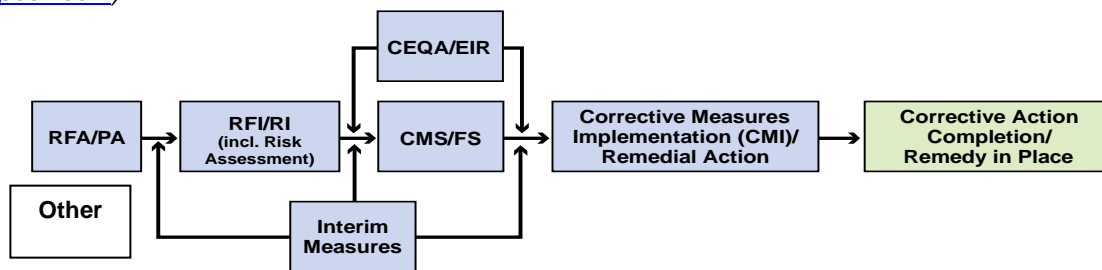


Topock Project Executive Abstract

<p>Document Title: Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California</p> <p>Submitting Agency: DTSC</p> <p>Final Document? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Date of Document: 8/15/2013</p> <p>Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other)</p> <p>PG&E</p>
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<p>Type of Document:</p> <p><input type="checkbox"/> Draft <input checked="" type="checkbox"/> Report <input type="checkbox"/> Letter <input type="checkbox"/> Memo</p> <p><input type="checkbox"/> Other/Explain:</p>	<p>What does this information pertain to?</p> <p><input type="checkbox"/> Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA)</p> <p><input type="checkbox"/> RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment)</p> <p><input type="checkbox"/> Corrective Measures Study (CMS)/Feasibility Study (FS)</p> <p><input type="checkbox"/> Corrective Measures Implementation (CMI)/Remedial Action</p> <p><input type="checkbox"/> California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR)</p> <p><input checked="" type="checkbox"/> Interim Measures</p> <p><input type="checkbox"/> Other/Explain:</p>
<p>What is the consequence of NOT doing this item? What is the consequence of DOING this item?</p> <p>Report is required to be in compliance with DTSC requirements.</p>	<p>Is this a Regulatory Requirement?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If no, why is the document needed?</p>
<p>Other Justification/s:</p> <p><input type="checkbox"/> Permit <input type="checkbox"/> Other / Explain:</p>	
<p>Brief Summary of attached document:</p> <p>This quarterly report documents the monitoring activities and performance evaluation of the Interim Measure (IM) hydraulic containment system under the IM Performance Monitoring Program, the Groundwater Monitoring Program, and the Surface Water Monitoring Program for the Topock project. Hydraulic and chemical monitoring data were collected and used to evaluate IM hydraulic containment system performance based on a set of standards approved by the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC). Key items included in this report are: (1) measured groundwater 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) hexavalent chromium data for monitoring wells, (3) pumping rates and volumes from the IM extraction system, and (4) Groundwater Monitoring Program and Surface Water Monitoring Program activities and results.</p> <p>Based on the data and evaluation presented in this report, the IM performance standard has been met for Second Quarter 2013, which includes the months of April, May, and June 2013. The average pumping rate for the IM extraction system during the Second Quarter 2013 was 128.1 gallons per minute. To date, the IM extraction system has removed a total of 7,600 pounds (3,450 kilograms) of chromium.</p> <p>Written by: PG&E</p>	
<p>Recommendations:</p> <p>This report is for information only.</p>	
<p>How is this information related to the Final Remedy or Regulatory Requirements:</p> <p>This report is required by DTSC as part of the Interim Measures Performance Monitoring Program.</p>	
<p>Other requirements of this information?</p> <p>None.</p>	

Related Reports and Documents:

Click any boxes in the Regulatory Road Map (below) to be linked to the Documents Library on the DTSC Topock Web Site (www.dtsc-topock.com).



Legend

RFA/PA – RCRA Facility Assessment/Preliminary Assessment

RFI/RI – RCRA Facility Investigation/CERCLA Remedial Investigation (including Risk Assessment)

CMS/FS – RCRA Corrective Measure Study/CERCLA Feasibility Study

CEQA/EIR – California Environmental Quality Act/Environmental Impact Report

Version 9



**Pacific Gas
and
Electric
Company**

Yvonne J. Meeks
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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

**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

Prepared for
**California Environmental Protection Agency
Department of Toxic Substances Control**

On behalf of
Pacific Gas and Electric Company

August 15, 2013

CH2MHILL®

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

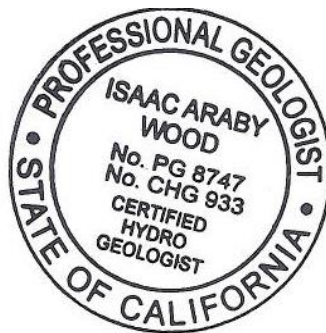
On behalf of
Pacific Gas and Electric Company

August 15, 2013

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



Isaac Wood
Project Hydrogeologist, P.G., C.Hg



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

- 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.

SECTION 2

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.

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 µg/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 µg/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 µg/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 µg/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 µg/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.”

- 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 µg/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).

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, 2013.² 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

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 $\mu\text{g/L}$ in May 2013 to a minimum value of 766 $\mu\text{g/L}$ 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 $\mu\text{g/L}$ 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.

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.

SECTION 6

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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

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						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

Refer to table footnotes for data qualifier explanation.

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	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						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 FD	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	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	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 FD	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	6.0	8.2	15,000	-130	R
		12-Sep-12	12.8	15.9	16,000	-110	R
		12-Sep-12 FD	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	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

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Table 3-1

Groundwater Sampling Results, April 2012 through June 2013
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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						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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Table 3-1

Groundwater Sampling Results, April 2012 through June 2013
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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						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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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						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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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						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	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						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	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						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

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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						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

Refer to table footnotes for data qualifier explanation.

Table 3-1

Groundwater Sampling Results, April 2012 through June 2013
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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						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

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Table 3-1

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

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						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

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Table 3-1

Groundwater Sampling Results, April 2012 through June 2013
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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						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

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Table 3-1

Groundwater Sampling Results, April 2012 through June 2013
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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						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 FD	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 FD	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 FD	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

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Table 3-1

Groundwater Sampling Results, April 2012 through June 2013
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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						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

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Table 3-1

Groundwater Sampling Results, April 2012 through June 2013
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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						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

Refer to table footnotes for data qualifier explanation.

Table 3-1

Groundwater Sampling Results, April 2012 through June 2013
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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						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

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Table 3-1

Groundwater Sampling Results, April 2012 through June 2013
*Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
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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 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).

Refer to table footnotes for data qualifier explanation.

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.

µg/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 µg/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 aquifer (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.
µg/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 µg/L from field-filtered samples.

Metals analyzed by Methods SW6010B or SW6020A or SW7470A.

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 Locations					
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 Samples					
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 Locations					
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.

µg/L = micrograms per liter.

µS/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 mg/L	Alkalinity, carbonate as CaCO3 mg/L	Alkalinity, total as CaCO3 mg/L	Arsenic, dissolved µg/L	Iron, Total µg/L	Iron, dissolved µg/L	Manganese, dissolved µg/L	Molybdenum, dissolved µg/L	Nitrate/Nitrite as Nitrogen mg/L	Selenium, dissolved µg/L	Total suspended solids mg/L
In-channel Locations												
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 Samples												
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.

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*

Extraction Well ID	April 2013		May 2013		June 2013		Second Quarter 2013	
	Average Pumping Rate ^a (gpm)	Volume Pumped (gal)	Average Pumping Rate ^a (gpm)	Volume Pumped (gal)	Average Pumping Rate ^a (gpm)	Volume Pumped (gal)	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.

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

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

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.

µg/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 ^a	Reporting Period	Mean Landward ^b Hydraulic Gradient (feet/foot)	Days in ^c Monthly Average
Overall Average	April	0.0042	NA
	May	0.0057	NA
	June	0.0055	NA
Northern Gradient Pair MW-31-135 / MW-33-150	April	0.0021	30 / 30
	May	0.0023	31 / 31
	June	0.0023	30 / 30
Central Gradient Pair MW-45-95 / MW-34-100	April	0.0076	30 / 30
	May	0.0107	31 / 31
	June	0.0102	30 / 30
Southern Gradient Pair MW-45-95 / MW-27-85	April	0.0029	30 / 30
	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 4-4

Predicted 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*

Month	Davis Dam Release			Colorado River Elevation at I-3		
	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
February 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.

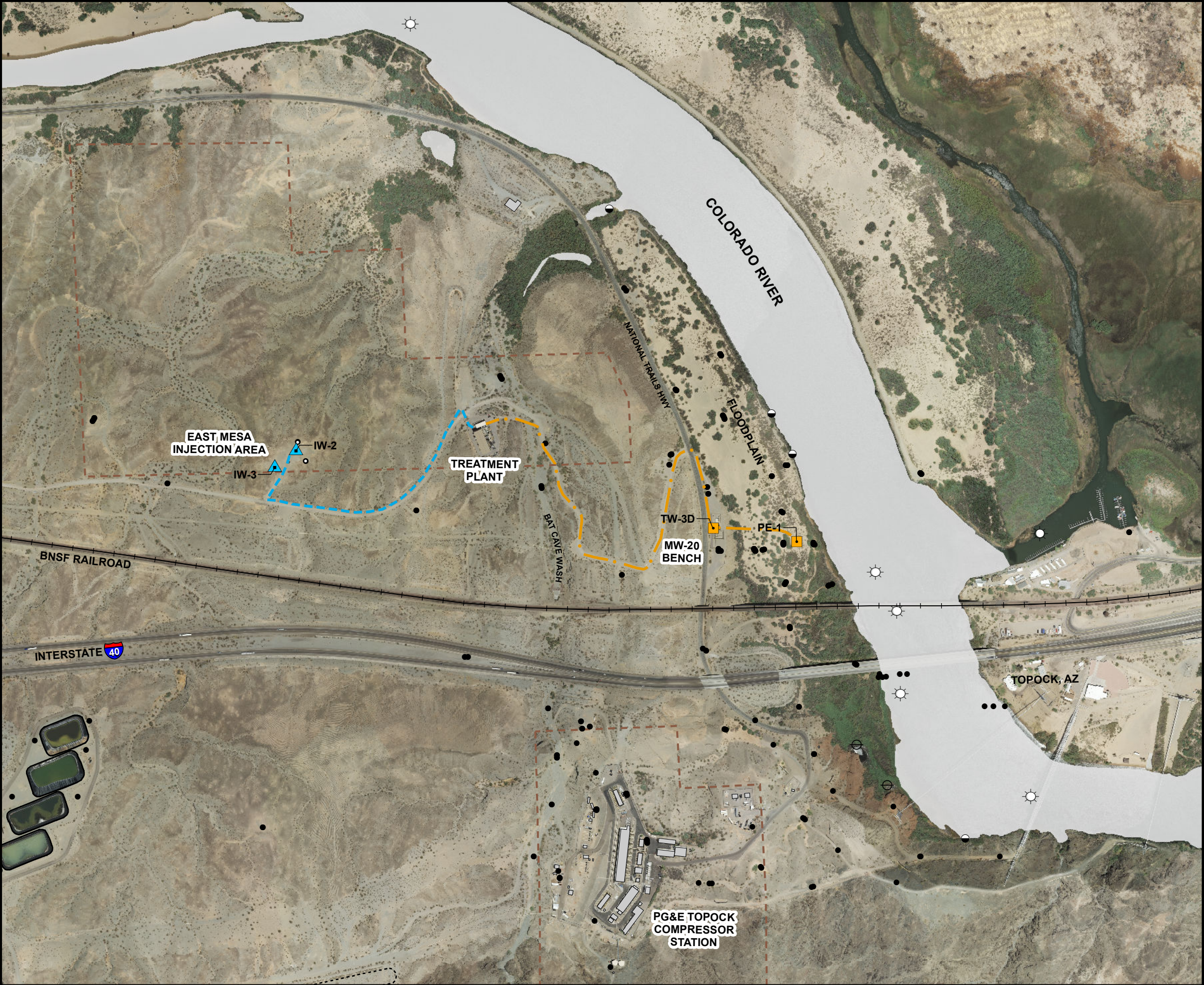
NA = Data unavailable during this time period.

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, see *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 (CH2MHILL, 2013a)*.

Figures

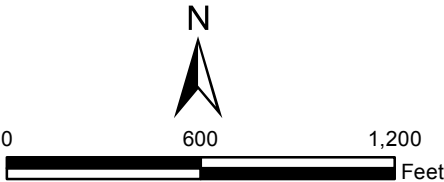


LEGEND

- IM-3 Extraction Well (Active)
- ▲ IM-3 Injection Well
- Monitoring Well in Site-Wide Groundwater Monitoring Program (GMP)
- Monitoring Well in IM-3 Compliance Monitoring Program
- ☉ Shoreline Surface Water Monitoring Location
- ☼ River Channel Surface Water Monitoring Location
- ⊖ Other Surface Water Monitoring Location
- Groundwater Extraction/Influent Pipeline
- Treatment Plant Effluent Pipeline
- ▭ Property Line

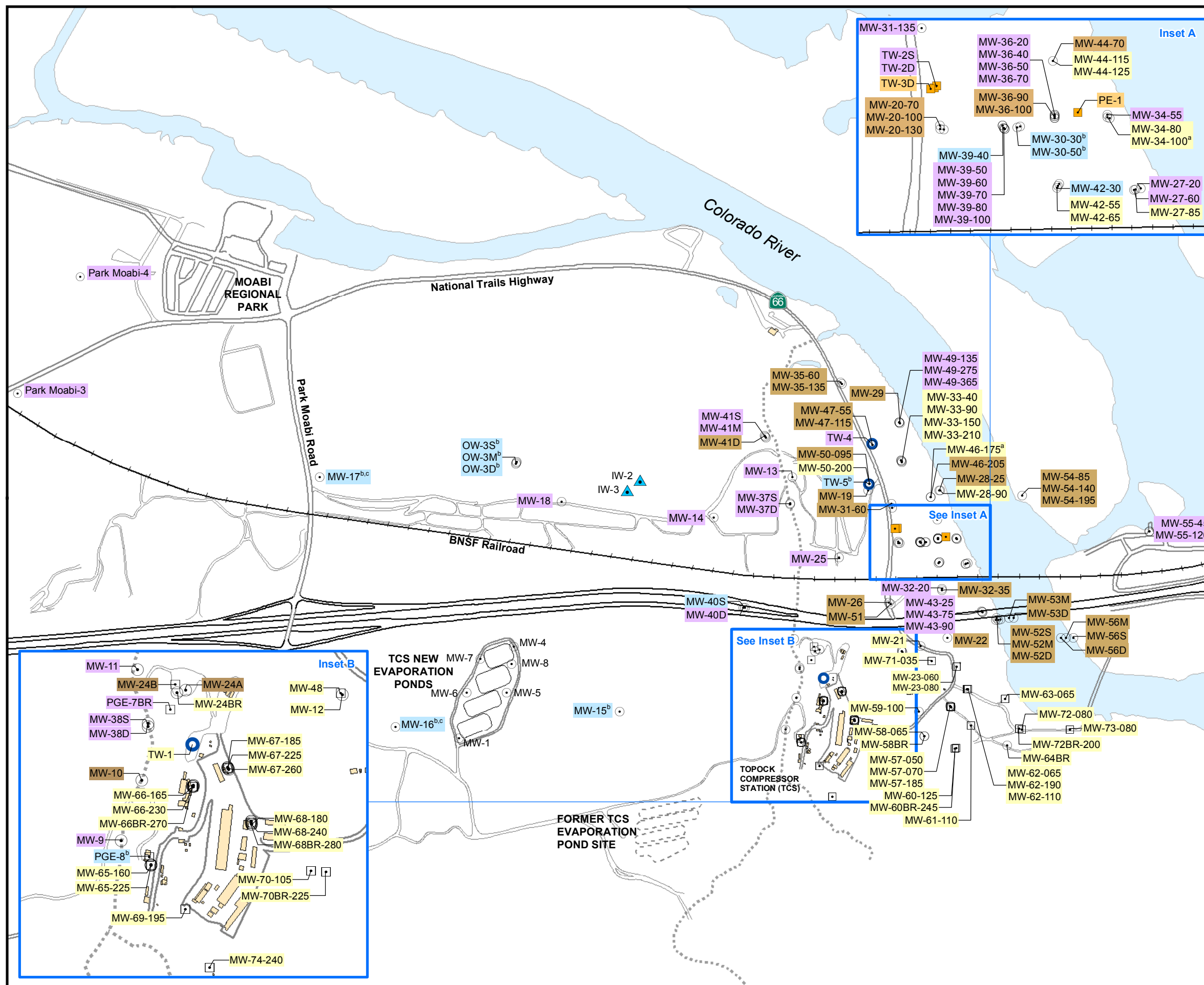
Notes:

1. Location map shows Interim Measure No. 3 (IM-3) active facilities as of current report.
2. See Figures 1-2 and 1-3 for complete monitoring locations and identifications.



