0	
		05-Feb-13		1.6	
		18-Apr-13		1.7	
MW-29	SA	05-Dec-12		19.0 J	
		05-Dec-12	FD	14.0 J	
		18-Apr-13		4.1	
MW-30-30	SA	03-Dec-12		2.0	
MW-30-50	MA	03-Dec-12		3.8	
MW-31-60	SA	13-Nov-12		1.2	
MW-31-135	DA	15-Nov-12		3.7	
MW-32-20	SA	05-Dec-12		3.4	
MW-32-35	SA	05-Dec-12		28.0	
		17-Apr-13		27.0	
			FD	26.0	
MW-33-40	SA	10-Sep-12		13.0	
		05-Dec-12		14.0	

Table B-1
Arsenic Results in Monitoring Wells, June 2012 through June 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (μg/L)	
MW-33-40	SA	05-Dec-12	FD	14.0	
		25-Feb-13		14.0	
		22-Apr-13		15.0	
MW-33-90	MA	24-Sep-12		1.6	
		08-Nov-12		1.1	
		14-Feb-13		1.4	
		14-Feb-13	FD	1.6	
		22-Apr-13		1.7	
MW-33-150	DA	11-Sep-12		2.2	
		06-Dec-12		2.0	
		05-Feb-13		1.8	
		22-Apr-13		2.2	
MW-33-210	DA	11-Sep-12		1.3	
		06-Dec-12		1.4	
		05-Feb-13		1.1	
		23-Apr-13		1.6	
MW-34-55	MA	12-Dec-12		3.0	
MW-34-80	DA	01-Oct-12		1.7	
		12-Dec-12		1.4	
		12-Dec-12	FD	1.5	
		05-Feb-13		1.3	
		16-Apr-13		1.3	
MW-34-100	DA	01-Oct-12		1.5	
		01-Oct-12	FD	1.6	
		26-Nov-12		1.8	
		26-Nov-12	FD	1.9	
		12-Dec-12		1.5	
		24-Jan-13		1.7	
		26-Feb-13		1.6	
		26-Feb-13	FD	1.5	
		16-Apr-13		1.3	
		16-Apr-13	FD	1.3	
MW-35-60	SA	10-Sep-12		1.1	
		04-Dec-12		1.1	
		19-Feb-13		1.0	
		23-Apr-13		1.4	
MW-35-135	DA	04-Dec-12		1.0	

Table B-1
Arsenic Results in Monitoring Wells, June 2012 through June 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (μg/L)	
MW-36-20	SA	04-Dec-12		1.9	
		04-Dec-12	FD	1.8	
MW-36-40	SA	04-Dec-12		4.8	
MW-36-50	MA	04-Dec-12		4.2	
MW-36-70	MA	04-Dec-12		5.1	
MW-36-90	DA	04-Dec-12		22.0	
		15-May-13		17.0	
MW-36-100	DA	10-Oct-12		7.7	
		08-Nov-12		6.2	
		11-Mar-13		7.3	
		24-Apr-13		7.8	
MW-37S	MA	14-Nov-12		1.9	
MW-39-50	MA	03-Dec-12		7.0	
MW-39-60	MA	03-Dec-12		7.6	
MW-39-100	DA	13-Dec-12		2.2	
MW-40D	DA	03-Dec-12		4.7	
		01-May-13		4.4	
MW-40S	SA	03-Dec-12		1.4	
MW-41D	DA	05-Nov-12		2.9	
MW-41M	DA	05-Nov-12		2.5	
MW-41S	SA	03-Dec-12		2.1	
MW-42-55	MA	11-Sep-12		12.0	
		11-Sep-12	FD	12.0	
		06-Dec-12		13.0	
		04-Feb-13		12.0	
		16-Apr-13		11.0	
MW-42-65	MA	11-Sep-12		2.8	
		06-Dec-12		2.6	
		04-Feb-13		2.3	
			FD	2.4	
		17-Apr-13		2.5	
MW-43-25	SA	10-Dec-12		23.0	
		17-Apr-13		19.0	
MW-43-75	DA	10-Dec-12		13.0	
MW-43-90	DA	10-Dec-12		3.4	

Table B-1
Arsenic Results in Monitoring Wells, June 2012 through June 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Dissolved Arsenic (µg/L)
MW-43-90	DA	17-Apr-13	3.2
MW-44-70	MA	06-Dec-12	4.5
		22-Apr-13	4.0
MW-44-115	DA	27-Sep-12	3.6
		26-Nov-12	5.4
		26-Feb-13	5.9
		24-Apr-13	6.3
MW-44-125	DA	13-Sep-12	3.6
		13-Sep-12 _F	D 3.7
		06-Nov-12	3.6
		06-Nov-12 _F	D 3.4
		13-Feb-13	4.1
		13-Feb-13 _F	D 3.9
		18-Apr-13	3.2
		18-Apr-13 _F	D 3.3
MW-45-095a	DA	13-Dec-12	3.7
MW-46-175	DA	26-Sep-12	1.2
		09-Nov-12	2.0
		25-Feb-13	2.4
MW-47-55	SA	24-Sep-12	1.4
		07-Nov-12	1.1
		11-Mar-13	1.2
MW-47-115	DA	25-Sep-12	1.4
		07-Nov-12	1.7
		27-Feb-13	2.3
MW-49-135	DA	11-Dec-12	4.6
MW-50-095	MA	19-Sep-12	2.4
		05-Nov-12	2.3
		14-Feb-13	2.7
MW-50-200	DA	03-Oct-12	3.8
		03-Oct-12 _F	D 3.4
		29-Nov-12	3.8
		27-Feb-13	4.1
MW-51	MA	09-Oct-12	4.3
		28-Nov-12	4.9
		14-Mar-13	4.1

Table B-1
Arsenic Results in Monitoring Wells, June 2012 through June 2013
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Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (μg/L)	
MW-51	MA	13-May-13		3.6	
MW-52D	DA	05-Dec-12		3.7	
		16-May-13		3.2	
MW-52M	DA	05-Dec-12		1.7	
		16-May-13		1.3	
MW-52S	MA	05-Dec-12		0.25	
		16-May-13		0.21	
MW-53D	DA	06-Dec-12		3.0	
		16-May-13		2.8	
MW-53M	DA	05-Dec-12		1.0	
		05-Dec-12	FD	1.1	
		16-May-13		0.8	
MW-54-85	DA	12-Dec-12		3.3	
		25-Apr-13		2.6	
MW-54-140	DA	12-Dec-12		2.9	
		25-Apr-13		1.4 J	
MW-54-195	DA	12-Dec-12		ND (5.0)	
		25-Apr-13		ND (0.2)	
		25-Apr-13	FD	ND (0.2)	
MW-57-070	BR	13-Dec-12		1.4	
		13-Dec-12	FD	1.4	
MW-57-185	BR	11-Sep-12		14.0	
		08-Nov-12		13.0	
		06-Feb-13		13.0	
		23-Apr-13		13.0	
MW-58BR	BR	28-Feb-13		1.1	
		30-Apr-13		1.4	
MW-58BR-LWR-160	BR	04-Oct-12		0.71	
MW-58BR-UPR-160	BR	03-Oct-12		0.49	
MW-59-100	SA	02-Oct-12		2.9	
		28-Nov-12		4.4	
		27-Feb-13		2.6	
		13-May-13		1.9	
MW-60-125	BR	20-Sep-12		1.7	
		06-Dec-12		1.8	
		20-Feb-13		1.6	

Table B-1
Arsenic Results in Monitoring Wells, June 2012 through June 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (μg/L)	
MW-60-125	BR	06-May-13		2.0	
MW-60BR-245	BR	19-Sep-12		8.1	
		05-Dec-12		8.1	
		14-Mar-13		7.5	
		14-Mar-13	FD	7.1	
		07-May-13		7.7	
MW-61-110	BR	27-Sep-12		2.0	
		27-Sep-12	FD	2.1	
		27-Nov-12		3.2	
		27-Nov-12	FD	3.1	
		25-Feb-13		3.4	
		02-May-13		3.3	
MW-62-065	BR	10-Dec-12		1.4	
MW-62-110	BR	13-Sep-12		8.5	
		11-Dec-12		12.0	
		26-Feb-13		10.0	
		08-May-13		8.5	
MW-62-190	BR	13-Sep-12		5.9	
		11-Dec-12		5.8	
		26-Feb-13		5.9	
		08-May-13		4.1	
MW-63-065	BR	10-Sep-12		1.7	
		07-Nov-12		1.5	
		06-Feb-13		1.6	
		25-Apr-13		1.9	
MW-64BR	BR	01-Mar-13		2.9	
		01-May-13		3.4	
MW-64BR-LWR-150	BR	10-Oct-12		1.7	
MW-64BR-UPR-150	BR	08-Oct-12		7.4	
MW-65-160	SA	18-Sep-12	_	0.9	
		04-Dec-12		0.88	
		19-Feb-13		0.83	
		01-May-13		1.1	
MW-65-225	DA	18-Sep-12		2.3	
		05-Dec-12		2.3	
		19-Feb-13		2.4	

Table B-1
Arsenic Results in Monitoring Wells, June 2012 through June 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (μg/L)	
MW-65-225	DA	02-May-13		2.5	
		02-May-13	FD	2.6	
MW-66-165	SA	17-Sep-12		1.8	
		06-Dec-12		1.3	
		20-Feb-13		1.3	
		02-May-13		1.6	
MW-66-230	DA	17-Sep-12		6.9	
		10-Dec-12		6.3	
		21-Feb-13		6.6	
		13-May-13		5.6	
MW-66BR-270	BR	02-Oct-12		0.32	
		20-Dec-12		0.24	
		12-Mar-13		0.32	
		18-Jun-13		0.24	
MW-67-185	SA	20-Sep-12		1.7	
		06-Dec-12		1.8	
		21-Feb-13		1.7	
		21-Feb-13	FD	1.6	
		09-May-13		1.9	
MW-67-225	MA	20-Sep-12		2.8	
		10-Dec-12		3.2	
		21-Feb-13		3.2	
		09-May-13		2.8	
MW-67-260	DA	20-Sep-12		11.0	
		06-Dec-12		12.0	
		21-Feb-13		11.0	
		09-May-13		11.0	
		09-May-13	FD	11.0	
MW-68-180	SA	20-Sep-12		2.2	
		11-Dec-12		2.7	
		11-Dec-12	FD	2.8	
		21-Feb-13		2.5	
		13-May-13		2.5	
MW-68-240	DA	20-Sep-12		1.7	
		06-Dec-12		2.0	
		20-Feb-13		1.9	
		08-May-13		1.9	

Table B-1
Arsenic Results in Monitoring Wells, June 2012 through June 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Dissolved Arsenic (μg/L)	
MW-68BR-280	BR	03-Oct-12	2.5	
		12-Nov-12	2.1	
		18-Feb-13	2.3	
		08-May-13	1.6	
MW-69-195	BR	19-Sep-12	2.1	
		05-Dec-12	2.1	
		20-Feb-13	2.2	
		06-May-13	2.6	
MW-70-105	BR	12-Sep-12	6.2	
		04-Dec-12	5.2	
		19-Feb-13	5.8	
		25-Apr-13	5.9	
MW-70BR-225	BR	18-Sep-12	2.1	
		13-Dec-12	1.9	
		26-Feb-13	1.9	
		07-May-13	3.1	
MW-71-035	SA	19-Sep-12	1.7	
		08-Nov-12	1.4	
		07-Feb-13	1.5	
		30-Apr-13	1.8	
MW-72-080	BR	19-Sep-12	11.0	
		05-Dec-12	11.0	
		19-Feb-13	11.0	
		25-Apr-13	12.0	
MW-72BR-200	BR	13-Sep-12	15.0	
		13-Sep-12 _{FD}	15.0	
		14-Nov-12	15.0	
		07-Feb-13	14.0	
		29-Apr-13	14.0	
MW-73-080	BR	13-Sep-12	1.6	
		05-Dec-12	1.5	
		19-Feb-13	2.1	
		01-May-13	1.6	
MW-74-240	BR	27-Sep-12	9.3	
		20-Dec-12	15.0	
		20-Dec-12 _{FD}	16.0	
		01-Mar-13	8.8	

Table B-1
Arsenic Results in Monitoring Wells, June 2012 through June 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Dissolved Arsenic (μg/L)	
MW-74-240	BR	02-May-13	11.0	
OW-3D	DA	13-Nov-12	2.6	

Notes:

FD = field duplicate.

J = concentration or reporting limit estimated by laboratory or data validation.

 μ g/L = micrograms per liter.

The California primary drinking water standard maximum contaminant level (MCL) for arsenic is 10 µg/L.

The Background Study Upper Tolerance Limit for arsenic at the site is 24.3 µg/L.

Wells are assigned to separate Aquifer zones for results reporting:

SA = shallow interval of Alluvial Aquifer.

MA = mid-depth interval of Alluvial Aquifer.

DA = deep interval of Alluvial Aquifer.

BR = well completed in bedrock (Miocene Conglomerate or pre-Tertiary crystalline rock).

For additional information on the East Ravine-Topock Compressor Station wells installed in 2009 through 2012, please see:

CH2M HILL. 2012d. Technical Memorandum. Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation, Pacific Gas and Electronic Company, Topock Compressor Station, Needles, California. November 15.

Date Printed: 7/18/2013

Table B-2 Background Metals, Second Quarter 2013 Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

			Metals in μg/L													General Metals in mg/L								
	California MCL:	6	10	200	1,000	4	5	NE	50	1,000*	15	50*	2	NE	100	50	100*	2	NE	5,000*	NE	NE	0.3*	NE
Well ID	Sample Date	Antimony	Arsenic	Aluminum	Barium	Beryllium	Cadmium	Cobalt	Chromium	Copper	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Boron	Calcium	Iron	Magnesium
MW-16	04/24/2013	ND (0.5)	9.7	ND (50)	25.0	ND (1.0)	ND (3.0) J	ND (3.0)	10.4	ND (5.0)	ND (10)	ND (0.5)	ND (0.2)	12.0	ND (5.0)	1.9	ND (3.0)	ND (0.5)	30.0	ND (10)	0.3	22.0	ND (0.02)	4.2
MW-17	04/24/2013	ND (0.5)	1.6	ND (50)	21.0	ND (1.0)	ND (3.0)	ND (3.0)	11.8	ND (5.0)	ND (10)	ND (0.5)	ND (0.2)	15.0	ND (5.0)	10.0	ND (3.0)	ND (0.5)	4.6	ND (10)	0.23	62.0	ND (0.02)	8.6

Notes:

* = Secondary USEPA MCL.
FD = field duplicate sample.
MCL = maximum contaminant level

mg/L = milligrams per liter.

ND = not detected at listed reporting limit.

NE =not established.

 μ g/L = micrograms per liter.

The MCL listed are the California primary drinking water standards, except where noted.

All results are dissolved metals from field-filtered samples.

Metals analyzed by USEPA methods SW6010B or SW6020A or SW7470A.