**FIGURE 1-1
LOCATIONS OF IM-3 FACILITIES
AND MONITORING LOCATIONS**

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



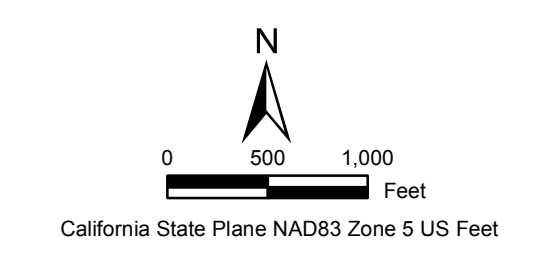
- LEGEND**
- Injection Well
 - Groundwater Monitoring Well
 - Test Well or Supply Well (inactive)
 - Extraction Well
 - Groundwater Well Completed in Bedrock

Sampling Frequency for Groundwater Monitoring Program (GMP)

- MW-17 Biennial Sampling
- MW-9 Annual Sampling
- MW-22 Semiannual Sampling
- MW-12 Quarterly Sampling
- TW-3D Monthly Sampling

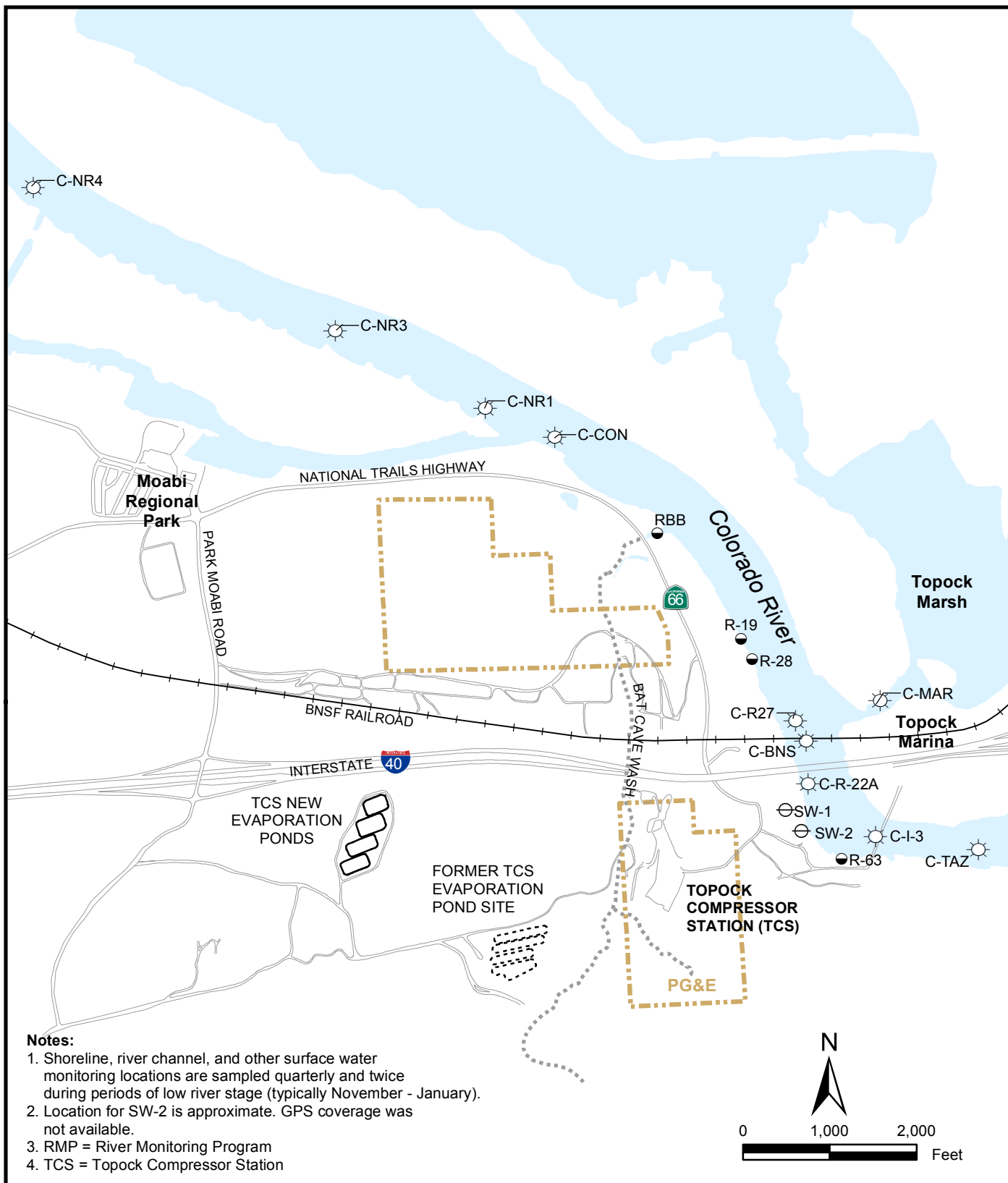
Notes:

- ^a Monthly sampling November through February, otherwise quarterly.
- ^b These wells required to be sampled biennially, will be sampled annually for the water quality snapshot.
- ^c Background metals collected semiannually.



**FIGURE 1-2
MONITORING LOCATIONS AND
SAMPLING FREQUENCY FOR GMP**

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



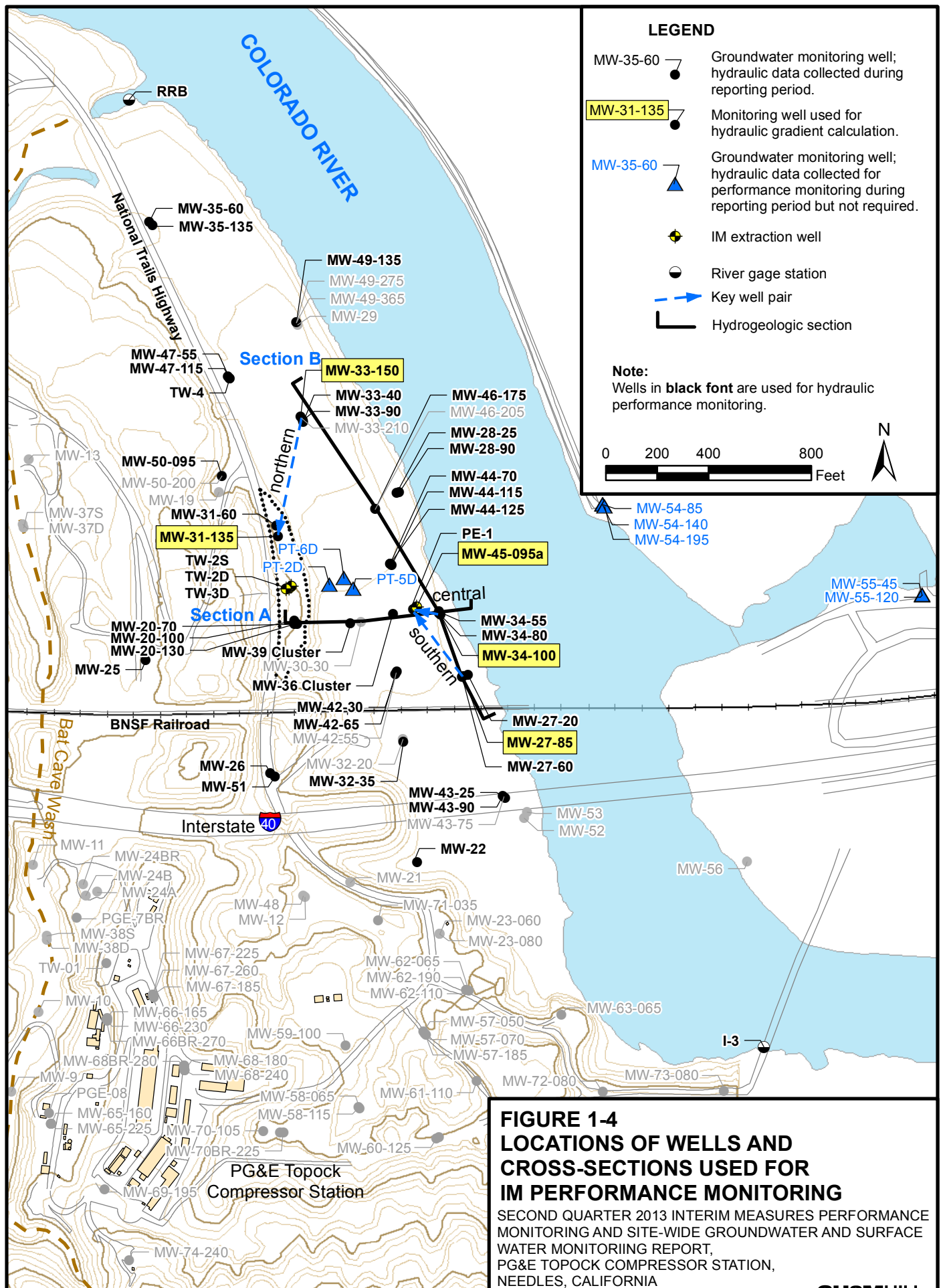
LEGEND

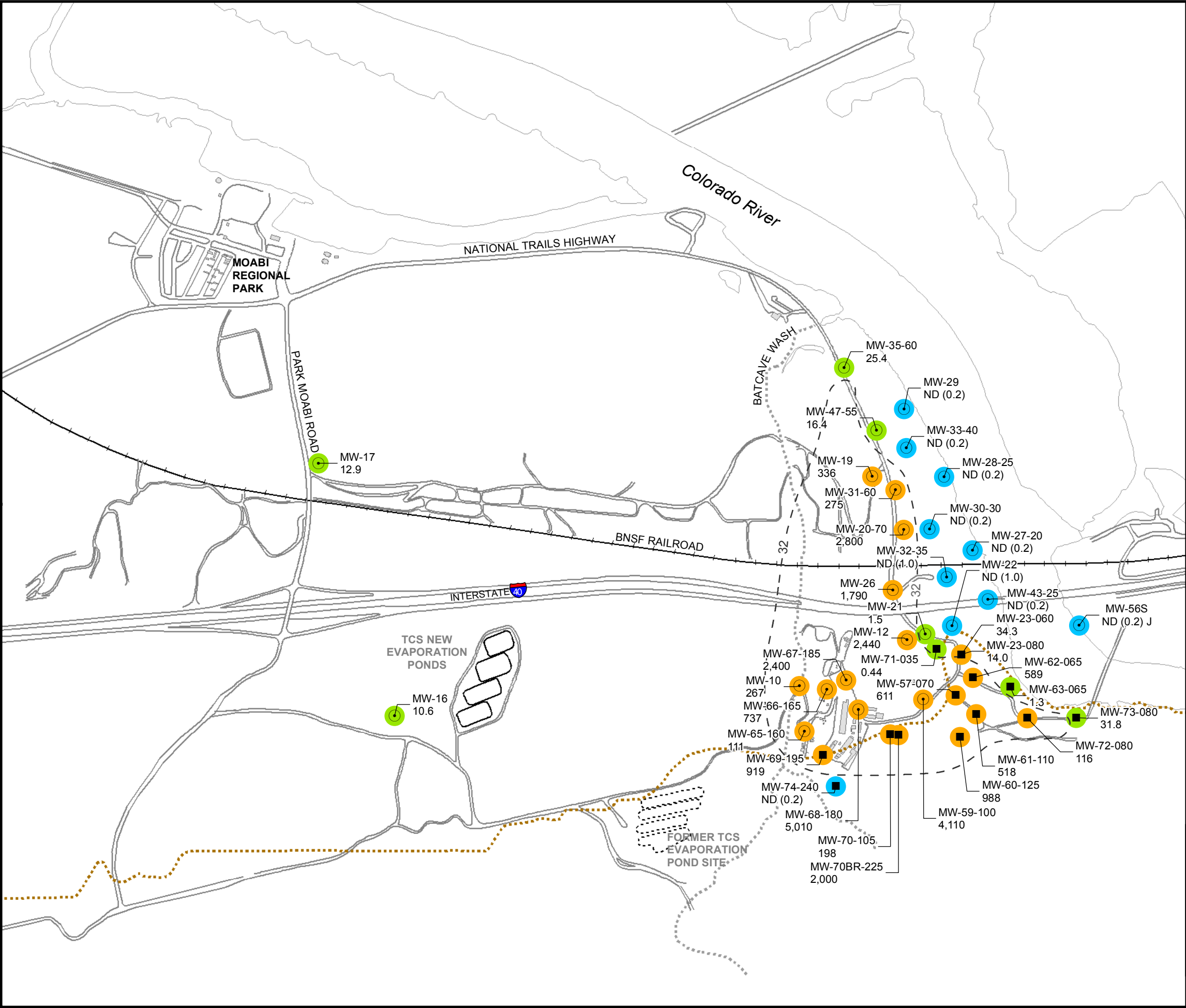
- Shoreline Surface Water Monitoring Location
- ☼ River Channel Surface Water Monitoring Location
- ⊖ Other Surface Water Monitoring Location

FIGURE 1-3 MONITORING LOCATIONS AND SAMPLING FREQUENCY FOR RMP

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

CH2MHILL





LEGEND

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:
1. Results plotted are maximum concentration from primary and duplicate samples, see Table 3-1 for complete results.
2. 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.