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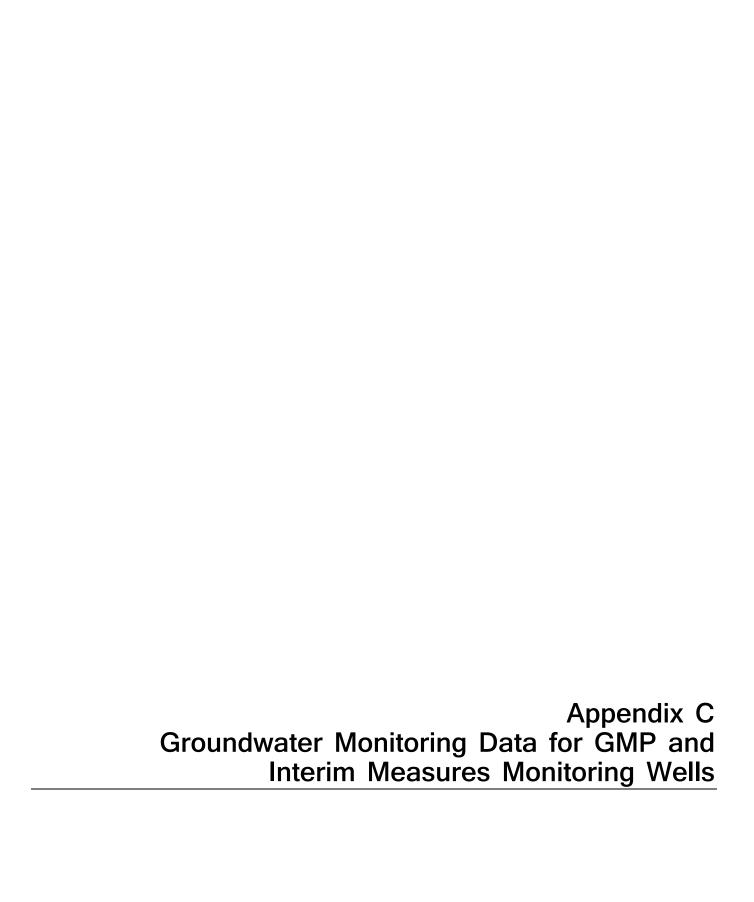


Table C-1
Chemical Performance Monitoring Analytical Results, March 2005 through June 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

		Total Dissol				0.16.1	N 1114 4		Alkalinity		Dissolve	d Metals (m	g/L)	
Location	Sample Date	Solids (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	(mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	(total) (mg/L)	Calcium	Magnesium	Potassium :	Sodium	Boron
Monitoring Wel	lls									I				
MW-20-70	10-Mar-05	1940	-7.1	-59.0	740	378	9.98	ND (1.0)	81.7	198	55.4	9.89	431	0.412
	15-Jun-05	1980	-7.0	-60.0	749	388	9.79	ND (1.0)	73.8	189	55.4	10.5	433	0.414
	15-Jun-05 FD	2050	-8.3	-57.0	760	392	9.81	ND (1.0)	71.3	204	60.7	11.4	468	0.445
	11-Oct-05	1950	-7.2	-57.0	737	359	9.48	0.641	69.9	198	49.9	14.6	323	0.402
	15-Dec-05	1830	-7.1	-49.0	645	326	9.90	ND (1.0)	77.8	138	42.3	14.5	267	0.441
	10-Mar-06	1940	-7.2	-54.0	679	358	10.5	ND (0.5)	82.2	161	48.6	9.22	424	0.427
	05-May-06	1750	-8.2	-55.9	696	376	9.86	0.574	74.5	162	49.2	9.55	461	0.476
	03-Oct-06	1890	-8.1	-60.4	677	357	13.0	ND (5.0)	85.0	158	47.6	9.82	472	0.535
	03-Oct-06 FD	1840	-8.1	-60.5	669	352	12.9	ND (5.0)	80.0	154	45.9	9.51	466	0.515
	13-Dec-06	1910	-7.6	-61.2	678	352	12.7	0.699	77.5	149	44.3	9.09	458	0.459
	14-Mar-07	1740	-8.5	-64.3	689	358	13.7	0.641	80.0	139	42.2	8.83	451	0.503
	03-May-07	1750	-8.4	-66.7	697	344	25.1	ND (1.0)	77.5	139	41.2	8.65	390	0.477
	11-Oct-07	1820	-8.2	-63.9	699	367	15.6	ND (1.0)	80.0	130	39.1	11.0	600	0.54
	12-Mar-08	1790	-7.6	-65.2	695	360	22.1	ND (1.0)	77.0	139	41.2	10.7	403	0.51
	07-Oct-08	1900	-8.5	-64.4	650	360	15.0	0.61	83.0	136	37.9	10.5	400	0.608
	12-Mar-09	1900	-7.74	-60.8	670	330	17.0	ND (1.0)	79.0	128	40.2	9.95	496	0.549
	25-Sep-09	1700	-8.7	-66.4	700	310	16.0	ND (2.5)	74.0	130	33.0	9.70	390	0.42
	16-Dec-10	1700	-7.5	-62.3	680	320	16.0	0.51	79.0	130	33.0	12.0	400	0.51
	07-Dec-11	1400	-7.9	-61.9	540	330	11.0	ND (0.5)	71.0	100	25.0		380	
	04-Oct-12				430	290	8.40			76.2	22.9		346	
	27-Nov-12	1400	-7.8	-62.6	450	290	10.6 *	ND (0.5)	89.0	79.2	22.2	8.07	350	0.484
	12-Mar-13				440	290	8.60 *		87.0	82.8	22.3		358	
MW-20-100 a	10-Mar-05	2490	-5.2	-49.0	466	511	9.98	ND (1.0)	84.2	133	19.8	8.98	712	0.859
	15-Jun-05	2500	-4.7	-46.0	921	506	9.02	ND (1.0)	84.0	137	21.3	9.06	592	0.713
	11-Oct-05	2400	-5.3	-48.0	887	484	8.87	0.731	82.3	170	23.7	15.2	500	0.718

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Table C-1
Chemical Performance Monitoring Analytical Results, March 2005 through June 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
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PG&E Topock Compressor Station, Needles, California

	Commis	Total Dissol		Davitarium	Chlarida	Culfata	Nitrata		Alkalinity		Dissolve	d Metals (mg	ı/L)	
Location	Sample Date	Solids (mg/L)	Oxygen-18 (0/00)	(0/00)	(mg/L)	(mg/L)	Nitrate (mg/L)	Bromide (mg/L)	(total) (mg/L)	Calcium	Magnesium	Potassium S	odium	Boron
Monitoring Wel	ls	•								•				
MW-20-100 a	15-Dec-05	2340	-5.4	-40.0	813	404	9.65	ND (1.0)	82.7	136	21.4	14.8	406	0.709
	10-Mar-06	2500	-5.6	-50.3	861	475	9.94	ND (0.5)	92.5	171	27.0	7.75	597	0.803
	05-May-06	2260	-5.1	-46.4	927	522	9.99	ND (1.0)	82.5	193	32.0	10.8	577	0.716
	03-Oct-06	2320	-5.8	-51.5	863	456	13.4	ND (5.0)	90.0	202	34.4	10.9 J	568	0.874
	13-Dec-06	1960	-6.2	-54.4	861	459	12.3	0.83	97.5	205	32.2	11.4	579	0.889
	13-Dec-06 FD	2200	-6.2	-54.5	874	457	12.2	0.851	92.5	205	32.2	9.55	575	0.881
	14-Mar-07	2180	-6.8	-57.8	847	477	14.2	0.785	87.5	194	31.7	9.90	521	0.715
	03-May-07	2300	-7.3	-59.2	879	493	23.2	ND (1.0)	87.5	209	36.0	12.0 J	559	0.699
	03-May-07 FD	2330	-6.7	-59.3	888	484	19.7	ND (1.0)	87.5	208	34.6	9.63 J	532	0.686
	10-Oct-07	2160	-7.2	-57.2	858	468	3.25	ND (1.0)	92.0	190	32.0	15.0	560	0.81
	12-Mar-08	2470	-6.9	-58.3	827	442	19.2	ND (1.0)	870	218	35.4	11.9	469	0.702
	08-Oct-08	2200	-7.9	-60.2	760	420	16.0	ND (1.0)	90.0	215	36.8	10.3	453	0.669
	13-Mar-09	2200	-7.08	-58.2	770	420	16.0	ND (1.0)	97.0	213	36.4	11.6	543	0.89
	25-Sep-09	2000	-7.67	-62.8	750	400	16.0	ND (2.5)	89.0	200	30.0	12.0	430	0.70
	10-Feb-11	1800	-7.0	-58.8	610	380	15.0	0.57	120	180	28.0	14.0	400	0.81
	08-Dec-11	1700	-6.7	-55.6	580	380	13.0	ND (0.5)	120	170	25.0		390	
	04-Oct-12				570	390	12.0			157	27.8		400	
	29-Nov-12	1700	-7.0	-56.6	570	350	12.9 *	ND (0.5)	110	149	30.6	9.64	376	0.952
	13-Mar-13				560	370	6.27 *		120	164	27.8		388	
MW-20-130 a	09-Mar-05	5520	-5.8	-56.0	3120	1080	10.9	ND (1.0)	68.9	219	12.1	24.7	2250	1.90
	09-Mar-05 FD	6200	-5.4	-51.0	3080	1080	10.9	ND (1.0)	68.9	231	12.8	25.4	2390	1.99
	15-Jun-05	7790	-5.0	-48.0	3410	1230	11.1	ND (1.0)	68.7	352	23.2	31.3	2980	2.75
	07-Oct-05	7330	-5.0	-47.0	3010	1210	10.9	1.04 J	72.4	349	13.9	38.4	2070	2.41
	16-Dec-05	7860	-5.8	-43.0	3260	1000	10.7	ND (2.5)	63.2	324	16.3	44.4	1780	1.98
	10-Mar-06	8610	-5.5	-48.8	3370	1250	10.6	ND (0.5)	74.5	312	18.9	27.7	2730	2.03

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Table C-1
Chemical Performance Monitoring Analytical Results, March 2005 through June 2013
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PG&E Topock Compressor Station, Needles, California

	Samula	Total Dissol		Dautarium	Chlorido	Culfata	Nitroto		Alkalinity		Dissolve	d Metals (n	ng/L)	
Location	Sample Date	(mg/L)	Oxygen-18 (0/00)	(0/00)	(mg/L)	(mg/L)	Nitrate (mg/L)	Bromide (mg/L)	(total) (mg/L)	Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring We	lls	•								•				
MW-20-130 a	05-May-06	7700	-5.3	-47.2	3900	1280	8.95	ND (1.0)	69.2	349	20.3	27.7	2810	2.40
	18-Oct-06	8450	-6.3	-51.4	3680	1100	11.5	ND (5.0)	70.0	358	20.9	28.0	2870	2.28
	13-Dec-06	7890	-6.0	-54.9	3970	1250	10.6	0.896	72.5	335	19.7	27.6	2900	2.31
	13-Dec-06 FD	8250	-5.9	-54.4	3950	1260	10.5	1.09	72.5	328	19.1	27.3	2830	2.24
	08-Mar-07	8450	-6.5	-57.7	3930	1240	11.3	1.08	70.0	353	21.3	27.0	2760	2.24
	08-Mar-07 FD	8510	-6.6	-57.4	3900	1210	11.3	1.06	72.5	351	21.3	26.8	2750	2.19
	03-May-07	8150	-7.7	-60.0	4020	1310	9.80 J	ND (1.0)	75.0	338	22.5	27.8	2550	2.49
	03-May-07 FD	8100	-6.9	-60.1	3950	1290	20.4 J	ND (1.0)	72.5	338	21.9	27.3	2550	2.47
	05-Oct-07	7980	-7.0	-57.5	3670	1070	11.6	ND (1.0)	77.0	310	19.0	31.0	2900	2.40
	12-Mar-08	8460	-6.2	-58.7	3690	1220	14.3	ND (1.0)	75.0	342	23.4	47.0	2260	2.07
	08-Oct-08	7800	-7.3	-59.6	3500	1200	12.0	ND (2.5)	81.0	329	22.0	40.1	1990	2.23
	13-Mar-09	8100	-6.58	-56.4	3600	1100	11.0	ND (2.5)	79.0	350	22.7	41.4	2550	2.16
	25-Sep-09	6500	-7.59	-61.7	3500	1100	13.0	ND (2.5)	76.0	280	17.0	33.0	2400	2.00
	10-Feb-11	5900	-6.6	-59.0	3100	1100	13.0	1.00	80.0	310	18.0	50.0	2100	2.20
	09-Dec-11	6200	-6.6	-57.2	3300	1200	12.0	ND (2.5)	74.0	340	22.0	33.0	2400	2.40
	09-Oct-12				3200	1100	12.0		79.0	283	19.1		2140	
	29-Nov-12	7400	-6.6	-59.5	3300	1100	14.1 *	ND (2.5)	80.0	286	24.0	32.7	2310	2.13
	29-Nov-12 FD	7400	-6.6	-60.4	3400	1100	14.1 *	ND (2.5)	79.0	284	24.2	32.9	2410	2.06
	14-Mar-13				3400	1100	6.32 *		76.0	311	21.7		2260	
MW-25	09-Mar-05	877	-8.4	-62.0	247	169	3.64	ND (0.5)	158	77.6	16.1	6.24	211	0.441
	14-Jun-05	942	-8.6	-61.0	289	183	3.89	ND (0.5)	137	93.5	20.0	8.91	253	0.464
	14-Jun-05 FD	980	-7.2	-59.0	294	185	3.94	ND (0.5)	137	100	20.9	9.06	268	0.475
	04-Oct-05	950	-8.2	-68.0	252	171	3.77	ND (0.5)	141	83.3	14.9	9.93	164	0.362
	04-Oct-05 FD	910	-8.3	-60.0	251	171	3.75	ND (0.5)	146	94.6	15.3	10.2	185	0.371
	14-Dec-05	838	-8.4	-55.0	224	158	3.74	ND (0.5)	153	75.5	14.5	9.80	143	0.396

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Table C-1 Chemical Performance Monitoring Analytical Results, March 2005 through June 2013 Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