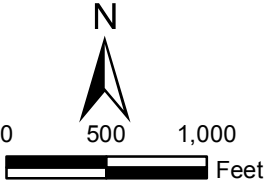
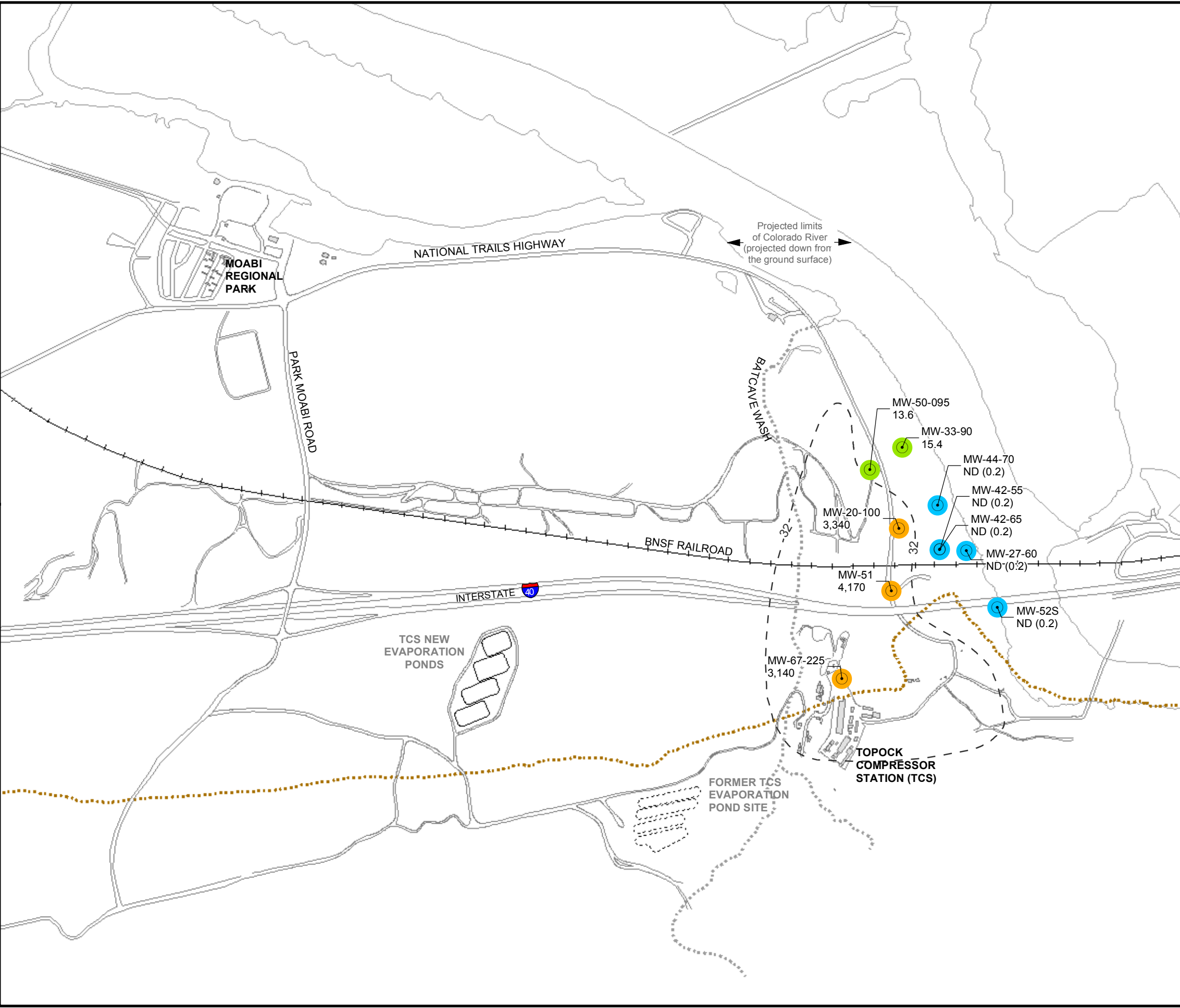


FIGURE 3-1a
Cr(VI) SAMPLING RESULTS,
SHALLOW WELLS IN ALLUVIAL AQUIFER
AND BEDROCK, SECOND QUARTER 2013
SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA



LEGEND

- 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 **Mid-Depth 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.

Approximate bedrock contact at 425 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.

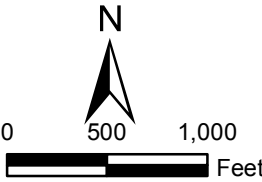
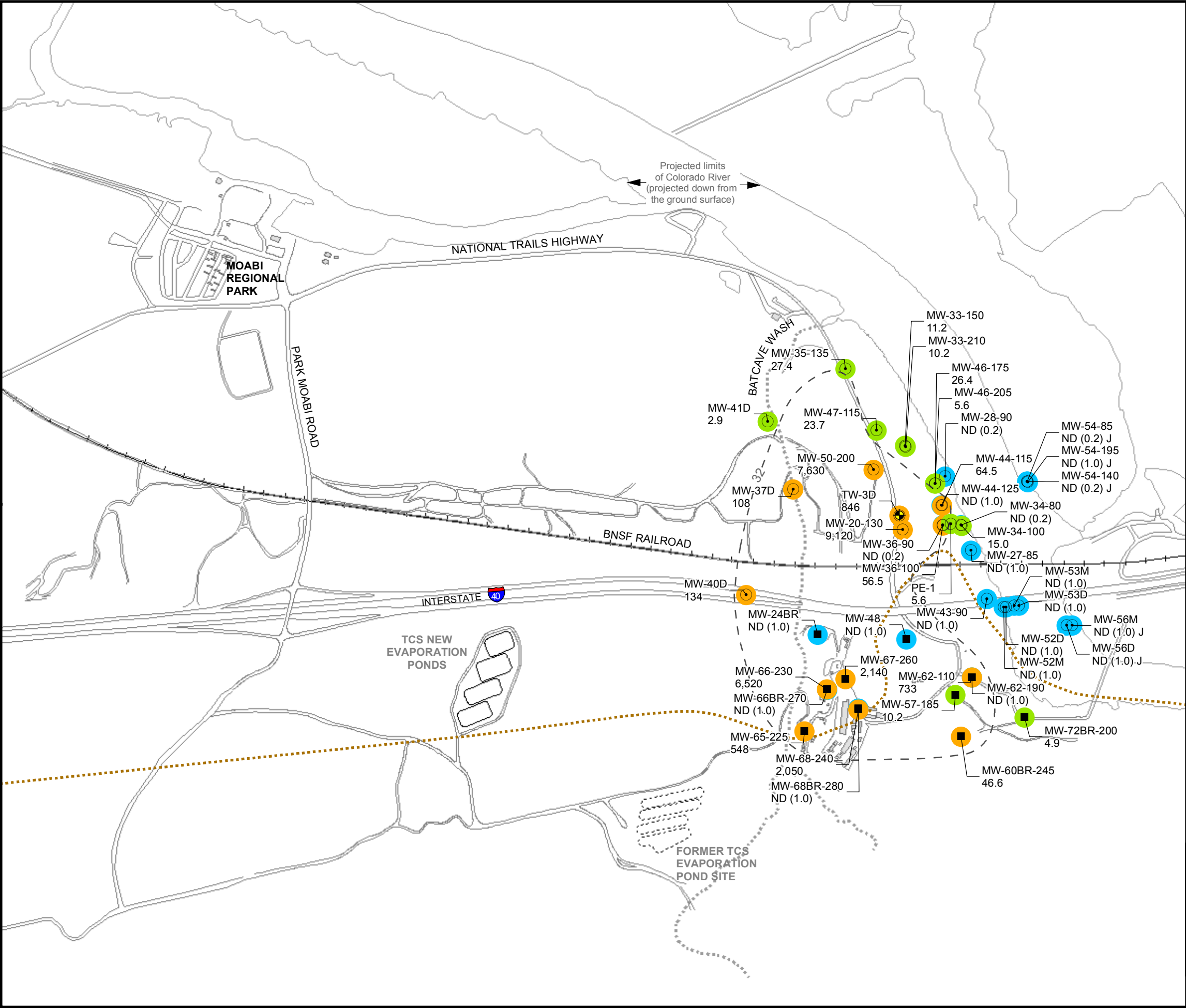


FIGURE 3-1b
Cr(VI) SAMPLING RESULTS
MID-DEPTH WELLS IN ALLUVIAL AQUIFER
AND BEDROCK, SECOND QUARTER 2013

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



LEGEND

- Extraction well sampled during sampling event
- 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 ($\mu\text{g/L}$)

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

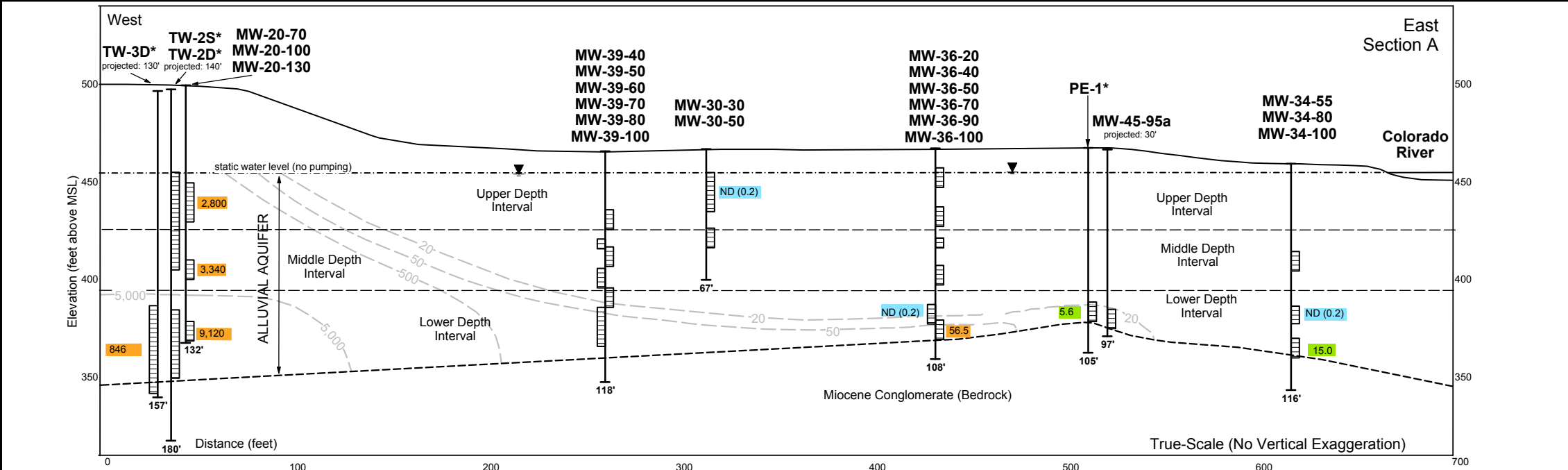
ND (0.2) Cr(VI) not detected at listed reporting limit

Cr(VI) Concentrations - Second Quarter 2013

- Not detected at analytical reporting limit
- Concentration between reporting limit and $32 \mu\text{g/L}$
- Concentration $\geq 32 \mu\text{g/L}$

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 MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA



LEGEND

Alluvial Aquifer 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

50

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:

1. 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.

2. 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.

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.