	Commis	Total Dissol		Davitanium	Chlarida	Cultata	Mituata		Alkalinity		Dissolve	d Metals (m	g/L)	
Location	Sample Date	Solids (mg/L)	Oxygen-18 (0/00)	(0/00)	(mg/L)	(mg/L)	Nitrate (mg/L)	Bromide (mg/L)	(total) (mg/L)	Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring We	lls													
MW-25	14-Dec-05 FD	896	-8.4	-50.0	219	155	3.75	ND (0.5)	156	73.0	14.1	9.71	151	0.382
	09-Mar-06	910	-8.4	-64.1	245	164	3.83	ND (0.5)	170	76.4	15.6	6.97	210	0.39
	03-May-06	907	-9.0	-59.4	272	172	3.95	ND (0.5)	150	78.0	17.3	7.38	222	0.418
	03-May-06 FD	924	-9.0	-61.0	274	173	3.94	ND (0.5)	155	79.7	17.8	7.53	245	0.431
	03-Oct-06	892	-8.9	-62.7	222	158	4.09	ND (0.5)	163	73.3	15.0	7.25	206	0.466
	06-Mar-07	843	-9.0	-66.9	221	164	3.95	ND (0.5)	160	72.9	14.4	6.85	203	0.459
	02-Oct-07	796	-9.0	-65.8	189	155	4.58	ND (1.0)	180	66.0	14.0	7.90	200	0.49
	02-Oct-07 FD	758	-9.0	-65.7	195	157	4.40	ND (1.0)	190	63.0	13.0	7.70	220	0.46
	07-Oct-08	740	-9.9	-68.5	170	150	4.30	ND (0.5)	200	59.2	12.9	9.89	143	0.559
	07-Oct-08 FD	730	-10.1	-69.1	170	150	4.40	ND (0.5)	210	58.4	12.9	10.2	144	0.559
	21-Sep-09	660	-8.91	-69.9	180	130	4.30	ND (0.5)	200	64.0	12.0	7.20	180	0.46
	21-Sep-09 FD	650	-8.87	-69.5	180	130	4.30	ND (0.5)	200	64.0	12.0	7.90	190	0.47
	07-Dec-10	780	-9.4	-68.9	220	120	4.80	ND (1.0)	180	74.0	15.0	10.0	180	0.43
	15-Dec-11	860	-9.2	-68.6	270	120	5.90	ND (1.0)	170	89.0	19.0	8.50	210	0.49
	15-Dec-11 FD	890	-8.9	-66.7	280	120	6.00	ND (0.5)	170	91.0	19.0	8.00	220	0.50
	11-Dec-12	970	-9.1	-67.6	340	140	7.25 *	ND (0.5)	160	90.0	19.0	7.90	200	0.38
MW-26	08-Mar-05	1840	-8.8	-70.0	756	370	4.48	ND (0.5)	98.7	166	41.6	10.7	439	0.557
	08-Mar-05 FD	1800	-8.7	-70.0	708	338	4.45	ND (0.5)	96.1	166	40.9	11.4	438	0.559
	13-Jun-05	2130	-8.2	-65.0	847	371	4.90	ND (0.5)	103	178	44.6	14.0	511	0.663
	04-Oct-05	2120	-7.8	-68.0	779	372	4.88	0.601	109	166	40.4	19.8	352	0.526
	12-Dec-05	2610	-8.5	-55.0	788	372	4.88	0.546	99.7	162	39.9	20.3	349	0.613
	08-Mar-06	2070	-8.6	-60.4	772	324	4.90	ND (0.5)	121	155	38.1	11.7	434 J	0.621
	01-May-06	2130	-8.9	-62.7	927	382	4.87	ND (0.5)	121	165	42.0	12.8	555	0.723
	03-Oct-06	2220	-8.8	-63.0	894	370	6.22	ND (2.5)	105	170	43.9	12.8	510	0.692
	12-Mar-07	2280	-9.0	-67.0	917	387	6.02	0.646	90.0	163	41.6	12.9	621	0.622

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	0	Total Dissol		D1	01-1	016-1-	Niimata		Alkalinity		Dissolve	d Metals (mg	ı/L)	
Location	Sample Date	Solids (mg/L)	Oxygen-18 (0/00)	(0/00)	(mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	(total) (mg/L)	Calcium	Magnesium	Potassium S	odium	Boron
Monitoring We	lls									•				
MW-26	02-Oct-07	2180	-8.6	-66.3	945	391	7.84	ND (1.0)	100	170	42.0	15.0	620	0.66
	12-Mar-08	2500	-8.1	-67.2	908	398	10.7 J	ND (1.0)	103	176	44.1 J	16.2 J	498	0.589
	12-Mar-08 FD	2420	-8.9	-68.2	905	398	7.61 J	ND (1.0)	102	160	32.8 J	12.7 J	462	0.601
	08-Oct-08	2400	-8.7	-66.5	930	440	10.0	ND (1.0)	110	183	45.8	14.6	555	0.591
	10-Mar-09	2300	-8.41	-65.3	870	440 J	9.80	1.40	100	172	47.9	14.8	585	0.604
	10-Mar-09 FD	2300	-8.68	-65.8	860	440 J	9.70	1.50	100	174	46.2	15.6	631	0.65
	22-Sep-09	2200	-9.04	-68.3	870	450	10.0	ND (1.0)	100	170	39.0	14.0	550	0.59
	15-Dec-10				900	480	12.0		100	180	40.0		560	
	09-Dec-11	2300	-8.1	-65.2	930	530	14.0	1.20	94.0	210	47.0	15.0	690	0.89
	04-Oct-12				920	520	14.0			178	46.2		637	
	27-Nov-12				930	520	15.6 *		100	168	45.0		564	
	12-Mar-13				930	530	9.51 *		100	186	48.7		662	
MW-27-20	08-Mar-05	1250	-12	-102.0	190	432	ND (0.5)	ND (0.5)	215	137	56.6	4.89	195	ND (0.2)
	18-Jul-05		-11.9	-98.0	81.9	228	ND (0.5)	ND (0.5)	160	96.1	30.1	4.27	94.8	ND (0.2)
	05-Oct-05	742	-11.8	-102.0	91.1	252	ND (0.5)	ND (0.5)	175	88.6	31.4	5.48	81.0	ND (0.2)
	14-Dec-05	1020	-11.7	-91.0	118	347	ND (0.5)	ND (0.5)	216	116	41.8	6.96	116	ND (0.2)
	06-Mar-06	664	-12.1	-90.9	89.7	231	ND (0.2)	ND (0.2)	385	89.1	28.8	4.90	103	ND (0.2)
	14-Jun-06	730	-12	-89.8	98.3	272	ND (0.5)	ND (0.5)	195	91.1	28.5	2.79 J	96.9	ND (0.2)
	03-Oct-06	600	-13.1	-96.6	90.8	261	ND (0.5)	ND (0.5)	160	102	34.5	6.45	113	ND (0.2)
	02-Oct-07	802	-12.5	-96.3	102	320	ND (1.0)	ND (1.0)	170	97.0	34.0	5.30	150	0.22
	03-Oct-08				94.0	240	ND (0.5)			87.9	29.5		110	
	01-Oct-09				88.0	230	ND (0.5)		130	84.0	25.0		87.0	
	07-Dec-10				86.0	220	ND (0.5)		200	87.0	29.0		93.0	
	05-Dec-11				83.0	220	ND (0.5)		150	83.0	25.0		83.0	
	03-Dec-12				76.0	210	ND (0.01) *		150	76.0	24.0		76.0	

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	0	Total Dissol		Davidaniana	01.1	0.46-4-	NI:		Alkalinity		Dissolve	d Metals (mg	/L)	
Location	Sample Date	Solids (mg/L)	Oxygen-18 (0/00)	(0/00)	(mg/L)	(mg/L)	Nitrate (mg/L)	Bromide (mg/L)	(total) (mg/L)	Calcium	Magnesium	Potassium S	odium	Boron
Monitoring We	lls									•				
MW-28-25	10-Mar-05	880	-12.2	-95.0	112	302	ND (0.5)	ND (0.5)	204	129	36.3	3.50	122	ND (0.2)
	15-Jun-05	974	-11.6	-91.0	108	359	ND (0.5)	ND (0.5)	221	133	38.9	6.54	117	ND (0.2)
	06-Oct-05	884	-11.7	-95.0	99.8	300	ND (0.5)	ND (0.5)	197	123	37.0	6.61	88.7	ND (0.2)
	16-Dec-05	1010	-11.4	-90.0	128	348	ND (0.5)	ND (0.5)	212	134	41.5	6.46	107	ND (0.2)
	09-Mar-06	746	-11.5	-93.9	84.4	225	ND (0.5)	ND (0.5)	244	98.5	27.5	4.15 J	88.5	ND (0.2)
	05-May-06	741	-11.4	-90.3	110	302	ND (0.5)	ND (0.5)	216	117	35.7	5.77	118	ND (0.2)
	11-Oct-06	1050	-12.2	-95.0	86.3	247	ND (0.5)	ND (0.5)	225	133	40.8	5.47	132	ND (0.2)
	04-Oct-07	812	-12.1	-98.7	110	307	ND (1.0)	ND (1.0)	230	120	37.0 J	4.80	150	0.26 J
	08-Oct-08				100	280	ND (0.5)		220	109	34.7		102	
	24-Sep-09				94.0	240	ND (0.5)		200	100	27.0		100 J	
	08-Dec-10				90.0	230	ND (0.5)		190	110	31.0		95.0	
	12-Dec-11				97.0	260	ND (0.5)		200	110	33.0		96.0	
	05-Dec-12				87.0	240	0.0128 *		200	93.0	29.0		86.0	
MW-30-30	10-Mar-05	38800	-9.8	-79.0	16000	4270	ND (5.0)	7.91	421	1590	1600	95.4	13600	4.97
	07-Oct-05	36400	-8.5	-75.0	17600	4000	ND (0.5)	ND (10)	521	1020	842	93.6	7650	5.20
	15-Dec-05	35700	-8.7	-59.0	19700	4070	ND (1.0)	3.13	504	1060	894	110	8540	6.14
	13-Mar-06	39700 J	-8.8	-70.5	18600	4530	ND (0.5)	ND (50)	650	1050	892	77.2	11300	4.62
	02-May-06	32400	-10.3	-70.7	15400	3300	ND (0.5)	ND (5.0)	756	882	828	59.4	10300	3.95
	10-Oct-06	29400	-9.4	-68.7	17800	4400	ND (2.5)	ND (2.5)	550	729	653	55.0	10200	4.32
	08-Oct-07	27400	-9.0	-73.9	13700	3370	ND (1.0)	3.88	800	650	540	56.0	9600	4.50
	24-Sep-09				5800	1700	ND (5.0)		550	280	220		3800	
	07-Dec-10				7200	1900	ND (1.0)		790	390	290		4800	
	07-Dec-11				10000	3200	ND (5.0)		910	340	290		6300	
	03-Dec-12				8700	3400	0.0269 *		1500	300	260		7000	
MW-30-50	10-Mar-05	6470 J	-8.3	-68.0	4660	672	ND (0.5)	1.03	324	335	107	16.5	2040	1.15

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	0	Total Dissol		5		0.16.4	NP4 4		Alkalinity		Dissolve	d Metals (r	mg/L)	
Location	Sample Date	Solids (mg/L)	Oxygen-18 (0/00)	(0/00)	(mg/L)	(mg/L)		Bromide (mg/L)	(total) (mg/L)	Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring We	lls									•				
MW-30-50	07-Oct-05	6860	-9.4	-79.0	3060	857	ND (0.5)	0.899 J	252	438	101	37.0	1780	1.27
	16-Dec-05	5850	-10.5	-65.0	2360	578	ND (0.5)	0.645	212	265	77.9	32.9	1260	1.19
	09-Mar-06	5380	-9.8	-83.5	2420	651	ND (0.5)	ND (0.5)	275	226	66.2	14.6	1640	1.18
	02-May-06	5420	-10.4	-73.6	2380	612	ND (0.5)	3.41	261	243	70.3	16.4	1750	1.22
	11-Oct-06	4170	-10.7	-82.2	1980	468	ND (0.5)	ND (0.5)	290	171	48.5	14.0	1370	1.11
	11-Oct-06 FD	3930	-11	-82.6	1810	462	ND (0.5)	ND (0.5)	298	163	46.1	14.1	1340	1.08
	24-Sep-09								220	19.0	4.80		270	
	07-Dec-10		-12.2	-97.5	140	220	ND (0.5)		200	15.0	4.20		260	
	08-Dec-11		-12.3	-98.2	130	210	ND (0.5)		200	34.0	9.40		240	
	03-Dec-12		-12.5	-103.0	110	200	ND (0.01) *		190	46.0	13.0		170	
MW-31-60	09-Mar-05	1540	-8.6	-63.0	649	210	4.94	ND (0.5)	76.6	108	17.3	5.97	424	0.401
	13-Jun-05	1660	-8.2	-65.0	745	207	4.12	ND (0.5)	70.0	121	18.9	6.57	403	0.388
	06-Oct-05	1660	-8.6	-65.0	691	206	4.01	ND (0.5)	77.3	109	16.5	9.75	308	0.462
	13-Dec-05	1620	-8.7	-54.0	669	199	4.14	ND (0.5)	73.0	87.0	15.4	9.32	275	0.359
	15-Mar-06	1560 J	-8.6	-65.6	661	191	4.37	ND (0.5)	89.3	106	17.5	7.30	403	0.393
	15-Mar-06 FD	1640 J	-8.6	-64.9	662	192	4.34	ND (0.5)	81.9	101	16.8	6.94	391	0.383
	01-May-06	1630	-9.6	-63.2	691	209	4.58	ND (0.5)	79.6	118	20.1	7.78	467	0.449
	05-Oct-06	1620	-9.4	-66.3	687	205	5.00	ND (0.5)	80.0	113	20.6	9.60 J	325	0.464
	12-Mar-07	1750	-9.3	-69.0	757	222	4.93	ND (0.5)	72.5	116	20.3	6.05	454	0.402 J
	04-Oct-07	1720	-9.4	-69.6	799	208	5.15	ND (1.0)	80.0	150	26.0	7.30	580	0.64
	06-Oct-08	2000	-10.2	-72.2	810	240	4.20	ND (1.0)	81.0	150	26.0	9.39	460	0.399
	21-Sep-09	1800	-9.23	-72.1	870	220	3.70	ND (1.0)	75.0	160	26.0	9.60	480	0.43
	15-Dec-10	2000	-9.0	-69.3	840	210	3.50	ND (0.5)	78.0	170	27.0	12.0	440	0.43
	06-Dec-11	1800	-8.8	-67.9	790	200	3.40	ND (1.0)	76.0	150	24.0	7.60	450	0.54
	13-Nov-12	1900	-9.2	-71.8	890	200	3.30 *	ND (0.5)	78.0	150	24.0	7.10	470	0.44

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	Comple	Total Dissol	ved Oxygen-18	Dautarium	Chlorido	Culfata	Nitrate		Alkalinity		Dissolve	d Metals (n	ng/L)	
Location	Sample Date	(mg/L)	(0/00)	(0/00)	(mg/L)	(mg/L)	(mg/L)	Bromide (mg/L)	(total) (mg/L)	Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring We	lls													
MW-32-20	09-Mar-05	12500	-7.2	-65.0	6930	1660	ND (0.5)	3.51	123	838	302	36.9	4000	2.76
	17-Jun-05	10200	-9.0	-67.0	4810	690	ND (0.5)	ND (2.5)	676	566	231	23.3	2620	1.75
	04-Oct-05	28800	-7.8	-65.0	14200	2420	ND (5.0)	6.19	733	1380 J	613 J	91.1 J	5400 J	4.75 J
	16-Dec-05	24600	-7.8	-61.0	12200	2140	ND (1.0)	3.48	861	1470	552	90.4	4950	4.16
	10-Mar-06	20900	-8.3	-65.5	10600	1970	ND (0.5)	ND (0.5)	432	1350	530	56.1	6440	3.54
	04-May-06	16900	-8.1	-64.9	9430	1380	ND (0.5)	2.35	218	937	445	46.0	4780	2.87
	02-Oct-06	46200 J	-8.6	-67.1	20200	3190	ND (2.5)	7.30	660	1870	1070	87.0	11300	6.34
	11-Dec-06	37900	-8.0	-67.0	17900	3020	ND (5.0)	7.67	825	1530	785	81.7	8420	4.98
	06-Mar-07	27600	-8.7	-72.7	16200	2210	0.925	5.93	765	1460	635	64.4	7110	3.92
	30-Apr-07	17700	-9.6	-78.1	9820	1310	ND (0.2)	3.78	770	965	484	51.4	5520	3.02
	01-Oct-07	37200	-8.3	-70.1	20600	3160	ND (1.0)	6.44	700	1800	1100	93.0	9900	5.70
	10-Mar-08	26000	-9.4	-72.6	15800	2280	ND (1.0)	5.66	800	1190	710	67.4	11600	2.31
	03-Oct-08				21000	3500	ND (5.0)		640	1700	1080		9550	
	10-Mar-09	29000	-8.91	-70.5	15000	2100 J	ND (5.0)	15.0	750	1620	970	96.6	7020	3.53
	22-Sep-09				20000	3600	ND (5.0)		730	1800	740		9300	
	08-Dec-10				17000	4100	ND (5.0)		830	1600	720		11000	
	08-Dec-11				17000	4400	ND (5.0)		1000	1400	670		11000	
	05-Dec-12				15000	6000	1.16 *			900	500		9800	
MW-32-35	09-Mar-05	3560	-8.2	-68.0	1770	465	ND (0.5)	0.845	260	312	85.5	13.0	944	1.07
	17-Jun-05	7550	-9.5	-72.0	3520	787	ND (0.5)	ND (2.5)	223	506	120	14.8	2110	1.18
	04-Oct-05	8340	-8.3	-70.0	3840	765	ND (0.5)	ND (5.0)	208	567	134	29.3	1530	1.26
	16-Dec-05	7660	-8.8	-63.0	3510	710	ND (1.0)	1.02	219	606	128	30.0	1580	1.25
	10-Mar-06	9230	-8.6	-74.0	4210	1010	ND (0.5)	ND (0.5)	234	654	129	19.2	2360	1.13
	04-May-06	9840	-9.1	-67.8	4960	1130	ND (0.5)	ND (0.5)	218	693	148	19.5	2800	1.38
	02-Oct-06	11200	-9.4	-71.4	5430	1050	ND (2.5)	ND (2.5)	290	839	165	23.9	3260	1.48