FIGURE 4-1

MAXIMUM Cr(VI) CONCENTRATIONS

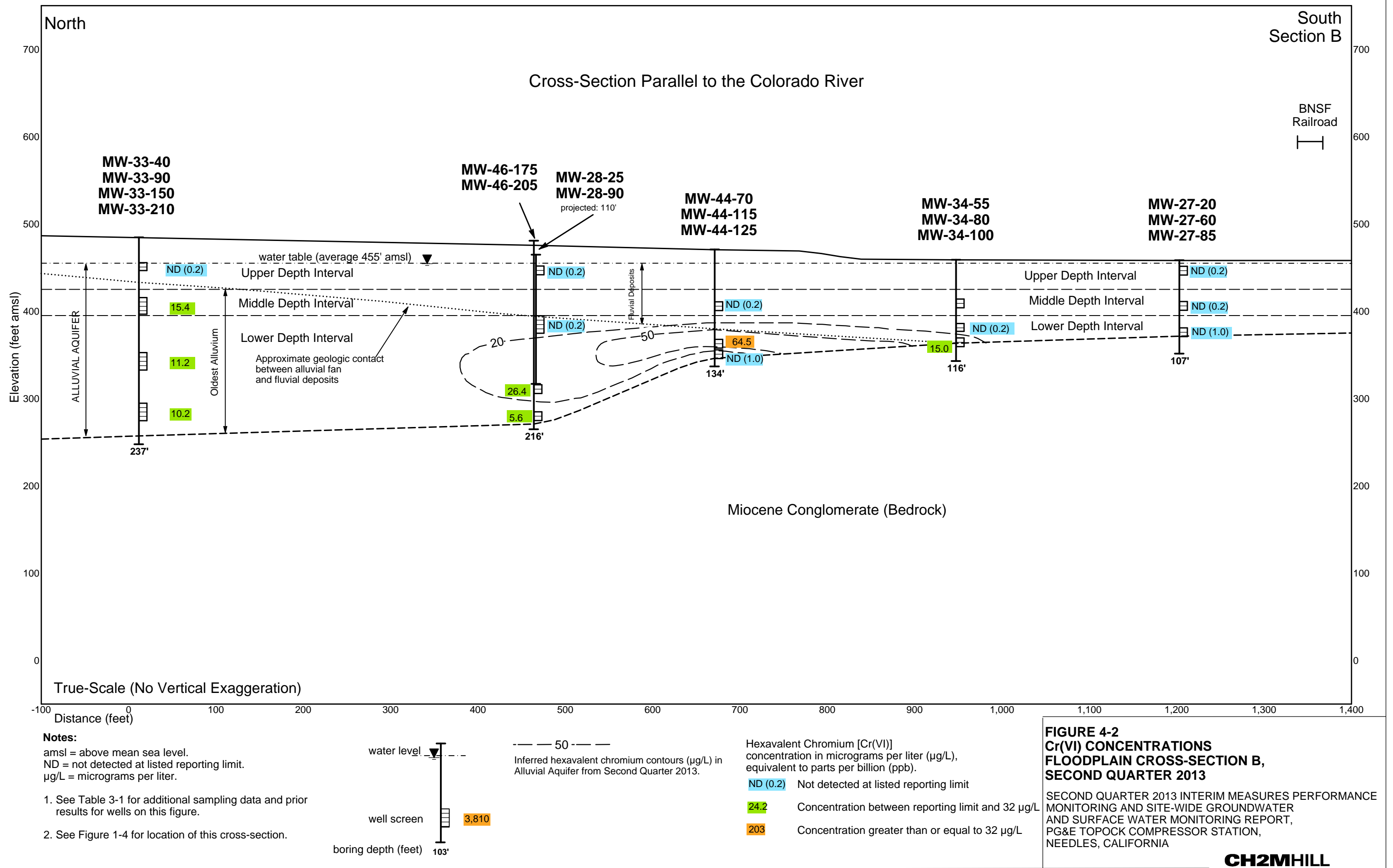
IN ALLUVIAL AQUIFER AND BEDROCK,

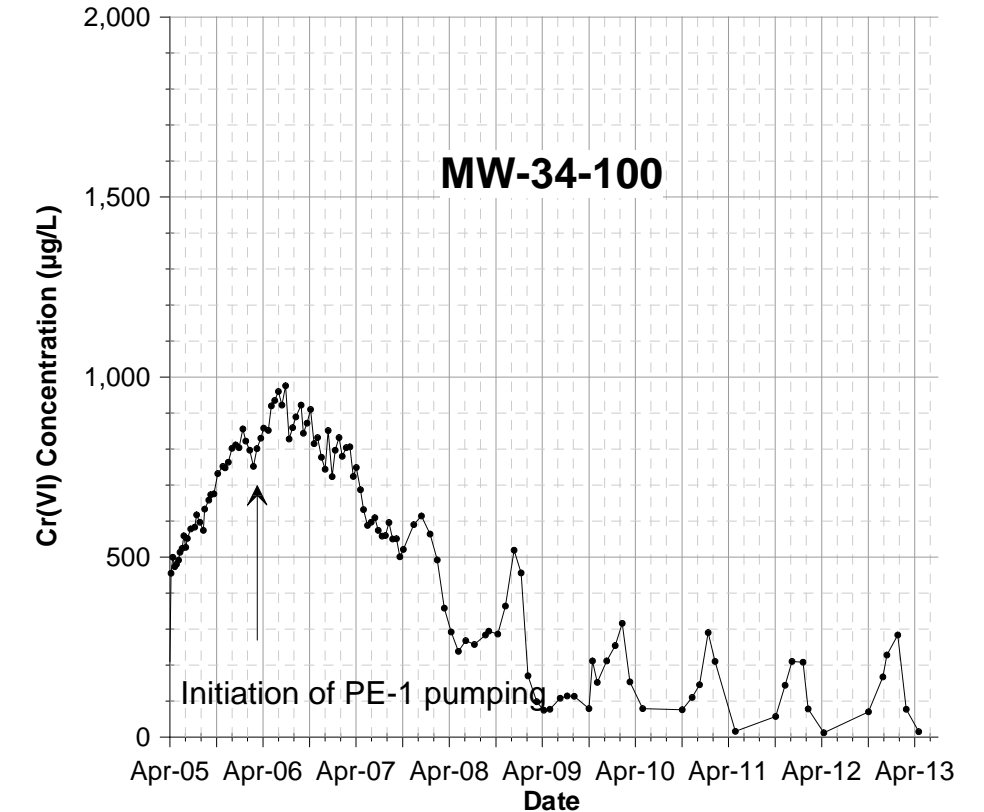
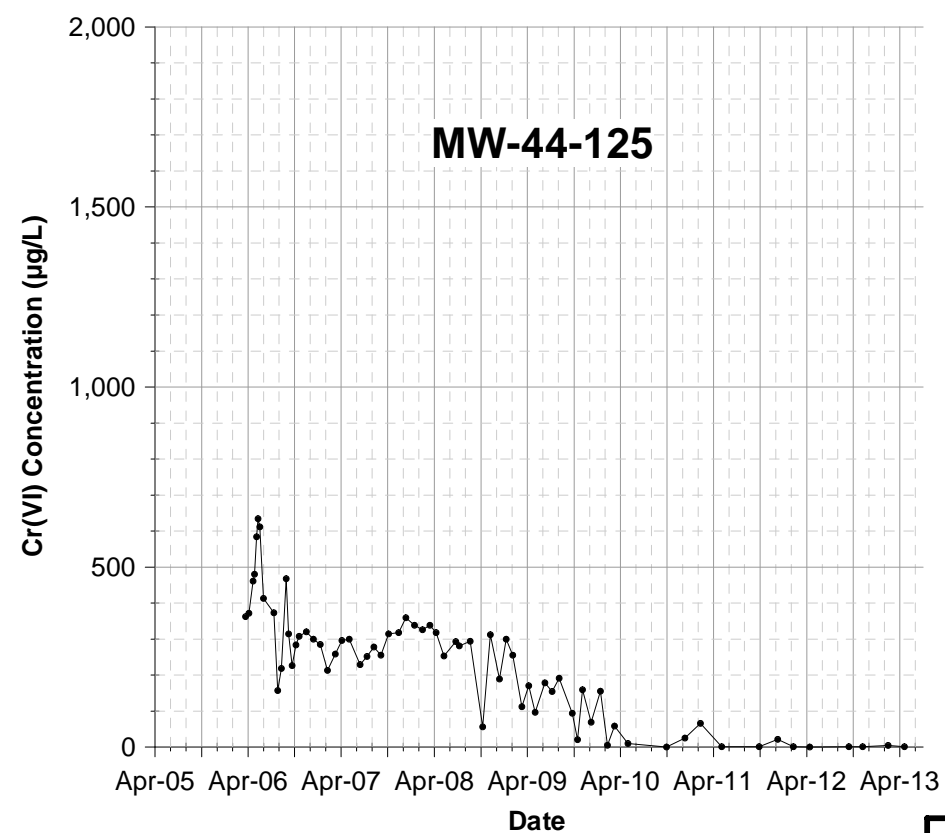
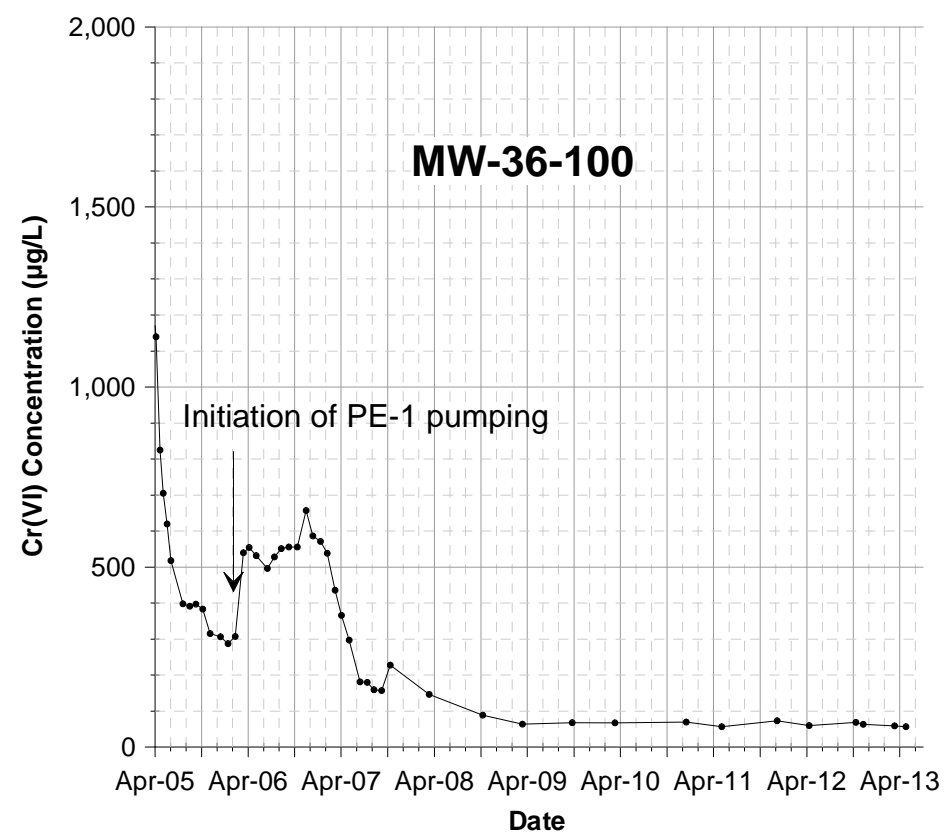
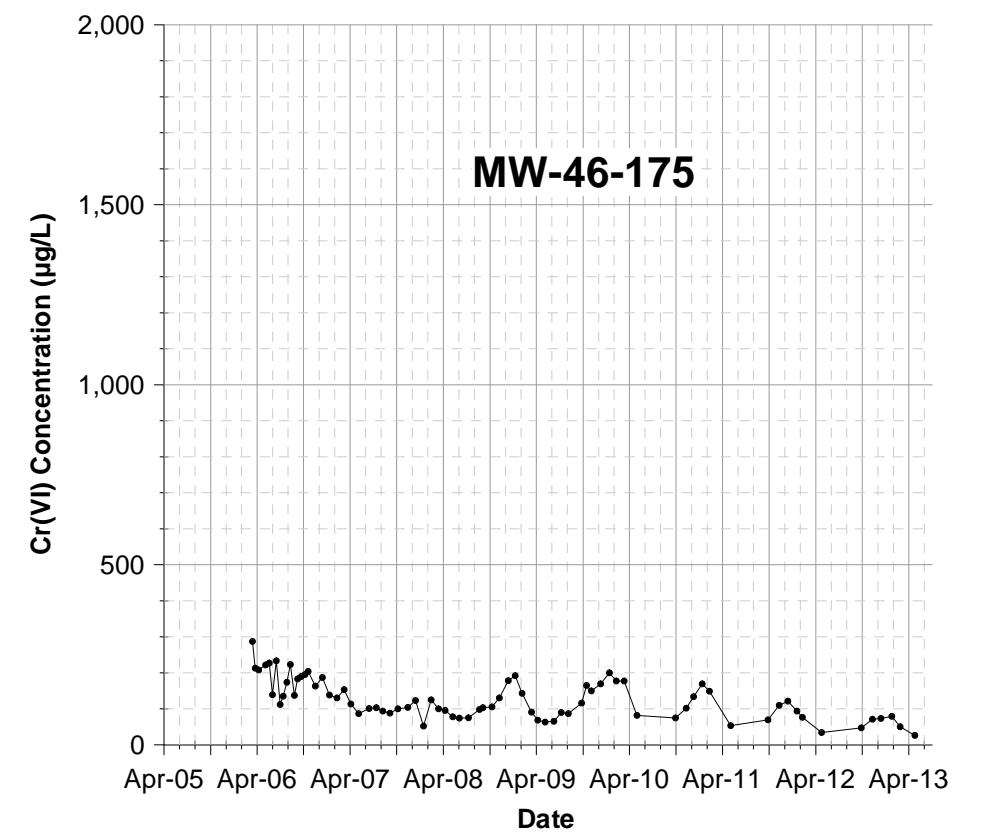
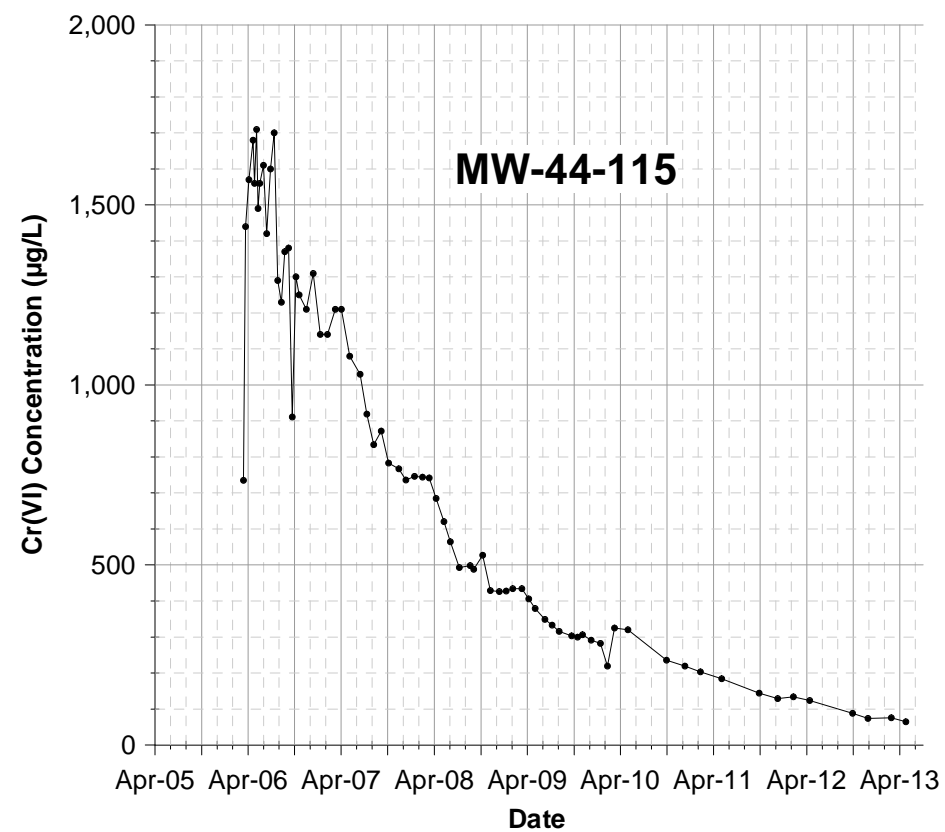
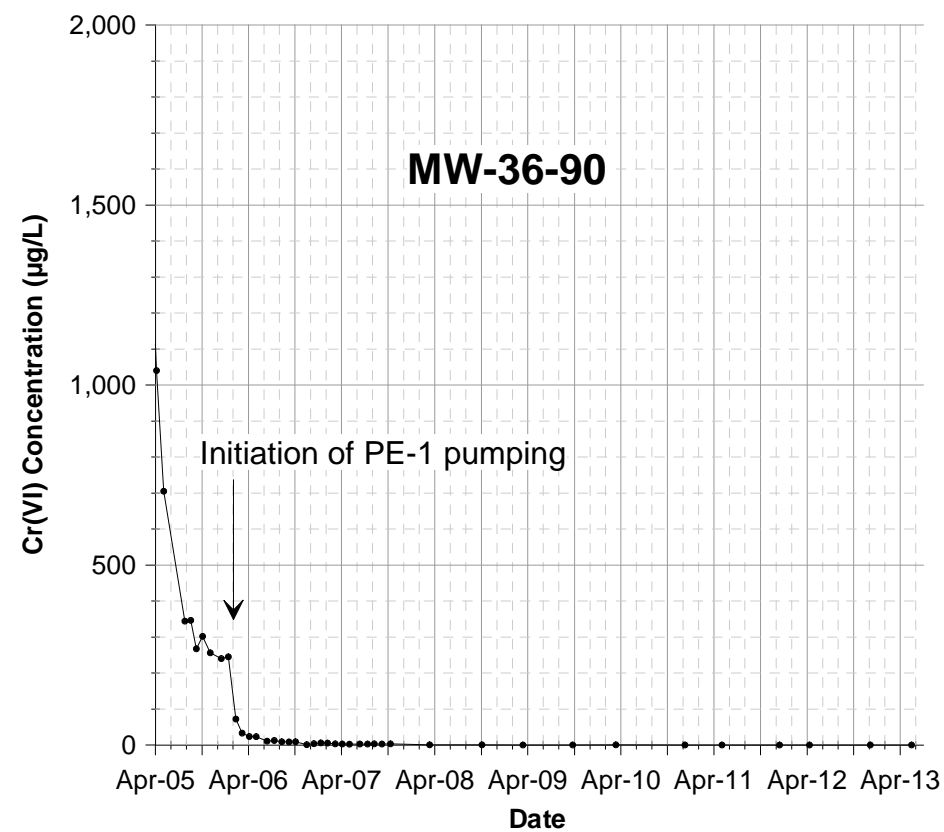
SECOND QUARTER 2013

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

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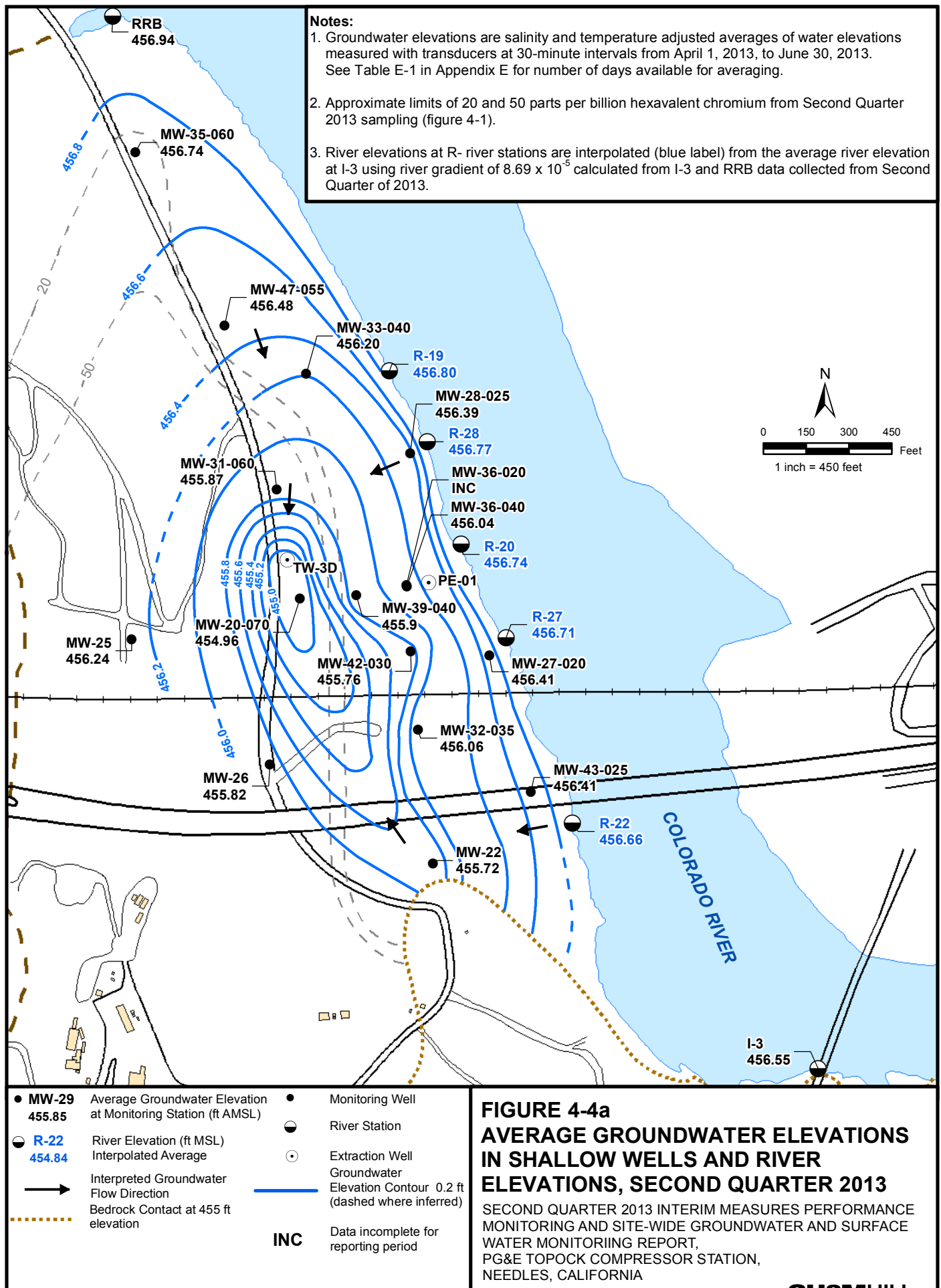