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	Comple	Total Dissol		Doutorium	Chlorida	Culfata	Nitroto		Alkalinity		Dissolve	d Metals (m	ng/L)	
Location	Sample Date	Solids (mg/L)	Oxygen-18 (0/00)	(0/00)	(mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	(total) (mg/L)	Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring We	lls									•				
MW-32-35	11-Dec-06	10400	-9.0	-70.4	5090	1000	ND (0.5)	1.90	338	845	173	22.5	2620	1.43
	06-Mar-07	12600	-10.2	-75.4	6070	1200	ND (0.5)	2.65	360	1080	209	23.5	2910	1.35
	30-Apr-07	12100	-9.9	-78.7	6610	1280	ND (0.2)	2.60	475	1250	273	26.2	3280	1.35
	01-Oct-07	13700	-8.9	-72.7	6830	1120	ND (1.0)	2.62	490	1000	390	29.0	4000	1.70
	03-Oct-08	15000	-9.8	-73.1	7600	1300	ND (2.5)	3.10	550	829	150	52.3	3490	1.49
	22-Sep-09	13000	-9.32	-75.2	6900	1400	ND (2.5)	2.80	530	880	400	53.0	3100	1.70
	09-Dec-10	11000	-10.2	-84.2	5500	1600	ND (2.5)	ND (2.5)	590	750	390 J	51.0 J	3000	1.70 J
	09-Dec-11	8500	-10.8	-84.2	5000	1700	ND (2.5)	ND (2.5)	640	680	310	34.0	3100	1.70
	05-Dec-12	10000	-11	-89.0	4300	1700	0.0274 *	ND (5.0)	630	460	240	31.0	2700	1.30
MW-34-55	10-Mar-05	6230	-10.8	-82.0	2620	739	ND (0.5)	0.654	240	366	71.3	29.1	1900	1.19
	15-Jul-05		-10.3	-84.0	2250	607	ND (0.5)	ND (0.5)	242	247	52.0	16.5	1420	1.02
	05-Oct-05	5150	-10.6	-88.0	2170	619	ND (0.5)	ND (0.5)	232	272	59.1	25.8	1230	1.20
	14-Dec-05	5100	-10.8	-74.0	2150	552	ND (0.5)	0.588	236	217	45.0	27.2	965	0.937
	08-Mar-06	4850	-10.8	-86.8	2080	593	ND (0.5)	ND (0.5)	272	256	54.2	13.5	1640	0.956
	03-May-06	4320	-11.5	-84.3	2070	500	ND (0.5)	ND (0.5)	302	198	44.8	11.1	1360	0.846
	04-Oct-06	1680 J	-12.2	-94.8	443	230	ND (0.5)	ND (0.5)	368	37.6	8.08	4.59	536	0.54
	03-Oct-07	730	-11.3	-96.6	109	266	ND (1.0)	ND (1.0)	190	15.0	3.30	3.30	290	0.26
	07-Oct-08	700	-13	-100.0	100	250	ND (0.5)		170	72.4	16.9	5.26	192	0.248
	30-Sep-09	700	-12.3	-101.0					160	77.0	17.0	4.40	120	0.15
	07-Dec-10	590	-12.1	-98.8	87.0	230	ND (0.5)	ND (0.5)	140	81.0	19.0	5.10	100	0.10
	06-Dec-11	630	-12.3	-101.0	83.0	220	ND (0.5)	ND (0.5)	160	81.0	19.0	4.60	100	0.19
	12-Dec-12	630	-12.7	-105.0	78.0	210	ND (0.01) *	ND (0.5)	140	75.0	20.0	3.70	100	0.15
MW-34-80	08-Mar-05	6940	-10.4	-83.0	4180	1040	ND (0.5)	1.01	304	439	68.1	28.0	2750	1.65
	15-Mar-05	8980			3920	ND (5.0)	ND (1.0)		288	445	65.7	29.7	2990	
	30-Jun-05	7840	-8.4	-82.0	3910	979	ND (0.5)	ND (0.5)	302	497	76.5	27.7	2670	1.66

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Table C-1
Chemical Performance Monitoring Analytical Results, March 2005 through June 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
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PG&E Topock Compressor Station, Needles, California

	0	Total Dissol		5		0.16.4	NII		Alkalinity		Dissolve	d Metals (r	ng/L)	
Location	Sample Date	Solids (mg/L)	Oxygen-18 (0/00)	(0/00)	(mg/L)	(mg/L)	Nitrate (mg/L)	Bromide (mg/L)	(total) (mg/L)	Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring We	lls									•				
MW-34-80	05-Oct-05	10200	-10.1	-85.0	3880	1060	ND (0.5)	ND (0.5)	302	429	72.5	47.4	1660	1.57
	14-Dec-05	8800	-10.2	-71.0	3700	880	ND (0.5)	0.854	297	432	68.3	54.9	1710	1.54
	09-Mar-06	7830	-9.9	-86.8	3520	986	ND (0.5)	ND (0.5)	313	383	65.8	24.0	2420	1.49
	03-May-06	7950	-11.7	-77.6	3700	921	ND (0.5)	ND (0.5)	297	425	70.3	23.9	2480	1.38
	04-Oct-06	7080	-11.3	-81.8	3210	786	ND (0.5)	0.737	268	341	65.4	21.1	2170	1.31
	12-Dec-06	6510	-10.5	-80.9	3190	789	ND (0.5)	0.742	288	298	62.9	18.9	2040	1.26
	05-Mar-07	6360 J	-11.5	-85.8	3300	783	ND (0.5)	0.72	205	315	68.3	19.4	2020	1.29
	30-Apr-07	6390	-11.5	-88.9	3320 J	889 J	ND (0.2)	ND (1.0)	245	282	57.0	18.6	2080	1.33
	03-Oct-07	5490	-11.3	-87.8	2630	696	ND (1.0)	ND (1.0)	240	220	53.0	21.0	2000	1.20
	13-Dec-07	5420	-10.9	-88.6	2380	698	ND (1.0)	ND (1.0)	264	193	49.1	25.4	1450	1.09
	12-Mar-08	5500	-11.4	-87.3	2510	739	ND (1.0)	ND (1.0)	238	237	52.6	19.2	2030	1.14
	06-May-08	5820	-11.4	-87.3	2460	753	ND (0.2)	0.525	216	230	49.0	30.0	1600	1.20
	07-Oct-08	5300	-11.8	-87.6	2400	720	ND (2.0)	ND (2.0)	250	223	46.3	22.0	1220	0.765
	10-Dec-08	5300	-11	-93.1	2190	698	ND (1.0)	ND (1.0)	253	147	45.2	20.6	3880	1.11
	10-Mar-09	5100	-10.9	-84.8	2300	700 J	ND (2.5)	ND (2.5)	240	219	46.3	22.2	1480	1.08
	30-Apr-09	5830	-11.5	-85.8	2340	768	ND (1.0)	ND (1.0)	237	219	50.0	24.6	1510	1.11
	30-Sep-09	4000	-10.8	-88.9	2300	710	ND (1.0)	ND (1.0)	230	240	46.0	22.0	1500	0.98
	10-Mar-10	4900	-12.1	-91.6	2100	660	ND (1.0)	ND (1.0)	240	220 J	41.0	28.0	1400 J	0.93
	07-Dec-10	4600	-11.1	-87.3	2300	700	ND (1.0)	ND (1.0)	220	240	47.0	24.0	1300	1.00
	06-Dec-11	3900	-11.1	-88.1	1900	640	ND (1.0)	ND (1.0)	230	220	43.0	16.0	1300	1.10
	12-Dec-12	4300	-11.2	-90.2	1800	630	ND (0.01) *	ND (1.0)	250	220	51.0	17.0	1300	1.00
	12-Dec-12 FD		-11.1	-89.3	1800	630	ND (0.01) *		250	210	48.0		1300	
MW-34-100	14-Mar-05	10800			5010	1210	ND (1.0)		175	221	17.4	34.1	3600	
	21-Jun-05	11300	-9.7	-75.0	5350	1270	1.05	ND (0.5)	179	229	17.4	27.1	3510	2.22
	21-Jun-05 FD	10900 J	-9.5	-77.0	4920	1180	1.03	ND (0.5)	179	243	18.2	32.1	3740	2.36

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Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
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	Commis	Total Dissol		Davitaniona	Chlarida	Culfata	Nituata		Alkalinity		Dissolve	d Metals (n	ng/L)	
Location	Sample Date	Solids (mg/L)	Oxygen-18 (0/00)	(0/00)	(mg/L)	(mg/L)	Nitrate (mg/L)	Bromide (mg/L)	(total) (mg/L)	Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wel	ls				-					•				
MW-34-100	05-Oct-05	10400	-9.9	-83.0	4530	1150	1.20	ND (0.5)	172	171	13.8	55.2	2450	2.57
	05-Oct-05 FD	10400	-9.9	-83.0	4680	1200	1.21	ND (0.5)	172	228	14.1	50.9	2730	2.57
	14-Dec-05									226	14.9	62.9	2530	2.32
	14-Dec-05 FD									220	15.1	64.2	2530	2.40
	08-Mar-06	10000	-11.4	-75.5 J	4720	1180	1.39		152	179	12.1	32.5	3580	2.41
	08-Mar-06 FD	10100	-10.1	-102 J	4920	1220	1.39		159	182	11.9	36.5	3530	2.46
	30-Apr-07	10600	-10.9	-80.7	5920	1040	1.38		123	186	12.0	31.5	3840	2.39
	30-Apr-07 FD	11900	-11.2	-82.1	5880	1050	1.37		123	189	12.0	32.1	3920	2.40
	03-Oct-07	10700	-10.2	-78.2	5350	970	1.19	ND (1.0)	120	170	11.0	44.0	4300	2.50
	03-Oct-07 FD	10500	-10.6	-78.4	5360	953	1.03	ND (1.0)	120	160	10.0	43.0	4300	2.40
	07-Oct-08	11000	-10.9	-80.8	5400	1200	ND (2.5)	ND (2.5)	140	158	10.6	54.5	2970 J	2.35
	07-Oct-08 FD	11000	-11	-81.3	5600	1200	ND (2.5)	ND (2.5)	140	184	11.5	56.7	3880 J	2.59
	30-Sep-09				5500	1300	ND (5.0)		170	200	11.0	73.0	3800	2.30
	08-Dec-10	10000	-9.8	-79.5	5800	1300	ND (2.5)	ND (2.5)	140 J	190	9.60	52.0 J	4100	2.60
	08-Dec-10 FD	9900	-10	-80.4	5700	1200	ND (1.0)	ND (1.0)	89.0 J	180	9.80	60.0 J	4000	2.50
	06-Dec-11	10000	-10.1	-79.2	5700	1300	ND (2.5)	ND (2.5)	120	170	7.60	43.0	4000	2.70
	06-Dec-11 FD	9400	-10	-79.5	5600	1200	ND (2.5)	ND (2.5)	120	160	7.40	43.0 J	3900	2.70
	26-Nov-12	11000	-10.1	-80.5	5900	1200	0.444 *	ND (2.5)	120	150	8.60	47.0	3100	2.60
	26-Nov-12 FD	11000	-10.2	-80.9	5900	1200	0.421 *	ND (2.5)	130	150	8.20	47.0	3200	2.60
Surface Water S	Stations													
R-27	07-Mar-05	669	-12.3	-102.0	92.7	244	ND (0.5)	ND (0.5)	136	82.8	31.3	4.72	108	ND (0.2)
	14-Jun-05	686	-11.4	-92.0	90.9	266	ND (0.5)	ND (0.5)	127	81.9	29.8	6.04	98.9	ND (0.2)
	05-Oct-05	678	-11.6	-94.0	85.1	255	ND (0.5)	ND (0.5)	130	101	36.2	6.56	91.2	ND (0.2)
	16-Dec-05	718	-11.7	-87.0	87.9	253	ND (0.5)	ND (0.5)	126	85.5	29.5	5.99	75.6	ND (0.2)
	06-Mar-06	656	-11.8	-92.1	90.6	268	ND (0.5)	ND (0.5)	144	83.5	29.4	5.44 J	101	ND (0.2)

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Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