Notes:

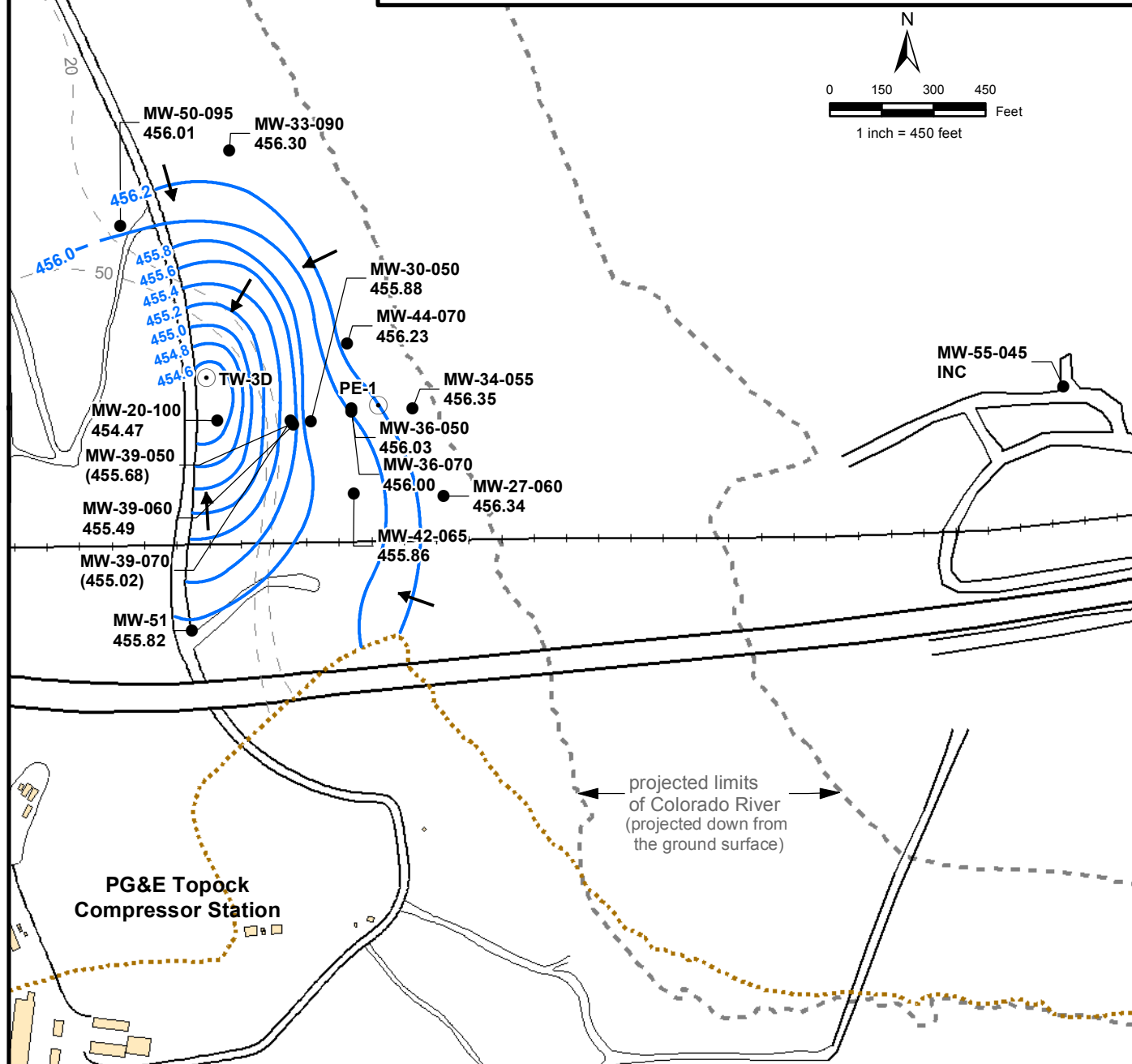
1. Hexavalent chromium [Cr(VI)] results in micrograms per liter (µg/L), equivalent to parts per billion (ppb).
2. Results plotted are maximum concentrations from primary and duplicate samples; see Table 3-1 for complete results.
3. MW-36 wells selected to monitor effects of PE-1 pumping on plume west of PE-1. MW-44 wells, MW-46-175, and MW-34-100 selected to monitor concentrations within the plume.

FIGURE 4-3
Cr(VI) CONCENTRATION TRENDS IN
SELECTED PERFORMANCE MONITORING WELLS,
APRIL 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



Notes:

1. Groundwater elevations are salinity and temperature adjusted averages of water elevations measured with transducers at 30-minute intervals from April 1, 2013, through June 30, 2013. See Table E-1 in Appendix E for number of days available for averaging.
2. Approximate limits of 20 and 50 parts per billion (ppb) hexavalent chromium from Second Quarter 2013 sampling. The placement of 20 ppb contour on mid-depth map is based on shallow and deep chromium distribution maps (Figure 4-1).
3. Screened intervals in mid-depth wells of alluvial aquifer are located approximately 40 to 50 feet below the estimated bottom of the river.

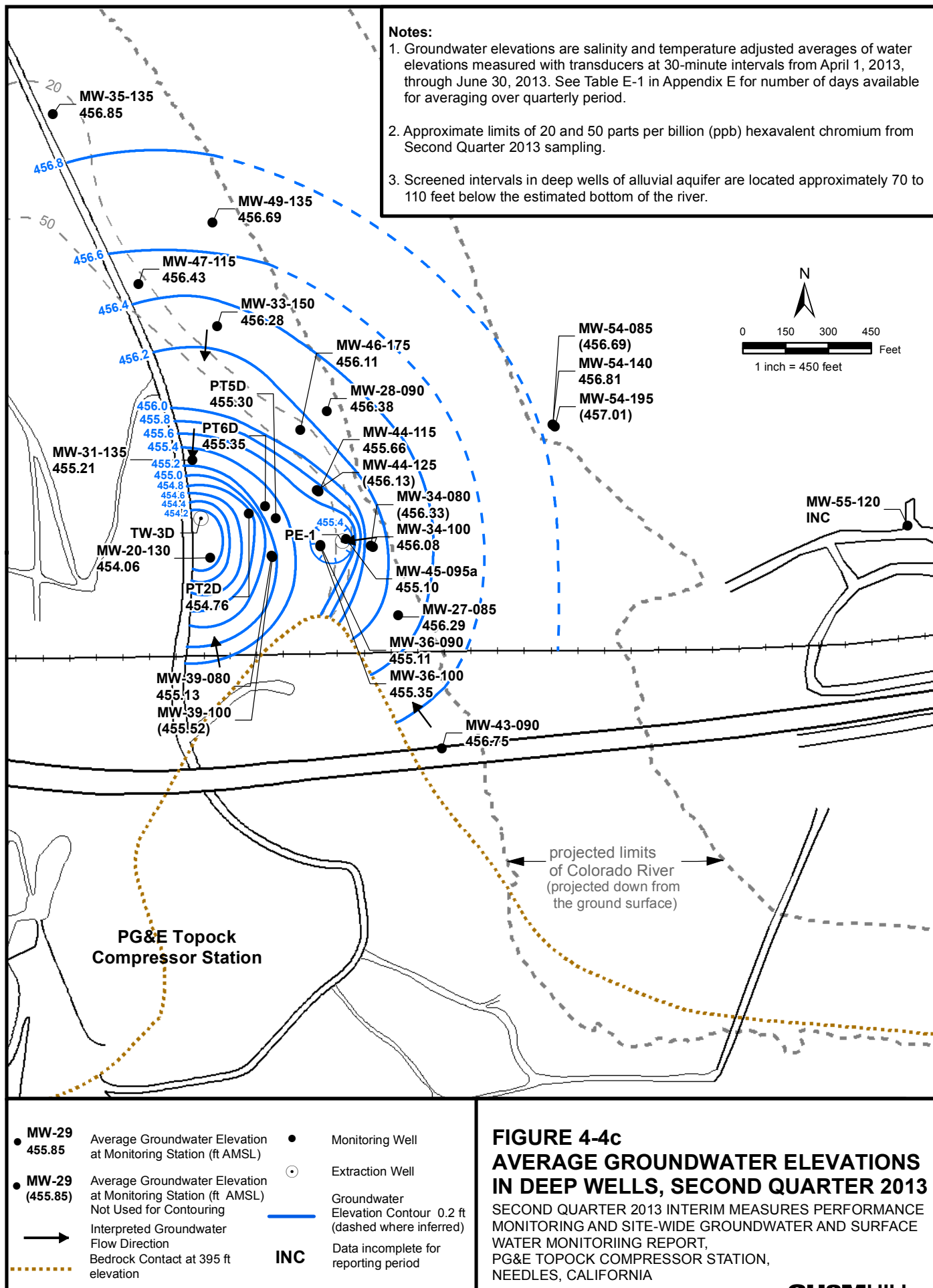


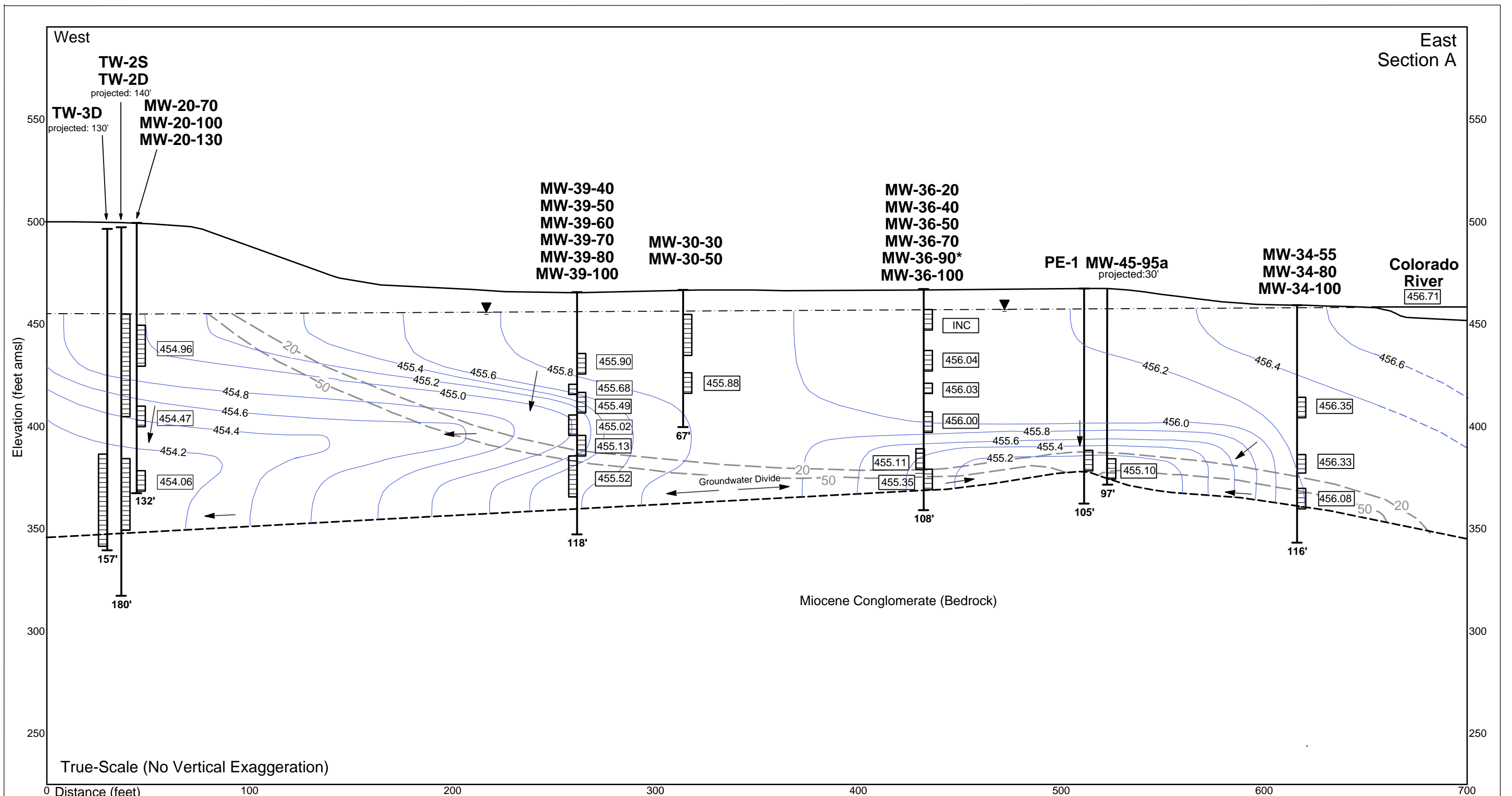
● MW-29 455.85	Average Groundwater Elevation at Monitoring Station (ft AMSL)	● Monitoring Well
● MW-29 (455.85)	Average Groundwater Elevation at Monitoring Station (ft AMSL) Not Used for Contouring	○ Extraction Well
→	Interpreted Groundwater Flow Direction	— Groundwater Elevation Contour 0.2 ft (dashed where inferred)
.....	Bedrock Contact at 425 ft elevation	INC Data incomplete for reporting period

**FIGURE 4-4b
AVERAGE GROUNDWATER ELEVATIONS
IN MID-DEPTH WELLS,
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

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Notes:

1. Results show average groundwater elevations for April 1, 2013, through June 30, 2013, measured with transducers at 30-minute intervals.
2. Groundwater elevations adjusted for salinity and temperature. Well MW-36-90* is excluded from contouring. River elevation (R-27) is the calculated average river level based upon the river gradient between RRB and I-3.

amsl = above mean sea level.

Legend:

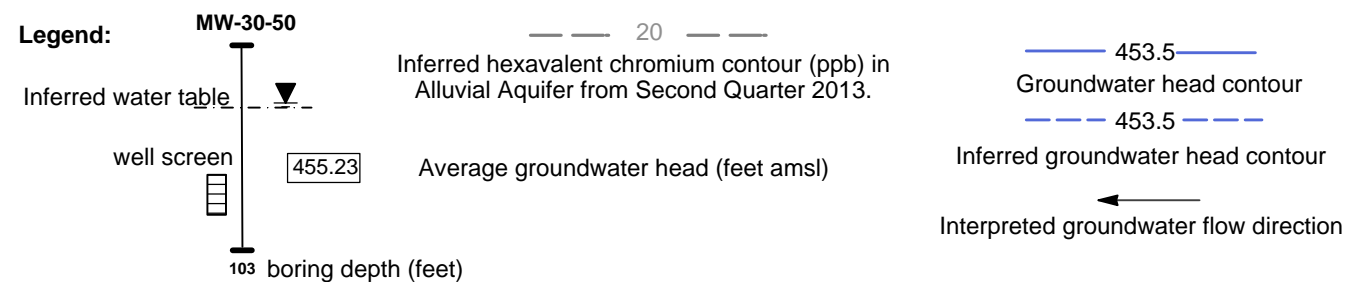
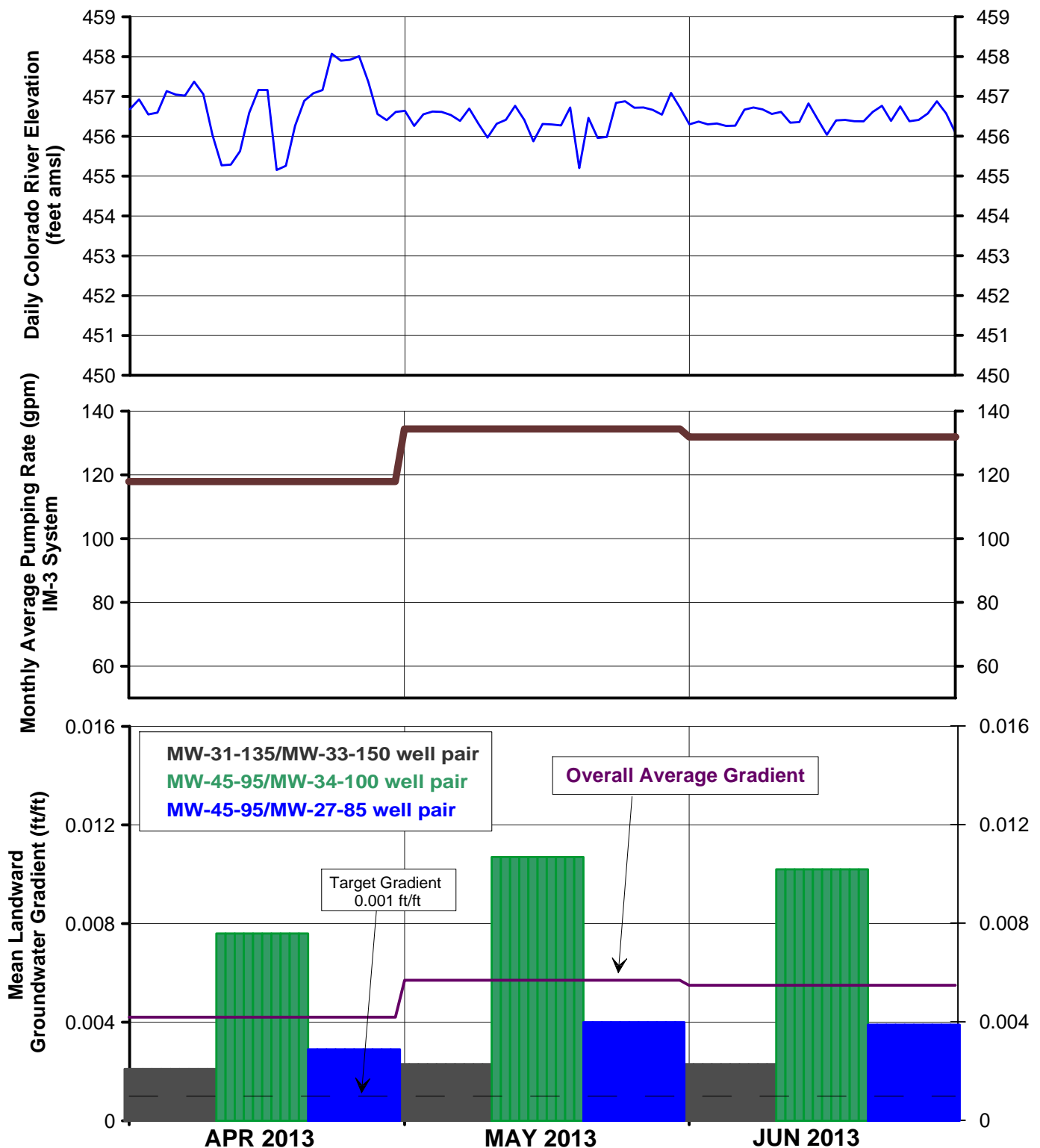


FIGURE 4-5 AVERAGE GROUNDWATER ELEVATIONS FOR WELLS IN FLOODPLAIN CROSS-SECTION A, SECOND QUARTER 2013

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

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Notes:

1. For IM pumping, the target landward gradient for well pairs is 0.001 feet/foot.
2. Refer to Table 4-1 and Section 4.4 for discussion of pumping data.
3. Pumping rate plotted is the combined rate of extraction wells TW-3D and PE-1 in operation each month.
4. Refer to Table 4-3 and Section 4.5 for discussion of gradient data.

amsl = above mean sea level.

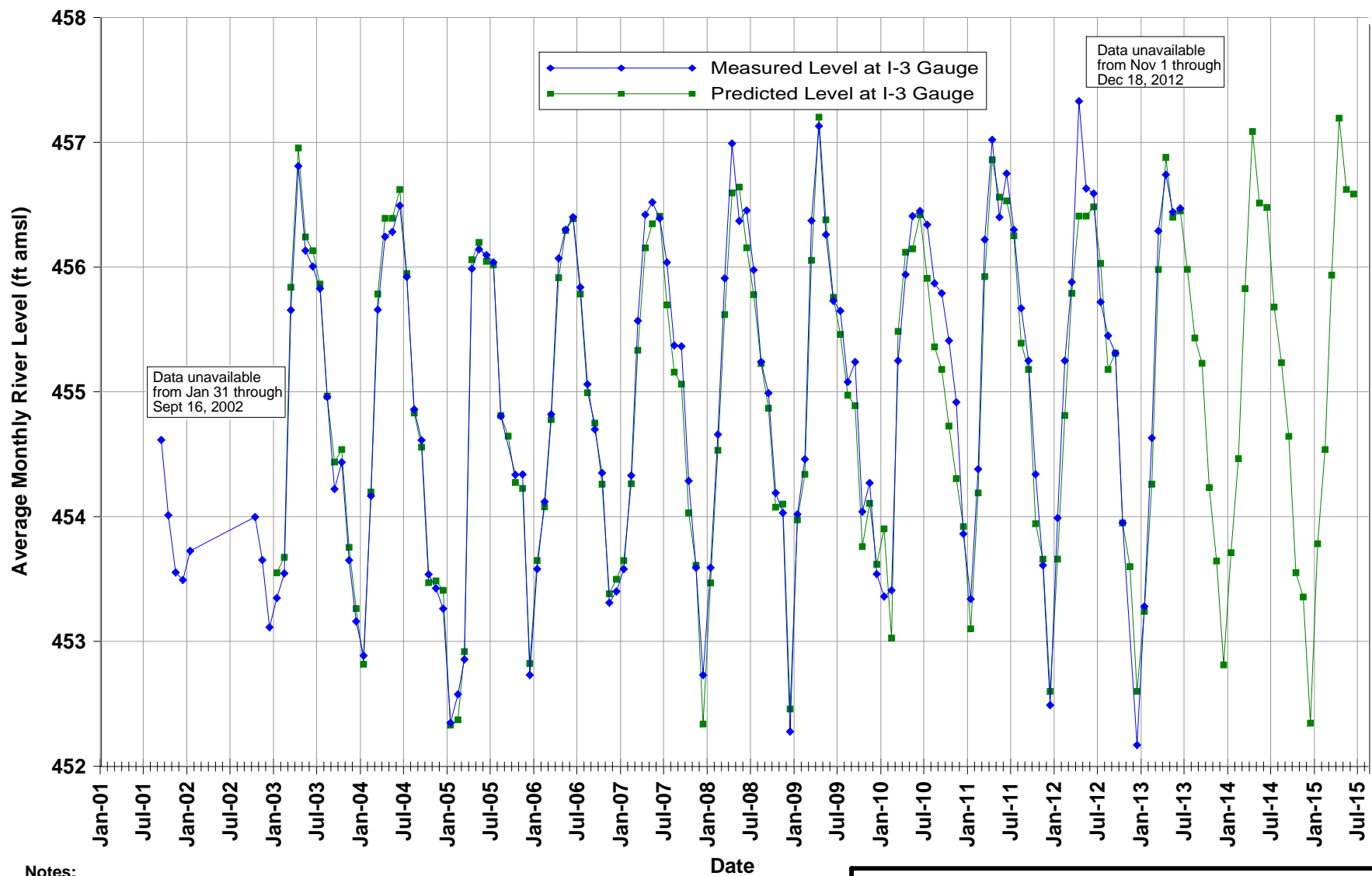
ft/ft = feet/foot.

gpm = gallons per minute.

**FIGURE 4-6
MEASURED HYDRAULIC GRADIENTS,
RIVER ELEVATIONS, AND PUMPING RATE,
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

CH2MHILL



Notes:

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

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

April 11, 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: 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 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 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.

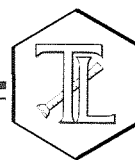
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


for Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

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

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	pH	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
EPA 200.8	Metals by ICP/MS	Bitu Emami
EPA 218.6	Hexavalent Chromium	Tom Martinez
SM 3500-CrB	Hexavalent Chromium	Jenny Tankunakorn



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

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample 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	pH	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	pH	4.00

ND: Non Detected (below reporting limit)

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

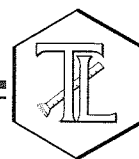
Results below 0.01 will have two (2) significant figures.

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.

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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: 456827.01.DM

P.O. Number: 456827.01.DM

Release Number:

Laboratory No. 807142

Page 1 of 7

Printed 4/11/2013

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

Field ID	Lab ID	Collected	Matrix
PE-01-205	807142-001	04/01/2013 08:00	Water
TW-03D-205	807142-002	04/01/2013 08:00	Water

Specific Conductivity - EPA 120.1

Batch 04EC13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807142-001 Specific Conductivity	umhos/cm	04/02/2013	1.00	0.116	2.00	4540
807142-002 Specific Conductivity	umhos/cm	04/02/2013	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	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	8100	8110	0.123	0 - 10

Lab Control Sample

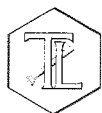
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	690	706	97.7	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	686	706	97.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	960	998	96.2	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 2 of 7

Project Number: 456827.01.DM

Printed 4/11/2013

Chrome VI by EPA 218.6

Batch 04CrH13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807142-001 Chromium, Hexavalent	ug/L	04/04/2013 09:43	1.00	0.00920	0.20	5.6

Method Blank

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

Duplicate

Lab ID = 807191-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	3.83	3.86	0.762	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.183	0.200	91.3	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.86	5.00	97.3	90 - 110

Matrix Spike

Lab ID = 807142-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	15.6	15.6(10.0)	100.	90 - 110

Matrix Spike

Lab ID = 807191-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.56	8.86(5.00)	94.0	90 - 110

Matrix Spike

Lab ID = 807191-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.54	8.86(5.00)	93.7	90 - 110

Matrix Spike

Lab ID = 807191-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.02	6.29(5.00)	94.5	90 - 110

Matrix Spike

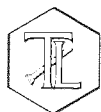
Lab ID = 807191-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.09	7.36(5.00)	94.5	90 - 110

Matrix Spike

Lab ID = 807191-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.49	8.80(5.00)	93.9	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

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MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.84	10.0	98.4	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.81	10.0	98.1	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.95	10.0	99.5	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.77	10.0	97.7	95 - 105

Chromium, Hexavalent by SM 3500-Cr B

Batch 04CrH13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807142-002 Chromium, Hexavalent	ug/L	04/09/2013 15:48	25.0	110	250	836

Method Blank

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

Duplicate

Lab ID = 807142-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	687	836	19.6	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	94.2	100	94.2	90 - 110

Matrix Spike

Lab ID = 807142-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3250	3340(2500)	96.5	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	94.2	100	94.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	59.6	60.0	99.3	90 - 110



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Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

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pH by SM 4500-H B

Batch 04PH13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807142-001 pH	pH	04/02/2013 07:33	1.00	0.0250	4.00	7.52
807142-002 pH	pH	04/02/2013 07:35	1.00	0.0250	4.00	7.24

Duplicate

Lab ID = 807142-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.26	7.24	0.276	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.01	7.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	6.98	7.00	99.7	90 - 110

Total Dissolved Solids by SM 2540 C

Batch 04TDS13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807142-001 Total Dissolved Solids	mg/L	04/03/2013	1.00	0.757	125	2780
807142-002 Total Dissolved Solids	mg/L	04/03/2013	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	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	320	315	1.57	0 - 10

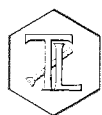
Duplicate

Lab ID = 807145-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	348	342	1.74	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	489	500	97.8	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

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Metals by EPA 200.8, Dissolved

Batch 040413A

Parameter	Unit	Analyzed	DF	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	0.920	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	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.190	0.200	95.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	43.7	50.0	87.3	85 - 115

Matrix Spike

Lab ID = 807145-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	42.7	50.0(50.0)	85.4	75 - 125

Matrix Spike Duplicate

Lab ID = 807145-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	42.1	50.0(50.0)	84.2	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.7	20.0	93.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.8	20.0	93.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.6	20.0	93.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.6	20.0	93.2	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 4/11/2013

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 Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.5	20.0	102	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	97.9	80 - 120


Serial Dilution

Lab ID = 807142-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	813	766	5.99	0 - 10

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services



Truesdail Laboratories, Inc.

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, ppm	Reported Value, ppm	DF
Blank	100	75.4399	75.4400	75.4399	0.0001	No	0.0000	0.0	25.0	ND	1
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	1
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	1
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 =

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

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 I.D.	Measured Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	489	500	97.8%	90-110%	Yes
LCS2					

LCS Recovery

$$P = \left(\frac{LC}{LT} \right) \times 100$$

P = Percent recovery.

LC = Measured LCS value (ppm).

LT = Theoretical LCS value (ppm).

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

Duplicate Determination Difference

$$\% \text{ Difference} = \frac{|A - B|}{C} \times 100$$

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

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

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

C = Average weight in (g).

Jenny T.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

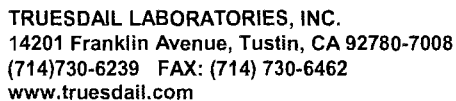
TDS/EC CHECK

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

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	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




Rec'd 04/01/13
S 807142



CHAIN OF CUSTODY RECORD

[IM3Plant-EW-205]

807142

TURNAROUND TIME

10 Days

DATE 04/01/13

PAGE 1 OF 1

[illegible]

CHAIN OF CUSTODY SIGNATURE RECORD					SAMPLE CONDITIONS	
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	RECEIVED COOL <input checked="" type="checkbox"/> WARM <input type="checkbox"/> 3.4 °C		
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	CUSTODY SEALED YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	SPECIAL REQUIREMENTS:		
Signature (Received)	Printed Name	Company/ Agency	Date/ Time			
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 Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
3/18/13	806910-5	9.5	N/A	N/A	N/A	RB
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
3/18/13	806921-1	7.0	2 mL / 100 mL	9.5	16:00	RB
	-2					
03/19/13	806943-1	7	2 mL / 100 mL	9.5	16:30	HAV
	-2				16:40	
03/20/13	806965-1	7	2 mL / 100 mL	9.5	9:45	RB
03/20/13	806966-1	9.5	N/A	N/A	N/A	RB
	-2					
	-3					
03/20/13	8069827	7.	2 mL / 100 mL	9.5	16:00	RB
03/25/13	807046	7.0	2 mL / 100 mL	9.5	16:45	TM
3/27/13	807068	7.0	2 mL / 100 mL	9.5	8:50	TM
03/27/13	806670-1	7.0	2 mL / 100 mL	9.5	9:30	TM
04/02/13	807141-1	7.0	2 mL / 100 mL	9.5	7:25	TM
	-2					
	-3					
04/02/13	807142-1	7.0	2 mL / 100 mL	9.5	7:30	TM
	-2					
04/2/13	807144-1	9.5	N/A	N/A	N/A	TM
	-2					
04/02/13	807145-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
807023-1	<1	<2	3/25/13	DC	yes			
807025-	<1	>2	↓	↓	yes	12:50		
807038 (1-4)	<1	>2	3-25-13	BE	NO	9:00 AM		
807065	<1	>2	3/26/13	DC	NO	17:00	4-1-13	PH < 2
807042	↓	<2	↓	↓	yes			
807043	↓	↓	↓	↓	↓			
807052	↓	↓	↓	↓	↓			
807068	<1	>2	3-27-13	BE	YES	8:00 AM		
807075	>1	<2	↓	DC	yes			
807071	<1	>2	↓	DC	NO	12:40	4-1-13	PH < 1
807085	<1	>2	↓	DC	yes	15:00		
807083(10-12)	<1	>2	↓	↓	NO	18:00	04-01	PH < 2
807100(1-7)	<1	<2	3-28-13	BE	YES			
807099(1-5)	↓	↓	3-28-13	↓	↓			
807106(1-3)	<1	>2	3-29-13	↓	NO	8:00 AM	4-1	PH < 2
807110(1-5)	<1	<2	4-1-13	BE	YES			
807137(1-24)	↓	>2	4-2-13	↓	NO	7:30 AM		
807136(1-4)	↓	↓	↓	↓	↓	7:30 AM		
807117	<1	<2	4/2/13	ES	yes			
807138	↓	↓	↓	↓	↓			
807139	↓	↓	↓	↓	↓			
807141(1-3)	<1		4-2-13	BE	YES			
807142(1-2)	<1	>2	↓	↓	↓			
807144(10, T)	<1	<2	↓	↓	↓			
807145(1-12)	<1	<2	↓	↓	↓			
807145(1-12)	↓	↓	↓	↓	↓			
807147(1-5)	↓	↓	↓	↓	↓			
807150	>2	↓	↓	↓	↓			
807151	↓	↓	↓	↓	↓			
807152	↓	↓	↓	↓	↓			
807153	↓	↓	↓	↓	↓			
807154	↓	↓	↓	↓	↓			
807155	↓	↓	↓	↓	↓			
807191(1-9)	<1	<2	4/3/13	ES	yes			
807218(1-9)	<1	<2	4-4-13	BE	YES			
807219(1-14)	<1		↓	↓	↓			Acidifying metal sample
807214(1-10)	<1	<2	↓	↓	↓			
807165(16, 23)	<1	>2	4/4/13	ES	NO	4:00		
807188	↓	↓	↓	↓	↓	↓		
807208(10-12)	↓	↓	↓	↓	↓	↓		
807222(1-7)	↓	↓	↓	↓	↓	↓		
807209-4	↓	<2	↓	↓	yes			
807216	↓	↓	↓	↓	↓			
807217-4	↓	↓	↓	↓	↓			

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.