	0	Total Dissol		Davidaniana	01-1	016-4-	Nitrata		Alkalinity		Dissolve	ed Metals (m	g/L)	
Location	Sample Date	Solids (mg/L)	Oxygen-18 (0/00)	(0/00)	(mg/L)	(mg/L)	Nitrate (mg/L)	Bromide (mg/L)	(total) (mg/L)	Calcium	Magnesium	Potassium S	Sodium	Boron
Surface Water	Stations	•								•				
R-27	03-May-06	567	-12.8	-93.9	93.1	267	ND (0.5)	ND (0.5)	139	87.0	31.1	3.12 J	106	ND (0.2)
	04-Oct-06	752 J	-12.2	-94.9	91.5	261	ND (0.5)	ND (0.5)	128	82.9	31.5	6.24 J	98.1	ND (0.2)
	20-Dec-06	680	-12.7	-98.1	94.5	266	ND (0.5)	ND (0.5)	138	83.2	30.9	3.64	106	ND (0.2)
	13-Mar-07	750 J	-13	-99.5	96.5	267	0.537	ND (0.5)	130	86.9	31.3	4.73	106	ND (0.2)
	08-May-07	715 J	-12.9	-104.0	92.6	269	ND (0.5)	ND (0.5)	143	84.3	29.8	5.55	100	ND (0.2)
	11-Sep-07	650	-12.5	-101.0	89.4	253	0.336	ND (0.2)	132	74.2	28.9	5.47	86.5	ND (0.2)
	05-Dec-07		-11.7	-99.0	94.7	256	ND (1.0)	ND (0.2)	137	89.8	31.7	6.60	93.4	0.157
	02-Apr-08				93.0	267	ND (1.0)	ND (1.0)	136	80.2	30.7	5.50	106	0.432
	17-Jun-08	682	-13	-101.0	91.6	254	ND (1.0)	ND (1.0)	134	76.2	31.8	6.69	89.7	ND (0.2)
R-28	08-Mar-05	651	-12.5	-102.0	90.4	231	ND (13)	ND (0.5)	132	83.7	31.4	5.02	107	ND (0.2)
	14-Jun-05	680	-11.6	-95.0	91.2	268	ND (0.5)	ND (0.5)	127	78.5	28.5	5.08	94.5	ND (0.2)
	05-Oct-05	672	-11.6	-94.0	85.5	255	ND (0.5)	ND (0.5)	122	85.7	30.4	6.30	77.0	ND (0.2)
	16-Dec-05	710	-11.5	-83.0	88.1	254	ND (0.5)	ND (0.5)	126	87.2	29.8	6.11	76.8	ND (0.2)
	06-Mar-06	675	-12.3	-93.4	91.0	270	ND (0.5)	ND (0.5)	146	76.6	26.6	5.22 J	91.5	ND (0.2)
	03-May-06	586	-13	-92.1	93.4	270	ND (0.5)	ND (0.5)	136	88.1	31.4	4.04 J	107	ND (0.2)
	04-Oct-06	644 J	-12.6	-95.3	90.9	259	ND (0.5)	ND (0.5)	133	84.2	32.1	6.17 J	96.5	ND (0.2)
	20-Dec-06	615	-12.4	-99.6	93.3	262	ND (0.5)	ND (0.5)	143	85.7	32.0	4.66	108	ND (0.2)
	14-Mar-07	710	-12.8	-100.0	96.7	268	0.534	ND (0.5)	133	87.9	31.0	5.71	105	ND (0.2)
	09-May-07	690	-13	-102.0	95.8	271	ND (0.5)	ND (0.5)	143	86.1	30.5	5.92	103	ND (0.2)
	12-Sep-07	682	-12.4	-99.4	106	296	0.372	ND (0.2)	122	73.8	29.9	6.36	89.2	ND (0.2)
	06-Dec-07		-11.7	-98.6	96.5	258	0.345	ND (0.2)	139	75.7	30.4	6.62	79.4	ND (0.2)
	02-Apr-08				92.5	309	ND (1.0)	ND (1.0)	137	84.7	31.4	5.58	108	0.467
	18-Jun-08	672	-13.2	-102.0	89.4	248	ND (1.0)	ND (1.0)	132	43.3	31.1	6.95	93.9	ND (0.2)
	17-Sep-08	640			91.4	256	ND (0.5)	ND (0.5)	132	83.4	31.2	6.48	78.0	ND (0.2)
	04-Dec-08	649	-11.9	-97.0	97.4	260	ND (1.0)	ND (1.0)	135	81.7	30.0	5.95	114	0.262

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Table C-1
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PG&E Topock Compressor Station, Needles, California

		Total Dissolv					.		Alkalinity		Dissolve	d Metals (n	ng/L)	
Location	Sample Date	Solids (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	(mg/L)	(mg/L)	Nitrate (mg/L)	Bromide (mg/L)	(total) (mg/L)	Calcium	Magnesium	Potassium	Sodium	Boron
Surface Water	Stations													
R-28	21-Jan-09	652	-12	-96.7	91.5	253	ND (0.5)	ND (0.5)	134	79.2	27.8	6.01	91.7	ND (0.2)
	09-Apr-09	643	-12.4	-97.8	92.7	250	ND (1.0)	ND (0.5)	138	79.6	28.8	5.44	97.0	ND (0.2)
	08-Jul-09	632	-12.8	-98.6	84.5	239	ND (0.5)	ND (0.5)	131	79.6	27.3	6.17	86.9	ND (0.2)
	09-Sep-09	640	-12.5	-99.1	86.0	236	ND (1.0)	ND (1.0)	131	74.8	26.2	6.01	78.7	ND (0.2)
	14-Dec-09	612	-13	-98.3	89.7	244	ND (1.0)	ND (1.0)	131	73.5	26.7	4.98	88.2	ND (0.2)
	21-Dec-10	602	-12.1	-102.0	91.0	223	ND (0.5)	ND (0.5)	133	69.1	24.8	4.75	87.8	ND (0.2)
	11-Jan-12				80.5	218	ND (0.5)	ND (0.5)	127	70.2	27.4	4.76	83.7	ND (0.2)
	01-Nov-12	499	-12.6	-102.0	75.4	212	ND (0.5)	ND (0.5)	132	71.3	27.5	4.12	79.3	ND (0.2)

Notes:

0/00 = differences from global standards in parts per thousand.

FD = field duplicate sample.

J = concentration or reporting limit estimated by laboratory or data validation.

mg/L = milligrams per liter.

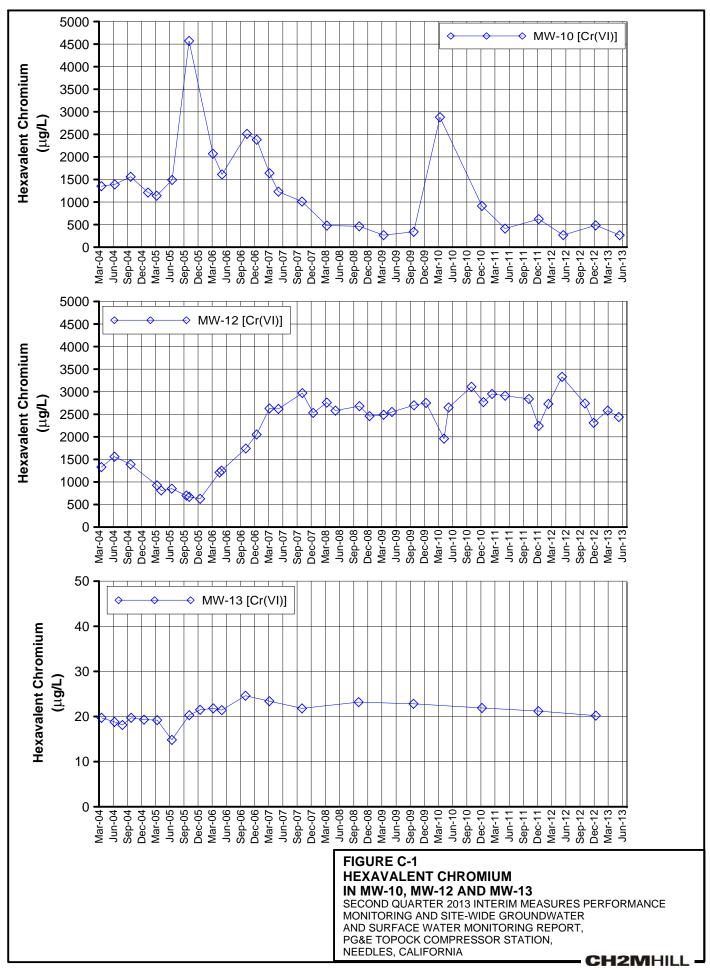
ND =parameter not detected at the listed reporting limit.

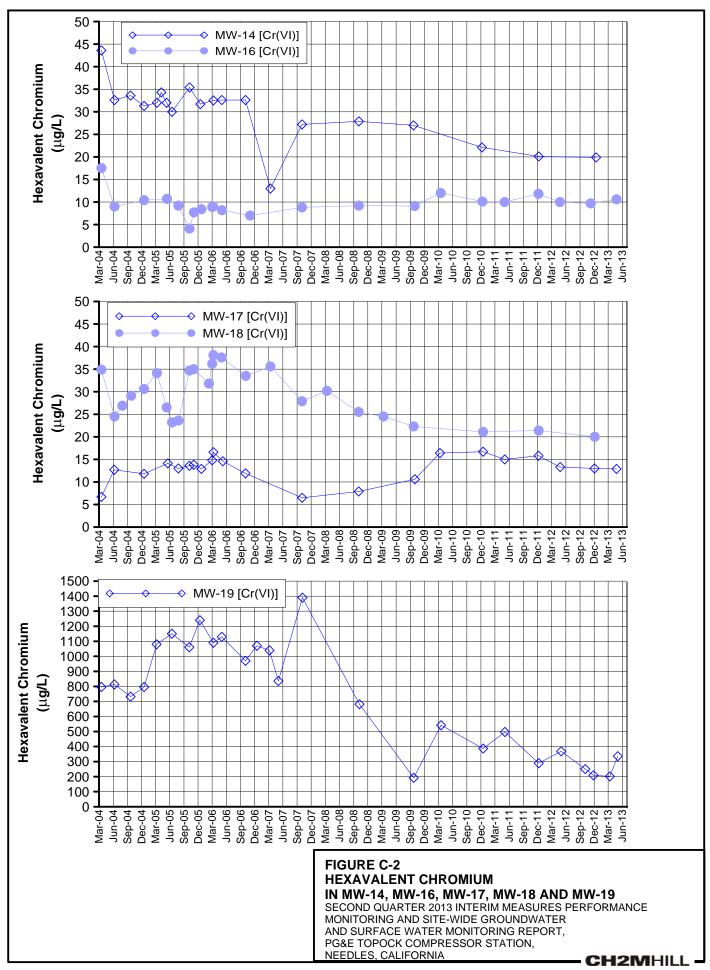
Alkalinity (total) reported as calcium carbonate. Nitrate reported as nitrogen (N).

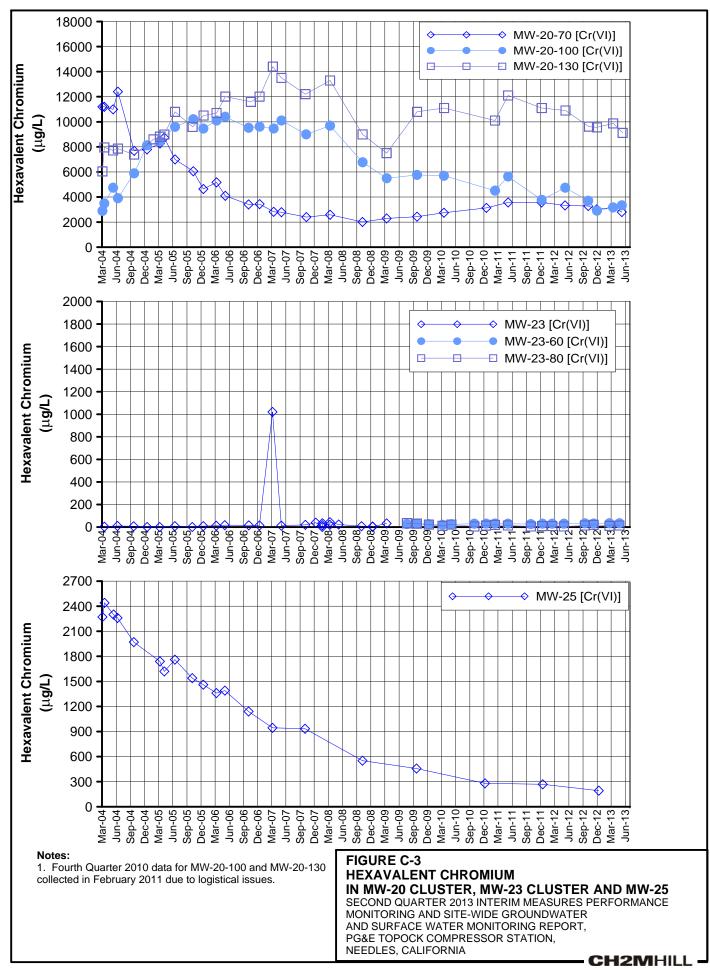
^{(---) =} data not collected or available.

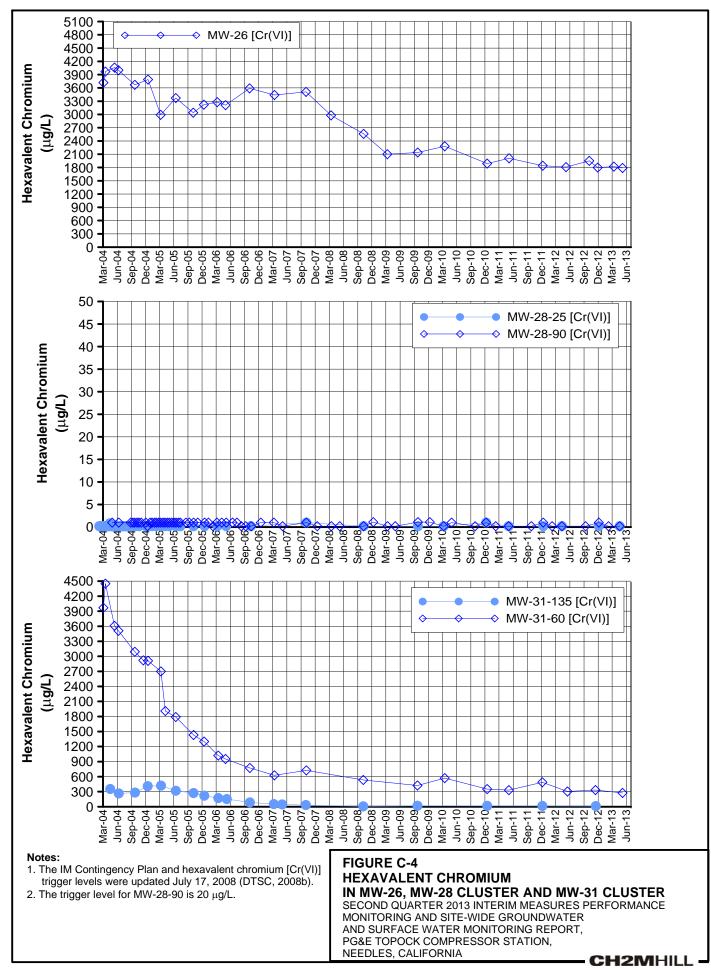
^{*} Nitrate as nitrogen was not requested. Nitrate/nitrite as nitrogen is shown.

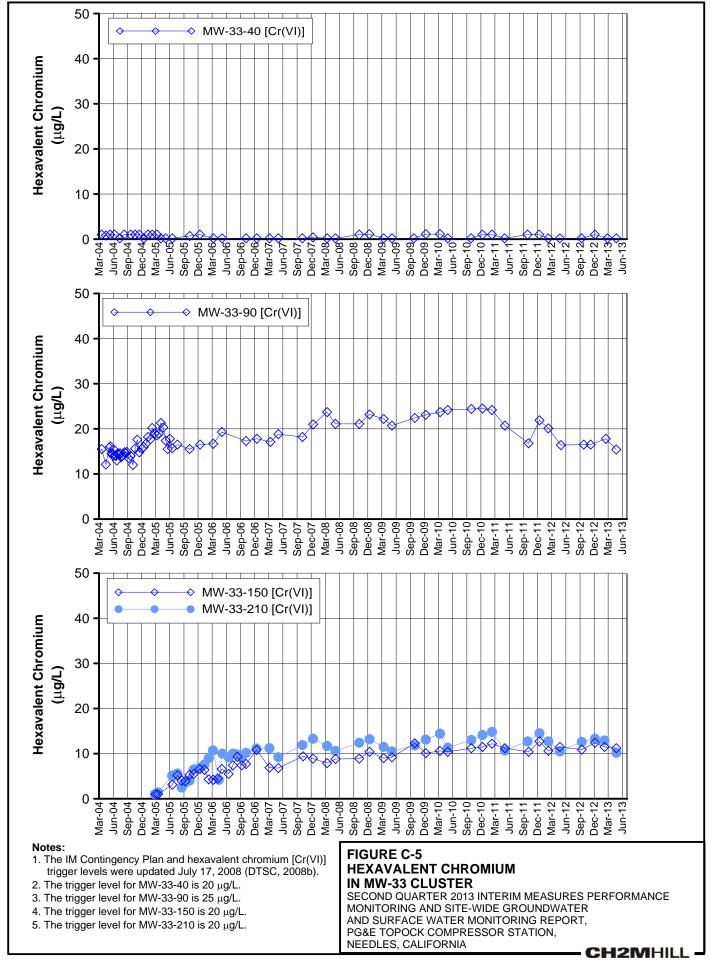
^a Data collected February 2011 due to field logistical issues.