TRUESDAIL LABORATORIES, INC.

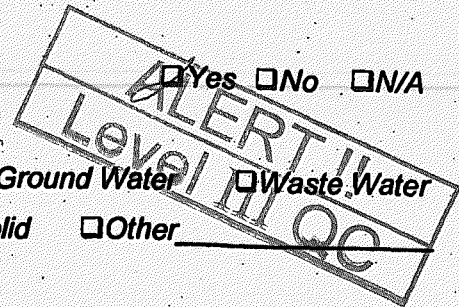
Sample Integrity & Analysis Discrepancy Form

Client: E2

Lab # 807142

Date Delivered: 4/01/13 Time: 2:00 By: ☐ Mail ☒ 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? ☐ Yes ☐ No ☒ 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? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 3.4 °C ☒ Yes ☐ 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 ☒ N/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 ☐ No ☐ N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: ☐ Truesdail ☐ Client ☐ Yes ☐ No ☒ N/A
12. Were samples pH checked? pH = See C.O.C. ☒ Yes ☐ 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 ☒ Std ☐ Yes ☐ No ☐ N/A
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☒ Ground Water ☐ Waste Water
☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☐ Other
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: L. Shabunine



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 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.

for 
Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer



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

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Laboratory No.: 807486
Date Received: April 16, 2013

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:

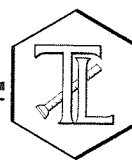
Results below 0.01ppm will have two (2) significant figures.

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

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

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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:

Laboratory No. 807486

Page 1 of 11

Printed 4/30/2013

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

Field ID	Lab ID	Collected	Matrix
MW-121-192	807486-001	04/15/2013 07:10	Water
MW-122-192	807486-002	04/15/2013 17:15	Water
MW-200-192	807486-003	04/15/2013 14:40	Water
MW-201-192	807486-004	04/15/2013 16:00	Water
MW-27-020-192	807486-005	04/15/2013 11:20	Water
MW-27-060-192	807486-006	04/15/2013 12:41	Water
MW-27-085-192	807486-007	04/15/2013 13:52	Water
MW-30-030-192	807486-008	04/15/2013 15:27	Water

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

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.199	0.200	99.4	70 - 130

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 2 of 11****Project Number: 423575.MP.07.TS****Printed 4/30/2013****Lab Control Sample**

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.83	5.00	96.6	90 - 110
Matrix Spike						Lab ID = 807449-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.93	6.09(5.00)	96.8	90 - 110
Matrix Spike						Lab ID = 807451-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.80	9.00(5.00)	96.1	90 - 110
Matrix Spike						Lab ID = 807451-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.54	9.64(5.00)	98.1	90 - 110
Matrix Spike						Lab ID = 807451-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	17.8	18.1(10.0)	96.8	90 - 110
Matrix Spike						Lab ID = 807451-006
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	15.5	15.7(10.0)	97.7	90 - 110
Matrix Spike						Lab ID = 807451-009
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.997	1.00(1.00)	99.7	90 - 110
Matrix Spike						Lab ID = 807486-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.992	1.00(1.00)	99.2	90 - 110
Matrix Spike						Lab ID = 807486-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.02(1.00)	98.2	90 - 110
Matrix Spike						Lab ID = 807486-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.986	1.00(1.00)	98.6	90 - 110
Matrix Spike						Lab ID = 807486-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.986	1.00(1.00)	98.6	90 - 110
Matrix Spike						Lab ID = 807486-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.00(1.00)	102	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 3 of 11****Project Number: 423575.MP.07.TS****Printed 4/30/2013****Matrix Spike**

Lab ID = 807486-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.986	1.00(1.00)	98.6	90 - 110

Matrix Spike

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

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

MRCSS - 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	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.78	10.0	97.8	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.89	10.0	98.9	95 - 105

MRCVS - Primary

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

Page 4 of 11

Project Number: 423575.MP.07.TS

Printed 4/30/2013

Chrome VI by EPA 218.6

Batch 04CrH13V

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807486-001 Chromium, Hexavalent	ug/L	04/24/2013 10:54	5.00	0.0460	1.0	ND
807486-007 Chromium, Hexavalent	ug/L	04/24/2013 11:04	5.00	0.0460	1.0	ND

Method Blank

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

Duplicate

Lab ID = 807495-013

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	42.7	42.2	1.26	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.200	0.200	100	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.98	5.00	99.7	90 - 110

Matrix Spike

Lab ID = 807486-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.96	5.00(5.00)	99.2	90 - 110

Matrix Spike

Lab ID = 807486-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.96	5.00(5.00)	99.1	90 - 110

Matrix Spike

Lab ID = 807495-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	14.8	15.0(10.0)	98.1	90 - 110

Matrix Spike

Lab ID = 807495-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	15.3	15.6(10.0)	97.6	90 - 110

Matrix Spike

Lab ID = 807495-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.05	9.12(5.00)	98.7	90 - 110

Matrix Spike

Lab ID = 807495-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	15.2	15.3(10.0)	99.1	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 7 of 11

Project Number: 423575.MP.07.TS

Printed 4/30/2013

Metals by EPA 6020A, Dissolved

Batch 042213A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807486-001 Chromium	ug/L	04/22/2013 11:47	2.00	0.184	1.0	ND
807486-002 Chromium	ug/L	04/22/2013 12:59	2.00	0.184	1.0	ND
807486-005 Chromium	ug/L	04/22/2013 11:53	2.00	0.184	1.0	ND
807486-006 Chromium	ug/L	04/22/2013 11:59	2.00	0.184	1.0	ND
807486-007 Chromium	ug/L	04/22/2013 11:10	2.00	0.184	1.0	ND
807486-008 Chromium	ug/L	04/22/2013 13:05	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
Copper	ug/L	1.00	ND
Manganese	ug/L	1.00	ND

Duplicate

Lab ID = 807486-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance 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 Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance 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	Recovery	Acceptance 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
Manganese	ug/L	2.00	49.3	50.0	98.7	85 - 115

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 8 of 11****Project Number: 423575.MP.07.TS****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



TRUESDAIL LABORATORIES, INC.

Report Continued

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

807486

4/16/2013 3:07:02 PM

Page 1 OF 1

Project Name PG&E Topock				Container:	250 ml Poly	2x250 ml Poly	500 ml Poly	2x500 ml Poly	<div style="border: 2px solid black; padding: 10px; text-align: center;"> ALERT !! Level III QC </div>	Number of Containers	COMMENTS
Location Topock				Preservatives:	(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C			
Project Manager Jay Piper				Filtered:	Field	Field	Field	Field			
Sample Manager Shawn Duffy				Holding Time:	28	28	180	180			
Project Number 423575.MP.07.TS					Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Metals (6020A) Field Filtered Chromium	Metals (6020A-R) Field Filtered Chromium			
Task Order											
Project 2013-GMP-192-Q2											
Turnaround Time 10 Days											
Shipping Date: 4/16/2013											
COC Number: 1											
DATE	TIME	MATRIX									
MW-121-192	4/15/2013	7:10	Water		X		X		4		
MW-122-192	4/15/2013	17:15	Water	X		X			2	PH=2	
MW-200-192	4/15/2013	14:40	Water	X					1	6020A	
MW-201-192	4/15/2013	16:00	Water	X					1		
MW-27-020-192	4/15/2013	11:20	Water		X		X		4		
MW-27-060-192	4/15/2013	12:41	Water		X		X		4	PH=2	
MW-27-085-192	4/15/2013	13:52	Water		X		X		4	6020A	
MW-27-085-192-EB	4/15/2013	13:15	Water	X		X			2		
MW-30-030-192	4/15/2013	15:27	Water	X		X			2	PH=2	
MW-27-020-192-EB	4-15-13	0945	Water	X		X			24	26020A	
MW-27-060-192-EB	4-15-13	1153	Water	X		X			2	PH=2	
TOTAL NUMBER OF CONTAINERS									24	26020A	

Signatures	Date/Time	Shipping Details
Approved by <i>[Signature]</i>	4-16-13	Method of Shipment: courier
Sampled by <i>[Signature]</i>	1535	On Ice: yes / no
Relinquished by <i>[Signature]</i>		Airbill No:
Received by <i>Rafael Davila</i>	4-16-13 15:35	Lab Name: Truesdail Laboratories, Inc.
Relinquished by <i>Rafael Davila</i>	4-16-13 21:30	Lab Phone: (714) 730-6239
Received by <i>Shabunna</i>	4/16/13 21:30	

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
04/16/13	807449-3	9.5	N/A	N/A	9:15	NE
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	✓ -11					
	807450-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	✓ -9					
	807451-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
✓	✓ -9	✓	✓	✓	✓	✓
4/16/13	807455-1	7.0	2mL/100mL	9.5	11:30	TH
↓	↓ -2	↓	↓	↓	↓	↓
4/17/13	805485	7.0	2mL/100mL	9.5	8:30	NE
4/17/13	805486-1	9.5	N/A	N/A	8:15	NE

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
4/17/13	807486-2	9.5	N/A	N/A	8:15	NE
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
4/17/13	807489-1	9.5	N/A	N/A	N/A	TM
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
4/17/13	807489-1	9.5	N/A	N/A	N/A	TM
4/17/13	807490-1	9.5	N/A	N/A	N/A	TM
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
4/17/13	807491-1	9.5	N/A	N/A	N/A	TM
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
↓	↓ -9	↓	↓	↓	↓	↓
↓	↓ -10	↓	↓	↓	↓	↓
4/17/13	807493-1	9.5	N/A	N/A	N/A	TM
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓

TM
04/25/13

TM
4/25/13



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
807428	<1	<2	4/17/13	RC	yes			
807431	71	↓	↓	↓	↓			
807434	<1	↓	↓	↓	↓			
807435	↓	↓	↓	↓	↓			
807436	↓	↓	↓	↓	↓			
807453	71	>2	↓	↓	↓	11:00		
807455 (1-2)	<1	↓	↓	↓	↓	↓	4-17	<2
807363 (1-4)	↓	<2	↓	↓	↓			
807502	↓	>2	↓	↓	↓	11:00		
807412 (1-3)	<1	<2	4-18-13	BE	yes			
807452 (1-6)	↓	↓	↓	↓	↓			
807485	↓	72/ES	↓	↓	↓	7:00		
807486 (12-5-8)	↓	<2 BE	↓	↓	↓			
807488 (1-4)	↓	↓	↓	↓	↓			
807489	↓	↓	↓	↓	↓			
807490 (1-4)	↓	↓	↓	↓	↓			
807490 (1-4)	↓	↓	↓	↓	↓			
807491 (1-3, 4)	↓	↓	↓	↓	↓			
807523	↓	↓	↓	↓	↓			
807522 (1-2)	↓	↓	↓	↓	↓			
807493 (1-9)	↓	↓	↓	↓	↓			
807472 (1, 3, 4)	<1	>2	4/18/13	ES	NO	10:00	4-19	<2
807463 (1-3)	↓	↓	↓	↓	↓	↓	4-19	<2
807515 (10-12)	↓	↓	↓	↓	↓	↓	4-19-13	<2
807494 (1, 3-10)	<1	<2	4/18/13	ES	Yes			
807495 (1-15)	↓	↓	↓	↓	↓			
807520 (1-11)	↓	↓	↓	↓	↓			
807527 (1-6)	<1	<2	4-19-13	BE	yes			
807551 (1-4)	↓	↓	↓	↓	↓			
807521 (1-11)	↓	↓	↓	↓	↓			
807546	↓	↓	↓	↓	↓			
807546 BE	↓	↓	↓	↓	↓			
807547	↓	↓	↓	↓	↓			
807543 (1-2)	<1	>2	4-19-13	BE	NO	1:30		
807564 (1-8)	<1	<2	4/22/13	RC	yes			1, 2, 7 > 1 NTU
807544	>1	<2	↓	↓	↓			
807562	↓	↓	↓	↓	↓			
807542	↓	↓	↓	↓	↓			
807530	↓	↓	↓	↓	↓			
807548	↓	↓	↓	↓	↓			
807464	↓	↓	↓	↓	↓			
807465	↓	↓	↓	↓	↓			
807466	↓	↓	↓	↓	↓			
807467	↓	↓	↓	↓	↓			
807468	↓	↓	↓	↓	↓			

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: E 2

Lab # 807486

Date Delivered: 04/16/13 Time: 11:30 By: ☐ Mail ☒ 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? ☐ Yes ☐ No ☒ 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? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 3.5 °C ☒ Yes ☐ 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 ☒ N/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 ☐ No ☐ N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: ☒ Truesdail ☐ Client ☒ Yes ☐ No ☐ N/A
12. Were samples pH checked? pH = See C.O.C. ☒ Yes ☐ 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 ☒ Std ☒ Yes ☐ No ☐ N/A
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water
☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Linda

TRUESDAIL LABORATORIES, INC.

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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.


for Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer



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

Attention: Shawn Duffy

Laboratory No.: 807604
Date Received: April 23, 2013

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:

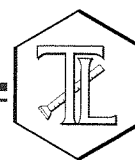
Results below 0.01ppm will have two (2) significant figures.