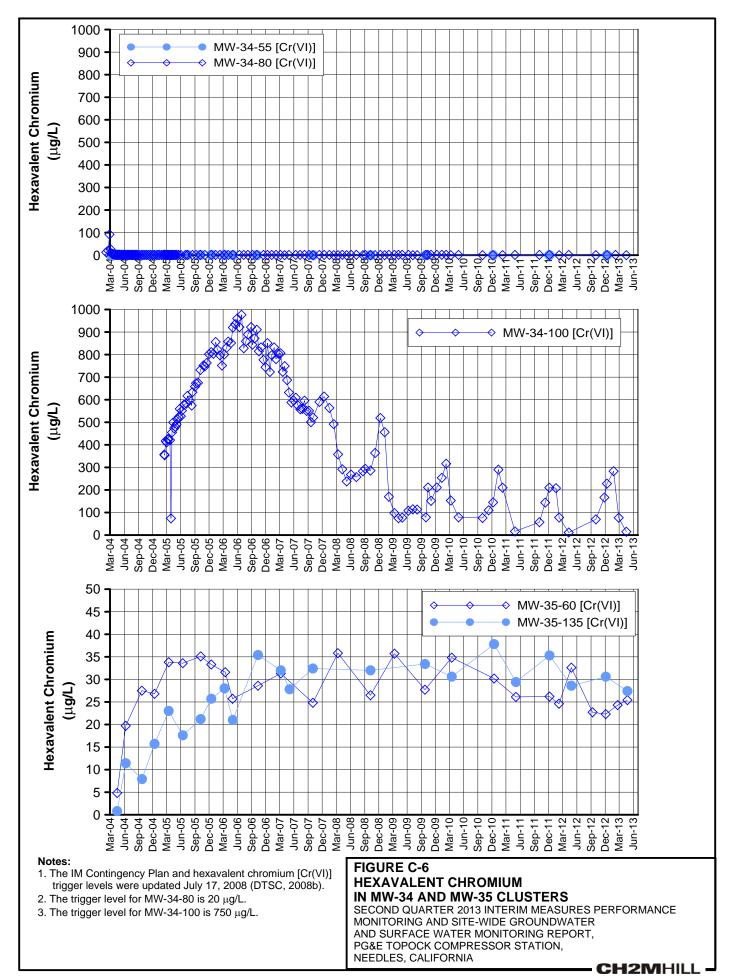


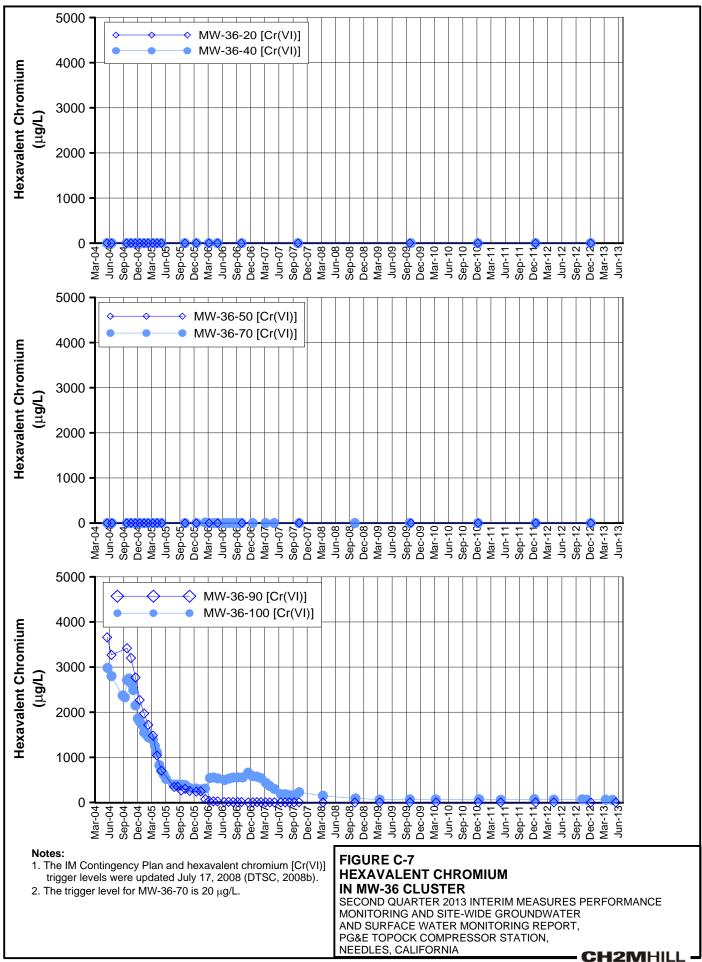


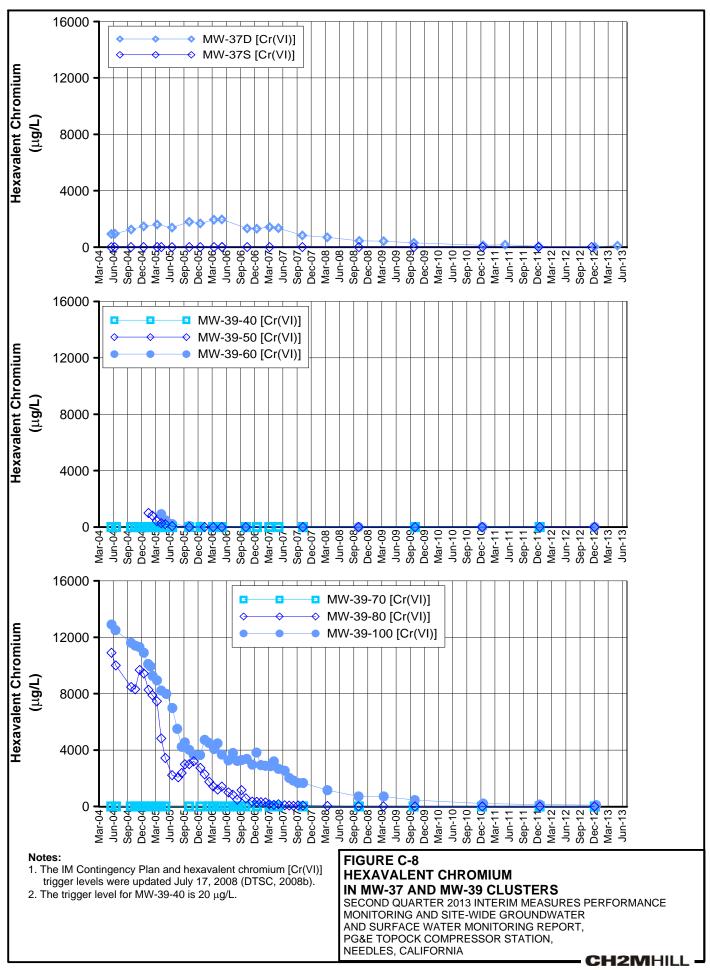


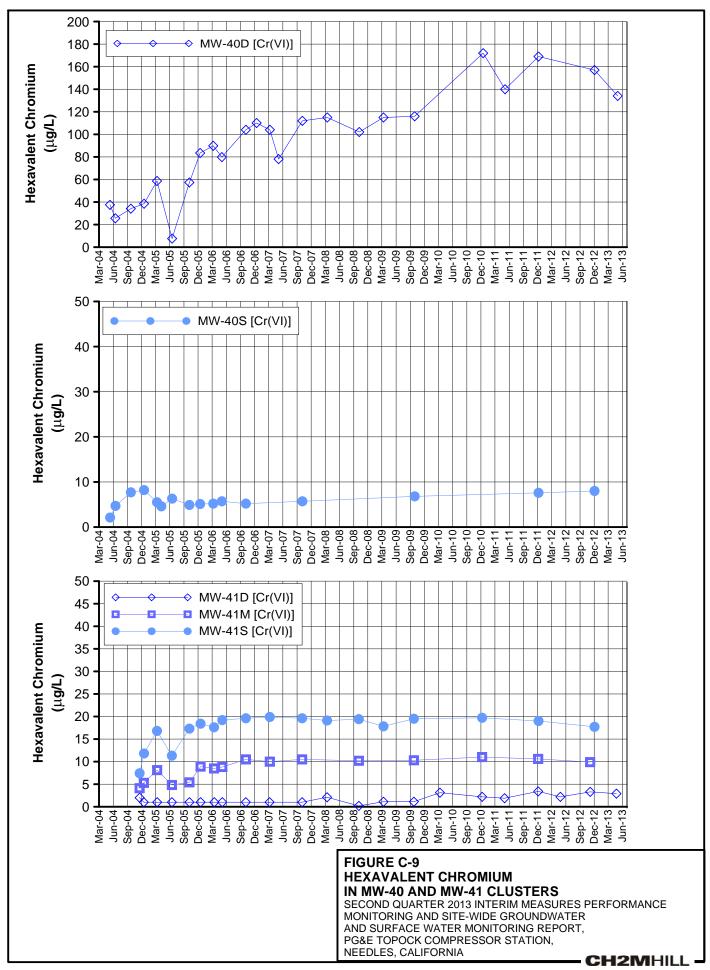


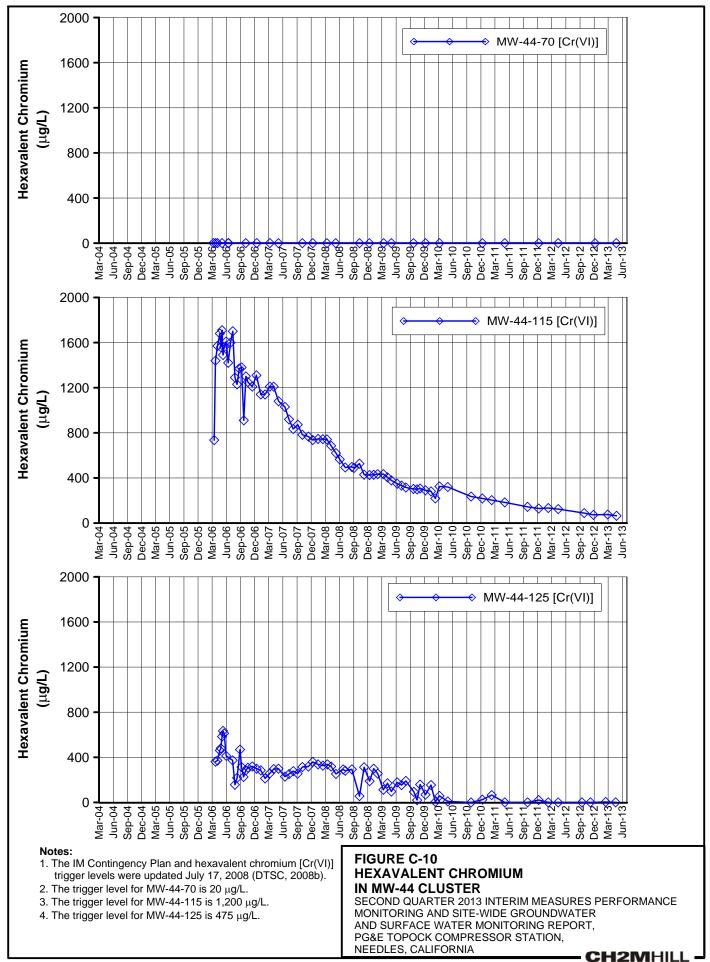


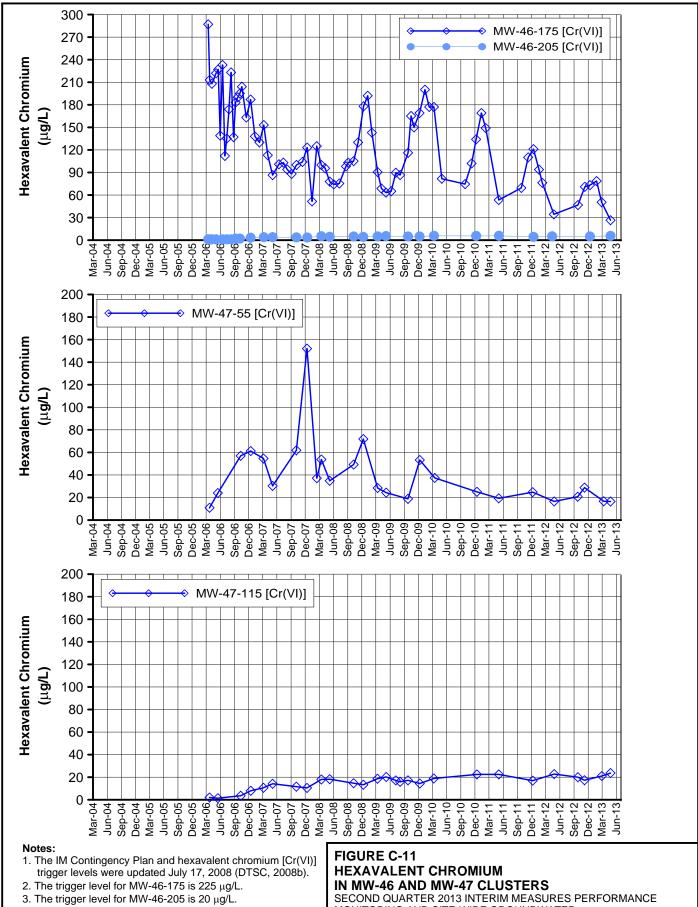






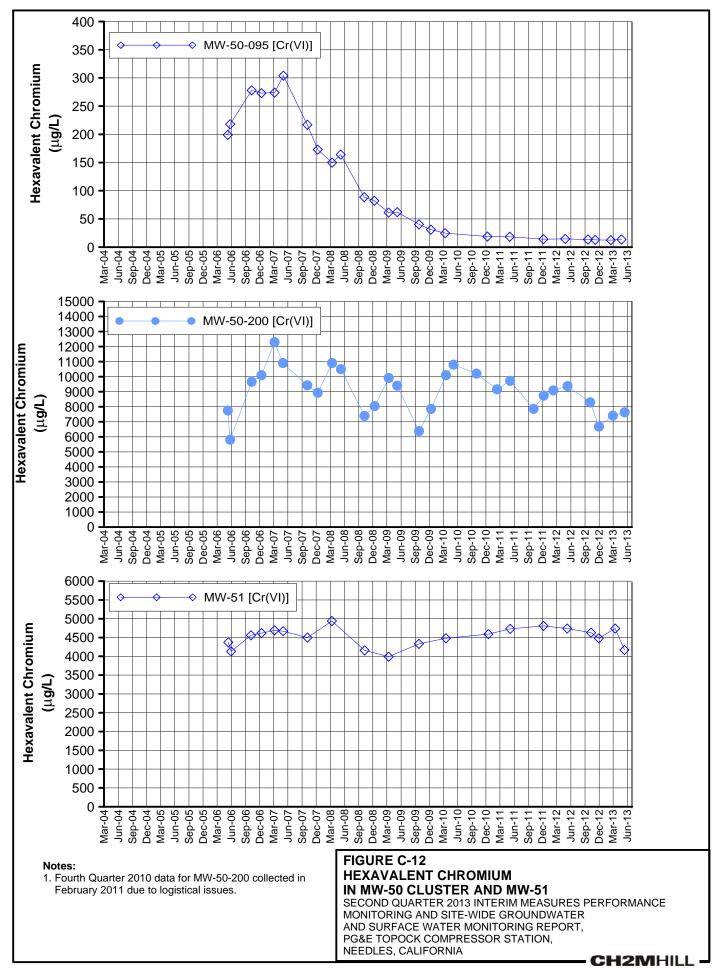


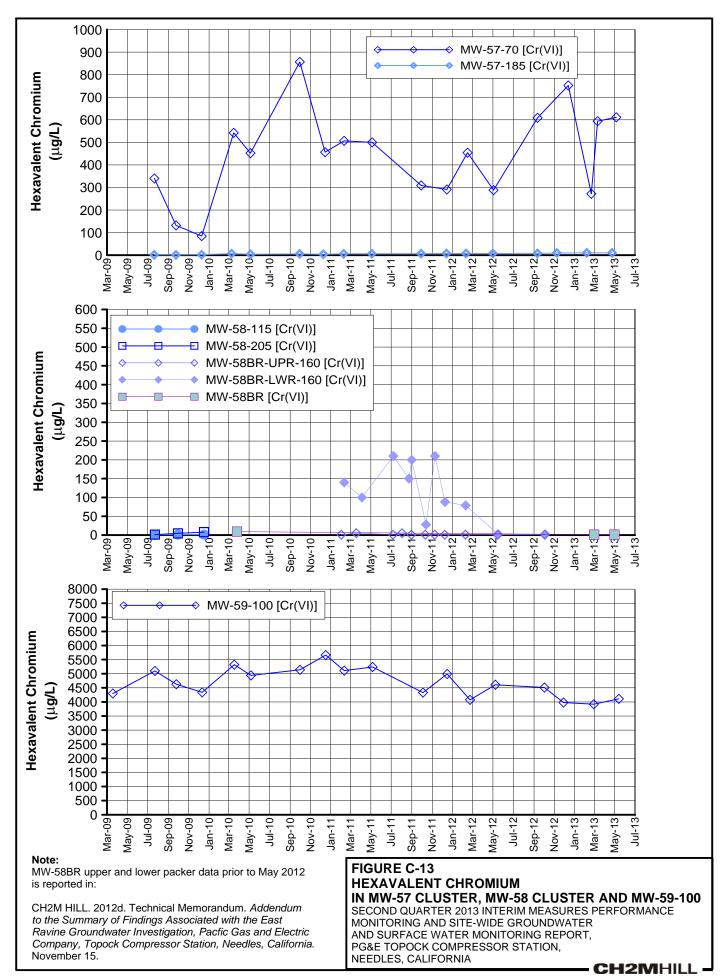


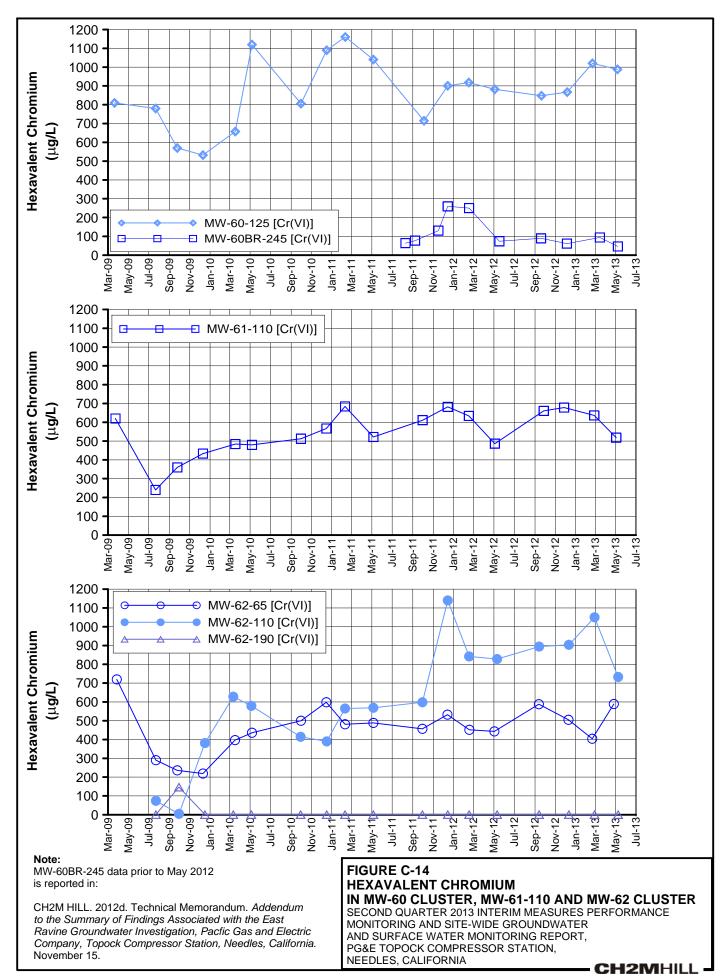


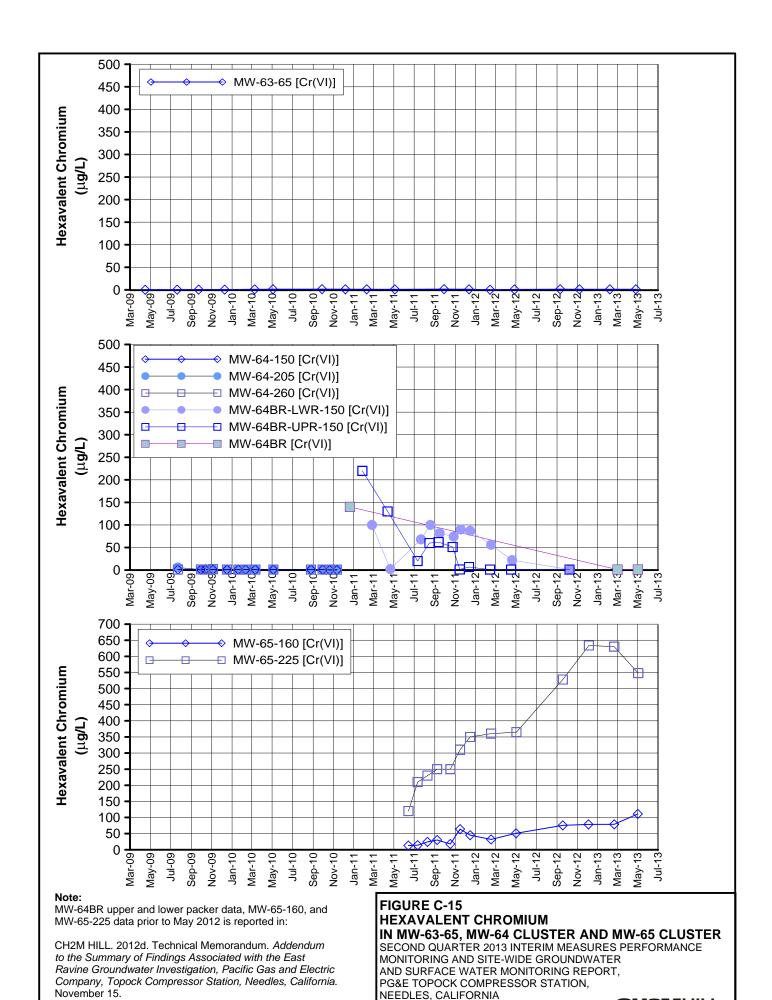
- 4. The trigger level for MW-47-55 is 475 $\mu g/L.$
- 5. The trigger level for MW-47-115 is 31 $\mu g/L.$

SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

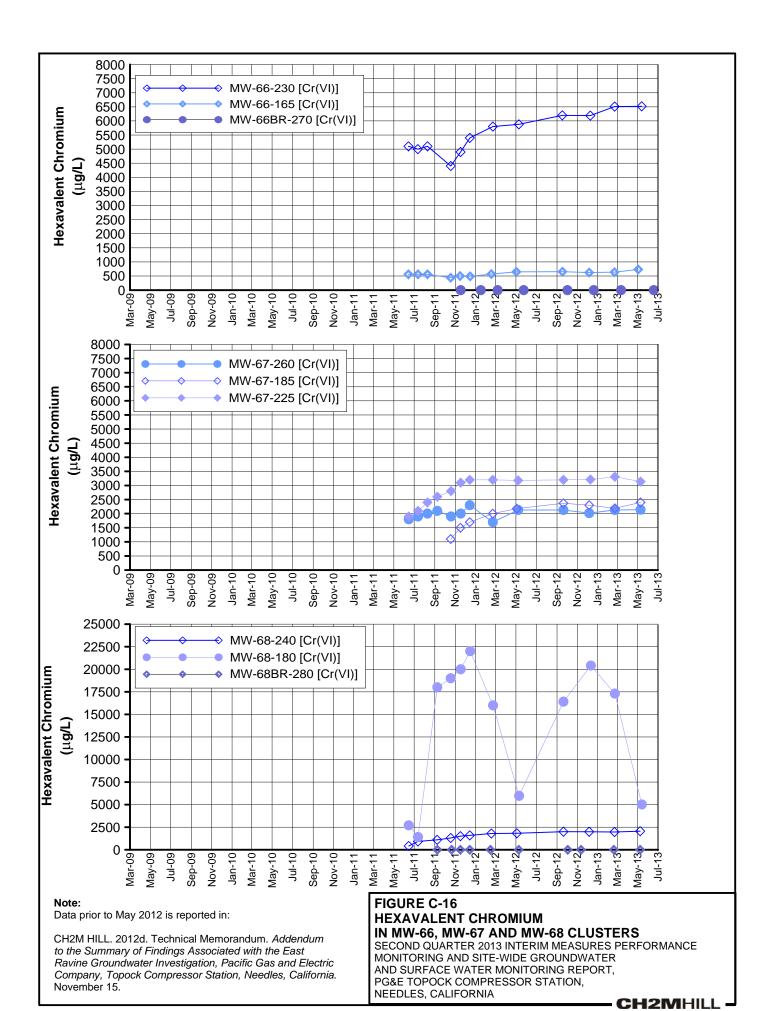


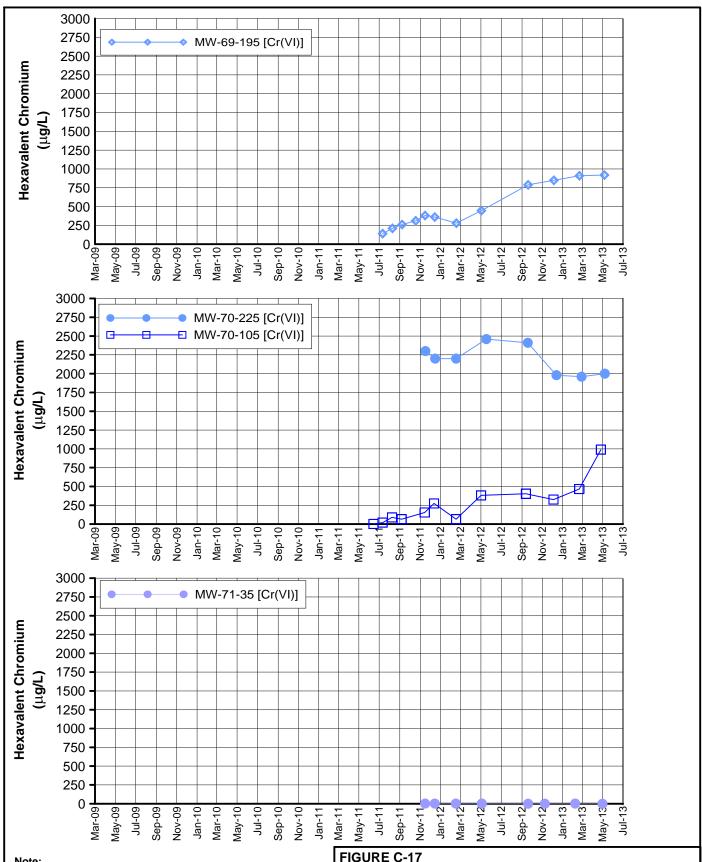






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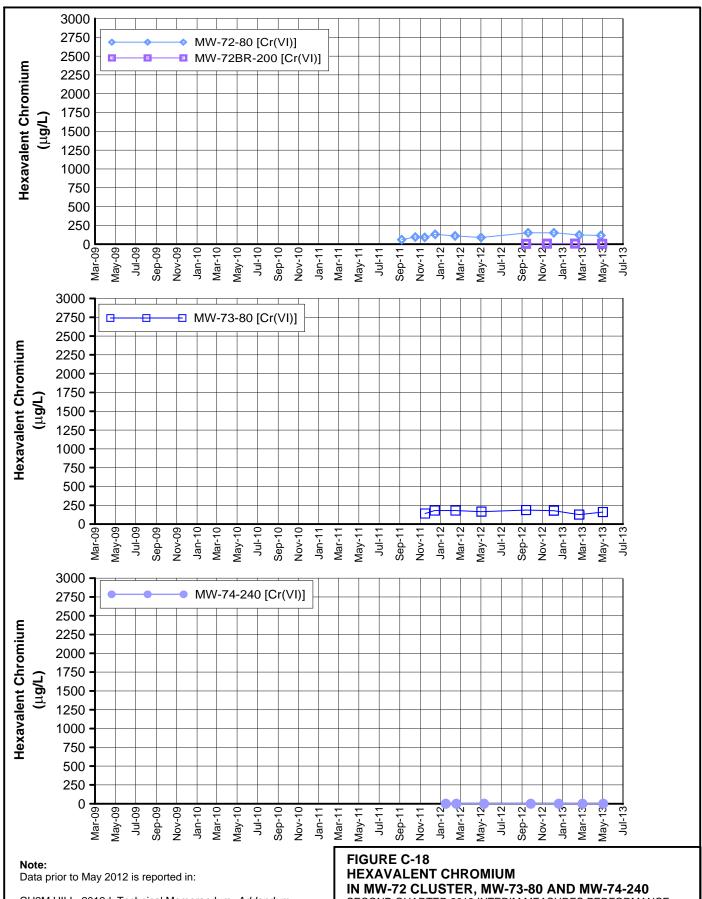


Note: Data prior to May 2012 is reported in:

CH2M HILL. 2012d. Technical Memorandum. Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. November 15.

FIGURE C-17
HEXAVALENT CHROMIUM
IN MW-69-195, MW-70 CLUSTER AND MW-71-35
SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHIL



CH2M HILL. 2012d. Technical Memorandum. Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. November 15

HEXAVALENT CHROMIUM
IN MW-72 CLUSTER, MW-73-80 AND MW-74-240
SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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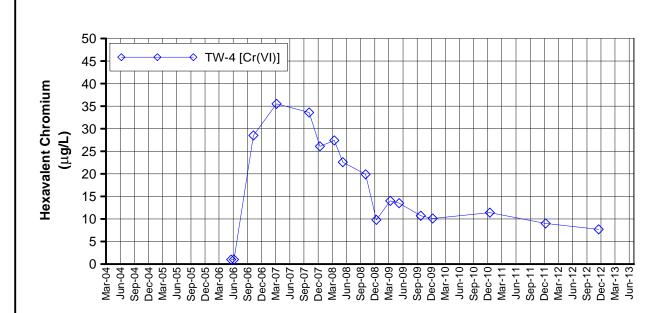
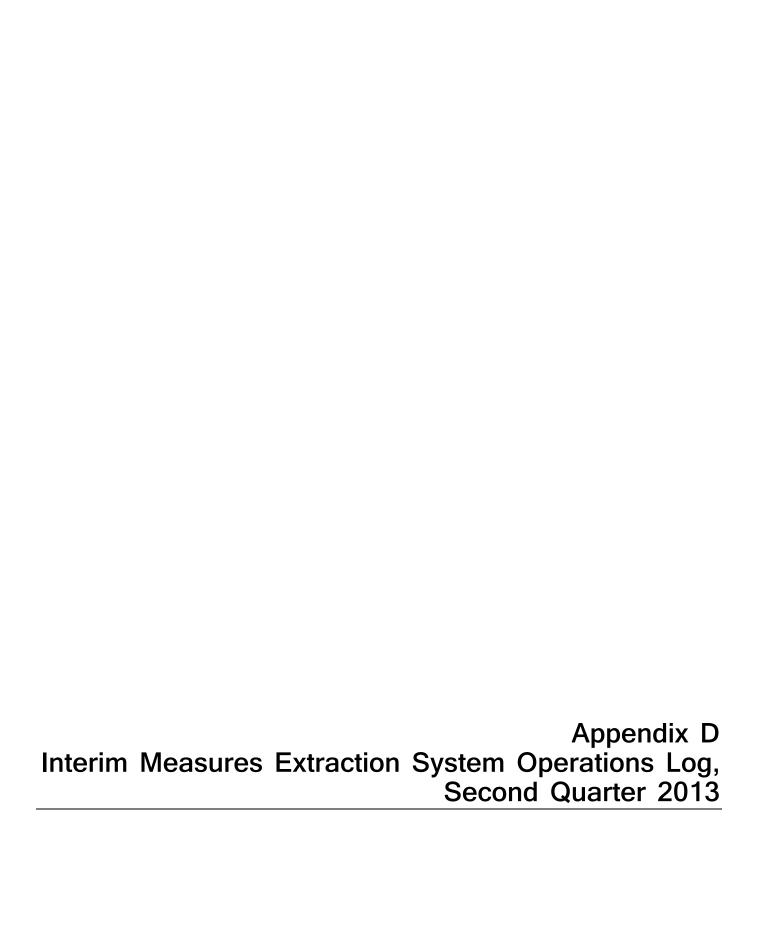


FIGURE C-19 HEXAVALENT CHROMIUM IN TW-4

SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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APPENDIX D

Interim Measures Extraction System Operations Log, Second Quarter 2013, PG&E Topock Performance Monitoring Program

During Second Quarter 2013 (April through June) extraction wells TW-3D and PE-1 operated at a target pump rate of 135 gallons per minute, excluding periods of planned and unplanned downtime. Extraction well TW-2D operated on April 4 and 5, 2013 for a total of 2 hours, 18 minutes. Extraction well TW-2S was not operated during Second Quarter 2013. The operational run time for the Interim Measure groundwater extraction system (combined or individual pumping) was approximately 94.6 percent during Second Quarter 2013.

The Interim Measure Number 3 (IM-3) facility treated approximately 16,792,273 gallons of extracted groundwater during Second Quarter 2013. The IM-3 facility also treated approximately 2,490 gallons of water generated from the groundwater monitoring program and 47,750 gallons of water from IM-3 well backwashing. Seven containers of solids from the IM-3 facility were transported offsite during the reporting period.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 5.4 percent of downtime during Second Quarter 2013) are summarized below. The times shown are in Pacific Standard Time to be consistent with other data collected (for example, water level data) at the site.

D.1 April 2013

- April 1-5, 2013 (planned): The extraction well system was offline from 7:36 a.m. on April 1 to 3:06 p.m. on April 4, from 5:32 p.m. on April 4 to 5:32 a.m. on April 5, from 7:30 a.m. to 10:54 a.m. on April 5, and from 11:44 a.m. to 12:36 p.m. on April 5 for semiannual scheduled maintenance. Extraction system downtime was 3 days, 23 hours, 46 minutes.
- April 8, 2013 (unplanned): The extraction well system was offline from 1:18 p.m. to 4:44 p.m. to clean the chemical loop recirculation line. Extraction system downtime was 3 hours, 26 minutes.
- April 10, 2013 (planned): The extraction well system was offline from 12:50 p.m. to 12:56 p.m. and from 1:02 p.m. to 1:04 p.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 8 minutes.
- April 14, 2013 (unplanned): The extraction well system was offline from 5:44 p.m. to 7:06 p.m. for repair of the air compressor belt. Extraction system downtime was 1 hour, 22 minutes.
- April 23, 2013 (unplanned): The extraction well system was offline from 9:14 a.m. to 10:30 a.m. and from 11:32 a.m. to 11:42 a.m. due to performance high alarm in T-100. Extraction system downtime was 1 hour, 26 minutes.
- April 23, 2013 (unplanned): The extraction well system was offline from 6:50 p.m. to 6:56 p.m. due to loss of power from Needles Power. Extraction system downtime was 6 minutes.

D.2 May 2013

- May 9, 2013 (planned): The extraction well system was offline from 12:06 p.m. to 12:20 p.m., from 12:42 p.m. to 12:44 p.m., from 12:46 p.m. to 12:48 p.m., from 12:50 p.m. to 12:52 p.m., from 12:56 p.m. to 1:08 p.m., and from 1:10 p.m. to 1:16 p.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 38 minutes.
- May 13, 2013 (unplanned): The extraction well system was offline from 7:12 p.m. to 7:14 p.m. due to the blower overheating. Extraction system downtime was 2 minutes.

- May 16, 2013 (planned): The extraction well system was offline from 9:16 p.m. to 9:36 p.m. due to replacement of the flow meters on wells TW-2D and IW-2. Extraction system downtime was 20 minutes.
- May 29, 2013 (planned): The extraction well system was offline from 11:58 a.m. to 2:54 p.m. to perform general plant maintenance. Extraction system downtime was 2 hours, 56 minutes.

D.3 June 2013

- June 23, 2013 (unplanned): The extraction well system was offline from 7:56 p.m. to 8:00 p.m., from 8:16 p.m. to 8:22 p.m., and from 8:24 p.m. to 8:38 p.m. due to a loss of power from Needles Power. Extraction system downtime was 24 minutes.
- June 24, 2013 (unplanned): The extraction well system was offline from 6:42 a.m. to 9:34 a.m. for Needles
 Power to change out the meter. Extraction system downtime was 2 hours, 50 minutes.
- June 26, 2013 (planned): The extraction well system was offline from 7:46 a.m. to 12:20 p.m. for routine maintenance on the injection line. Extraction system downtime was 4 hours, 34 minutes.
- June 27, 2013 (unplanned): The extraction system was turned off from 9:16 a.m. to 1:12 p.m. due to the plant reaching full capacity when both injection wells were off for backwashing. Extraction system downtime was 3 hours, 56 minutes.
- June 28, 2013 (planned): The extraction well system was 1:36 p.m. to 1:54 p.m. due to cleaning of the microfilter membranes. Extraction system downtime was 18 minutes.
- June 30, 2013 (unplanned): The extraction well system was offline from 11:54 p.m. to 11:56 p.m. due to loss of power from Needles Power. Extraction system downtime was 2 minutes.

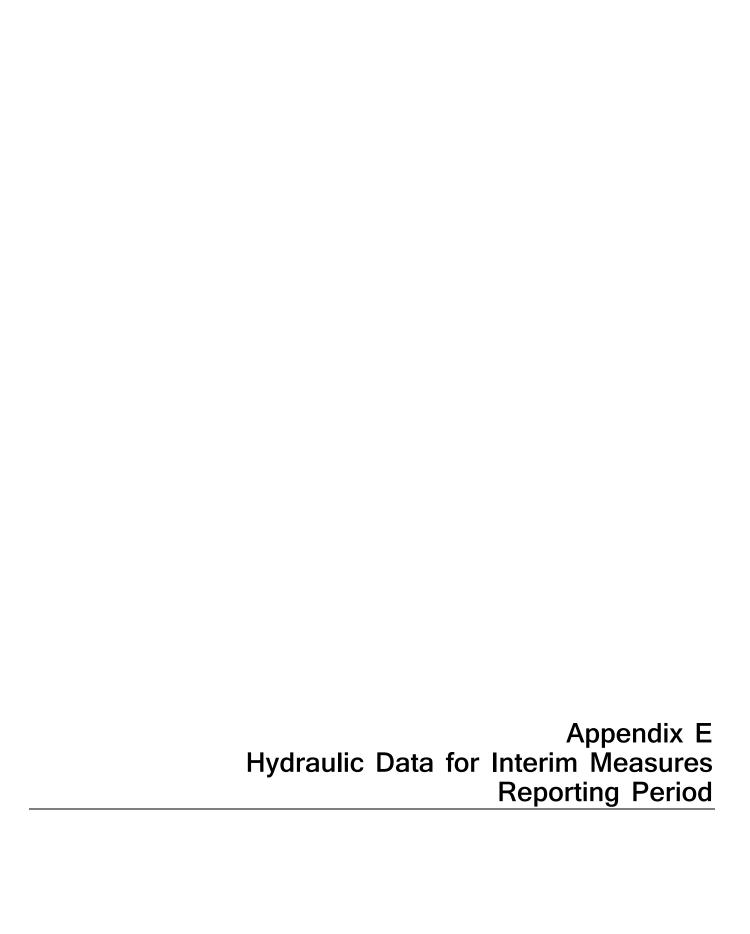


Table E-1 Average Monthly and Quarterly Groundwater Elevations, Second Quarter 2013 Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	April 2013	May 2013	June 2013	Quarter Average	Days in Quarter Average
I-3	River Station	456.74	456.44	456.47	456.55	91
MW-20-070	Shallow Zone	454.98	454.91	454.98	454.96	91
MW-20-100	Middle Zone	454.57	454.39	454.46	454.47	91
MW-20-130	Deep Zone	454.21	453.94	454.05	454.06	91
MW-22	Shallow Zone	455.78	455.75	455.65	455.72	91
MW-25	Shallow Zone	456.00	456.26	456.37	456.24	81
MW-26	Shallow Zone	455.63	455.87	455.97	455.82	91
MW-27-020	Shallow Zone	456.59	456.31	456.34	456.41	91
MW-27-060	Middle Zone	456.55	456.23	456.24	456.34	91
MW-27-085	Deep Zone	456.47	456.19	456.23	456.29	91
MW-28-025	Shallow Zone	456.56	456.29	456.32	456.39	91
MW-28-090	Deep Zone	456.52	456.28	456.33	456.38	91
MW-30-050	Middle Zone	456.04	455.80	455.82	455.88	91
MW-31-060	Shallow Zone	455.86	455.85	455.91	455.87	91
MW-31-135	Deep Zone	455.30	455.12	455.19	455.21	91
MW-32-035	Shallow Zone	456.24	455.98	455.97	456.06	90
MW-33-040	Shallow Zone	456.21	456.18	456.22	456.20	91
MW-33-090	Middle Zone	456.44	456.22	456.25	456.30	91
MW-33-150	Deep Zone	456.32	456.23	456.28	456.28	91
MW-34-055	Middle Zone	456.53	456.25	456.28	456.35	91
MW-34-080	Deep Zone	456.53	456.22	456.24	456.33	91
MW-34-100	Deep Zone	456.29	455.97	456.00	456.08	91
MW-35-060	Shallow Zone	456.84	456.68	456.72	456.74	91
MW-35-135	Deep Zone	456.81	456.85	456.90	456.85	91
MW-36-020	Shallow Zone	INC	456.07	456.00	INC	40
MW-36-040	Shallow Zone	456.25	455.93	455.95	456.04	91
MW-36-050	Middle Zone	456.22	455.96	455.92	456.03	91
MW-36-070	Middle Zone	456.16	455.90	455.93	456.00	91
MW-36-090	Deep Zone	455.31	454.99	455.02	455.11	90
MW-36-100	Deep Zone	455.61	455.21	455.24	455.35	91
MW-39-040	Shallow Zone	456.05	455.83	455.83	455.90	91
MW-39-050	Middle Zone	455.83	455.59	455.63	455.68	91
MW-39-060	Middle Zone	455.65	455.40	455.43	455.49	91
MW-39-070	Middle Zone	455.20	454.91	454.94	455.02	91
MW-39-080	Deep Zone	455.33	455.00	455.05	455.13	91
MW-39-100	Deep Zone	455.66	455.41	455.48	455.52	91
MW-42-030	Shallow Zone	455.92	455.69	455.69	455.76	91
MW-42-065	Middle Zone	456.02	455.79	455.79	455.86	91
MW-43-025	Shallow Zone	456.60	456.31	456.33	456.41	91
MW-43-090	Deep Zone	456.97	456.62	456.66	456.75	91
MW-44-070	Middle Zone	456.40	456.13	456.16	456.23	91
MW-44-115	Deep Zone	455.79	455.58	455.60	455.66	91
MW-44-125	Deep Zone	456.27	456.03	456.08	456.13	90
MW-45-095a	Deep Zone	455.50	454.86	454.94	455.10	91
MW-46-175	Deep Zone	456.14	456.07	456.12	456.11	91
MW-47-055	Shallow Zone	456.51	456.46	456.49	456.48	91
MW-47-115	Deep Zone	456.39	456.42	456.47	456.43	91
MW-49-135	Deep Zone	456.75	456.64	456.69	456.69	91

Table E-1
Average Monthly and Quarterly Groundwater Elevations, Second Quarter 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	April 2013	May 2013	June 2013	Quarter Average	Days in Quarter Average
MW-50-095	Middle Zone	455.95	456.01	456.07	456.01	91
MW-51	Middle Zone	455.63	455.86	455.98	455.82	91
MW-54-085	Deep Zone	456.87	456.58	456.62	456.69	91
MW-54-140	Deep Zone	456.95	456.73	456.73	456.81	91
MW-54-195	Deep Zone	457.50	456.89	456.88	457.01	74
MW-55-045	Middle Zone	457.09	454.60	454.56	INC	62
MW-55-120	Deep Zone	457.17	454.47	454.45	INC	62
PT2D	Deep Zone	454.92	454.64	454.72	454.76	91
PT5D	Deep Zone	455.43	455.19	455.28	455.30	91
PT6D	Deep Zone	455.51	455.25	455.30	455.35	91
RRB	River Station	457.15	456.83	456.84	456.94	91

NOTES:

Averages reported in ft AMSL (feet above mean sea level).

Quarterly Average = average of daily averages over reporting period.

INC = Data incomplete, less than 75% of data available over reporting period due to rejection or field equipment malfunction.

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