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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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:

Laboratory No. 807604

Page 1 of 7

Printed 5/6/2013

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

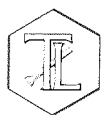
Field ID	Lab ID	Collected	Matrix
MW-124-192	807604-001	04/16/2013 06:50	Water
MW-202-192	807604-002	04/16/2013 15:50	Water
MW-203-192	807604-003	04/16/2013 16:00	Water
MW-34-080-192	807604-004	04/16/2013 10:06	Water
MW-34-100-192	807604-005	04/16/2013 13:27	Water
MW-42-055-192	807604-006	04/16/2013 15:28	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

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****Page 2 of 7****Project Number: 423575.MP.07.TS****Printed 5/6/2013****Duplicate**

Lab ID = 807605-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	ND	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.206	0.200	103	70 - 130

Lab Control Sample

Parameter	Unit	DF	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

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	40.5	40.0(25.0)	102	90 - 110

Matrix Spike

Lab ID = 807604-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.00(1.00)	104	90 - 110

Matrix Spike

Lab ID = 807604-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.00(1.00)	103	90 - 110

Matrix Spike

Lab ID = 807604-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.00(1.00)	103	90 - 110

Matrix Spike

Lab ID = 807604-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.96	5.00(5.00)	99.2	90 - 110

Matrix Spike

Lab ID = 807604-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	40.0	40.0(25.0)	99.8	90 - 110

Matrix Spike

Lab ID = 807604-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.11	1.06(1.00)	104	90 - 110

Matrix Spike

Lab ID = 807604-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.00(1.00)	101	90 - 110

Matrix Spike

Lab ID = 807604-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.95	5.00(5.00)	99.0	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 3 of 7****Project Number: 423575.MP.07.TS****Printed 5/6/2013**

Matrix Spike						Lab ID = 807604-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.00(1.00)	102	90 - 110
Matrix Spike						Lab ID = 807604-009
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.00(1.00)	101	90 - 110
Matrix Spike						Lab ID = 807604-010
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.93	5.00(5.00)	98.6	90 - 110
Matrix Spike						Lab ID = 807604-010
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.00(1.00)	102	90 - 110
Matrix Spike						Lab ID = 807605-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.994	1.00(1.00)	99.4	90 - 110
Matrix Spike						Lab ID = 807605-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.93	5.00(5.00)	98.6	90 - 110
Matrix Spike						Lab ID = 807605-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.00(1.00)	100	90 - 110
Matrix Spike						Lab ID = 807605-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.92	5.00(5.00)	98.5	90 - 110
Matrix Spike						Lab ID = 807605-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.986	1.00(1.00)	98.6	90 - 110
Matrix Spike						Lab ID = 807605-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.998	1.00(1.00)	99.8	90 - 110
Matrix Spike						Lab ID = 807605-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.90	5.00(5.00)	98.1	90 - 110
Matrix Spike						Lab ID = 807605-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.906	1.00(1.00)	90.6	90 - 110

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

Metals by EPA 6020A, Dissolved		Batch 042513A				
Parameter	Unit	Analyzed	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	04/25/2013 10:44	2.00	0.184	1.0	15.9
807604-006 Chromium	ug/L	04/25/2013 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	04/25/2013 11:03	2.00	0.184	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 807604-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	15.0	15.5	2.91	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.222	0.200	111	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	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/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	64.1	65.5(50.0)	97.3	75 - 125

Matrix Spike Duplicate

Lab ID = 807604-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	63.4	65.5(50.0)	95.7	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.0	20.0	99.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.6	20.0	92.9	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 7 of 7

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 Standard 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.

for 

Mona Nassimi

Manager, Analytical Services

For Sample Conditions Form Attached

CHAIN OF CUSTODY RECORD

807604

4/23/2013 2:01:55 PM

Page 1 OF 3

Project Name PG&E Topock				Container:	250 ml Poly	2x250 ml Poly	500 ml Poly	2x500 ml Poly	Number of Containers	COMMENTS
Location Topock				Preservatives:	(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C		
Project Manager Jay Piper				Filtered:	Field	Field	Field	Field		
Sample Manager Shawn Duffy				Holding Time:	28	28	180	180		
Project Number 423575.MP.07.TS					Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Metals (6020A) Field Filtered Chromium	Metals (6020A-R) Field Filtered Chromium		
Task Order										
Project 2013-GMP-192-Q2										
Turnaround Time 10 Days										
Shipping Date: 4/23/2013										
COC Number: 4										
DATE	TIME	Matrix								
MW-124-192	4/16/2013	6:50	Water	X		X			2	pk=2
MW-202-192	4/16/2013	15:50	Water	X					1	
MW-203-192	4/16/2013	16:00	Water	X					1	
MW-34-080-192	4/16/2013	10:06	Water		X		X		4	pk=2
MW-34-080-192-EB	4/16/2013	8:30	Water	X		X			2	
MW-34-100-192	4/16/2013	13:27	Water	X		X			2	} pk=2
MW-42-055-192	4/16/2013	15:28	Water		X		X		4	
MW-42-055-192-EB	4/16/2013	14:40	Water	X		X			2	
MW-42-065-192-EB	4/16/2013	14:45	Water	X		X			2	
MW-123-192	4/17/2013	6:25	Water	X		X			2	4 pk=2
MW-204-192	4/17/2013	15:05	Water	X					1	pk
MW-205-192	4/17/2013	15:10	Water	X					1	
MW-32-035-192	4/17/2013	11:05	Water	X		X			2	4 pk=2
MW-32-035-192-EB	4/17/2013	9:45	Water	X		X			2	

ALERT !!
Level III QC

Signatures		Date/Time	Shipping Details		ATTN:	Special Instructions:
Approved by	<i>[Signature]</i>	4-23-13	Method of Shipment:	courier		April 15 to May 9, 2013
Sampled by	<i>[Signature]</i>	15:20	On Ice: yes / no			
Relinquished by	<i>[Signature]</i>		Airbill No:		Sample Custody	
Received by	<i>Rafael Davila</i>	4-23-13 15:20	Lab Name:	Truesdail Laboratories, Inc.		Report Copy to
Relinquished by	<i>Rafael Davila</i>	4-23-13 21:30	Lab Phone:	(714) 730-6239		Shawn Duffy
Received by	<i>Ludg, rc2</i>	4/23/13 21:30				(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	807547	9.5	N/A	N/A	N/A	TM
4/19/13	807561-1	9.5	N/A	N/A	N/A	TM
	-2					
	-2					
	-4					
04/24/13	807603	7.0	2 mL	9.5	13:15	NE
04/24/13	807604-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9		✓	✓	✓	✓
✓	-10	✓	✓	✓	✓	✓
04/24/13	807605-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
✓	-9	✓	✓	✓	✓	✓
04/24/13	807606-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
✓	-6	✓	✓	✓	✓	✓

NE 5/01/13
05/01/13

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
807561(1-34)	<1	<2	4-23-12	BE	yes			
807585(1-5)	↓	↓	4-24-13	↓	↓			
807603	↓	↓	↓	↓	↓	BE		
807604(1-10)	↓	<2	↓	↓	↓			
807605(1-2)	↓	↓	↓	↓	↓			
807606(1-5)	↓	↓	↓	↓	↓			
807572(1-2)	↓	5.2	4/24/13	ES	yes			
807570	<1	<2	↓	↓	↓			
807571	↓	↓	↓	↓	↓			
807582	↓	↓	↓	↓	↓			
807587	↓	↓	↓	↓	↓			
807592(1-2)	<1	7.2	↓	↓	No	9:00		
807596(1-3)	↓	↓	↓	↓	↓	↓		
807603	<1	>2	4/24/13	ES	yes	11:00		
807604(1-10)	↓	<2	↓	↓	↓			
807605(1-4,7,9)	↓	↓	↓	↓	↓			
807606(1-5)	↓	↓	↓	↓	↓			
805585(1-5)	↓	↓	↓	↓	↓			
807612	>1	>2	4/24/13	MC	yes	16:20		
807613-2	>1	<2	4/25/13	MC	yes			
807614-10-712	<1	7.2	↓	↓	NO	11:30		
807630	↓	<2	↓	MC	yes			
807631	↓	↓	↓	↓	↓			
807626(1-6)	<1	<2	4-26-13	BE	yes			
807640(1-6)	↓	↓	↓	↓	↓			
807666	<1	7.2	4-30-13	BE	NO	10:30		
807683(1-3)	<1	7.2	5/1/13	MC	NO	14:30		
807692(1,2)	↓	↓	↓	↓	↓	↓		
807696(1-3)	↓	↓	↓	↓	↓	↓		
807704(10-12)	<1	7.2	5-2-13	BE	NO	7:00		
807662	<1	<2	5/2/13	MC	yes			
807663	↓	↓	↓	↓	↓			
807699	↓	↓	↓	↓	↓			
807705	>1	↓	↓	↓	↓			
807716(305-15) (17-23)	<1	<2	5-2-13	BE	yes			
807716(26-30) (35-37)	↓	↓	↓	↓	↓			
807717(1-2)	↓	7.2	↓	↓	↓	11:30	After Filter	
807718	↓	<2	↓	↓	↓			
807719(1-2)	↓	>2	↓	↓	↓	11:30		
807719-2	↓	>2	↓	↓	↓	11:30	After Filter	
807720(1-4)	↓	<2	↓	↓	↓			

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: E 2

Lab # 807604

Date Delivered: 04/23/13 Time: 2:30 By: ☐ Mail ☒ 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? ☐ Yes ☐ No ☒ 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? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 3.8 °C ☒ Yes ☐ 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 ☒ N/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 ☐ No ☐ N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: ☒ Truesdail ☐ Client ☒ Yes ☐ No ☐ N/A
12. Were samples pH checked? pH = See C.O.C. ☒ Yes ☐ 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 ☒ Std ☒ Yes ☐ No ☐ N/A
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water
☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: [Signature]

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

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.


for Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer



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

Attention: Shawn Duffy

Laboratory No.: 807605
Date Received: April 23, 2013

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.

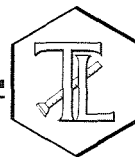
Result above or equal to 0.01ppm will have three (3) significant figures.

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

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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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:

Laboratory No. 807605

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Printed 5/7/2013

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

Field ID	Lab ID	Collected	Matrix
MW-42-065-192	807605-001	04/17/2013 09:04	Water
MW-43-025-192	807605-002	04/17/2013 12:59	Water
MW-43-090-192	807605-003	04/17/2013 13:47	Water
MW-125-192	807605-004	04/18/2013 06:25	Water
MW-206-192	807605-005	04/18/2013 11:20	Water
MW-207-192	807605-006	04/18/2013 16:50	Water
MW-28-025-192	807605-007	04/18/2013 08:24	Water
MW-28-090-192	807605-008	04/18/2013 09:15	Water
MW-29-192	807605-009	04/18/2013 10:39	Water

Chrome VI by EPA 218.6

Batch 04CrH13Y

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807605-001 Chromium, Hexavalent	ug/L	04/26/2013 05:22	1.00	0.00920	0.20	ND
807605-002 Chromium, Hexavalent	ug/L	04/26/2013 05:32	1.00	0.00920	0.20	ND
807605-003 Chromium, Hexavalent	ug/L	04/26/2013 14:40	5.00	0.0460	1.0	ND
807605-004 Chromium, Hexavalent	ug/L	04/26/2013 14:50	5.00	0.0460	1.0	ND
807605-005 Chromium, Hexavalent	ug/L	04/26/2013 06:03	1.00	0.00920	0.20	ND
807605-006 Chromium, Hexavalent	ug/L	04/26/2013 06:14	1.00	0.00920	0.20	ND
807605-007 Chromium, Hexavalent	ug/L	04/26/2013 06:24	1.00	0.00920	0.20	ND
807605-008 Chromium, Hexavalent	ug/L	04/26/2013 06:34	1.00	0.00920	0.20	ND
807605-009 Chromium, Hexavalent	ug/L	04/26/2013 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 = 807605-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	ND	0	0	0 - 20

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.

008



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.07.TS

Printed 5/7/2013

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.206	0.200	103	70 - 130

Lab Control Sample

Parameter	Unit	DF	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

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	40.5	40.0(25.0)	102	90 - 110

Matrix Spike

Lab ID = 807604-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.00(1.00)	104	90 - 110

Matrix Spike

Lab ID = 807604-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.00(1.00)	103	90 - 110

Matrix Spike

Lab ID = 807604-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.00(1.00)	103	90 - 110

Matrix Spike

Lab ID = 807604-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.96	5.00(5.00)	99.2	90 - 110

Matrix Spike

Lab ID = 807604-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	40.0	40.0(25.0)	99.8	90 - 110

Matrix Spike

Lab ID = 807604-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.11	1.06(1.00)	104	90 - 110

Matrix Spike

Lab ID = 807604-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.00(1.00)	101	90 - 110

Matrix Spike

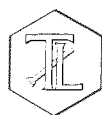
Lab ID = 807604-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.95	5.00(5.00)	99.0	90 - 110

Matrix Spike

Lab ID = 807604-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.00(1.00)	102	90 - 110



Client: E2 Consulting Engineers, Inc.

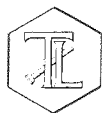
Project Name: PG&E Topock Project

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Project Number: 423575.MP.07.TS

Printed 5/7/2013

Matrix Spike						Lab ID = 807604-009
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.00(1.00)	101	90 - 110
Matrix Spike						Lab ID = 807604-010
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.93	5.00(5.00)	98.6	90 - 110
Matrix Spike						Lab ID = 807604-010
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.00(1.00)	102	90 - 110
Matrix Spike						Lab ID = 807605-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.994	1.00(1.00)	99.4	90 - 110
Matrix Spike						Lab ID = 807605-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.93	5.00(5.00)	98.6	90 - 110
Matrix Spike						Lab ID = 807605-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.00(1.00)	100	90 - 110
Matrix Spike						Lab ID = 807605-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.92	5.00(5.00)	98.5	90 - 110
Matrix Spike						Lab ID = 807605-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.986	1.00(1.00)	98.6	90 - 110
Matrix Spike						Lab ID = 807605-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.998	1.00(1.00)	99.8	90 - 110
Matrix Spike						Lab ID = 807605-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.90	5.00(5.00)	98.1	90 - 110
Matrix Spike						Lab ID = 807605-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.906	1.00(1.00)	90.6	90 - 110
Matrix Spike						Lab ID = 807605-006
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.00(1.00)	100.	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 4 of 6****Project Number: 423575.MP.07.TS****Printed 5/7/2013****Matrix Spike****Lab ID = 807605-007**

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.00(1.00)	104	90 - 110

Matrix Spike**Lab ID = 807605-008**

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.78	5.00(5.00)	95.6	90 - 110

Matrix Spike**Lab ID = 807605-008**

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.989	1.00(1.00)	98.9	90 - 110

Matrix Spike**Lab ID = 807605-009**

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.00(1.00)	101	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.94	5.00	98.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.78	10.0	97.8	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.64	10.0	96.4	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.92	10.0	99.2	95 - 105

MRCVS - Primary

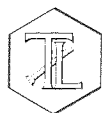
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.2	10.0	102	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.0	10.0	100	95 - 105


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	Analyzed	DF	MDL	RL	Result
807605-001 Chromium	ug/L	04/25/2013 11:09	2.00	0.184	1.0	ND
807605-002 Chromium	ug/L	04/25/2013 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	04/25/2013 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	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	15.0	15.5	2.91	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.222	0.200	111	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	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/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	64.1	65.5(50.0)	97.3	75 - 125

Matrix Spike Duplicate
Lab ID = 807604-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	63.4	65.5(50.0)	95.7	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.0	20.0	99.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.5	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

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	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 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 Standard 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

For Sample Conditions See Form Attached

CH2MHILL

CHAIN OF CUSTODY RECORD

807605

4/23/2013 2:01:56 PM

Page 2 OF 3

Project Name PG&E Topock		Container:	250 ml Poly	2x250 ml Poly	500 ml Poly	2x500 ml Poly	Number of Containers	COMMENTS
Location Topock		Preservatives:	(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C		
Project Manager Jay Piper		Filtered:	Field	Field	Field	Field		
Sample Manager Shawn Duffy		Holding Time:	28	28	180	180		
Project Number 423575.MP.07.TS			Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Metals (6020A) Field Filtered Chromium	Metals (6020A-R) Field Filtered Chromium		
Task Order								
Project 2013-GMP-192-Q2								
Turnaround Time 10 Days								
Shipping Date: 4/23/2013								
COC Number: 4								
DATE	TIME	Matrix						
MW-42-065-192	4/17/2013 9:04	Water		X		X	4	1
MW-43-025-192	4/17/2013 12:59	Water		X		X	4	1
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	1
MW-43-090-192-EB	4/17/2013 12:20	Water	X		X		2	
MW-125-192	4/18/2013 6:25	Water	X		X		4	4
MW-206-192	4/18/2013 11:20	Water	X				1	
MW-207-192	4/18/2013 16:50	Water	X				1	
MW-28-025-192	4/18/2013 8:24	Water		X		X	4	1
MW-28-025-192-EB	4/18/2013 7:25	Water	X		X		2	
MW-28-090-192	4/18/2013 9:15	Water		X		X	4	1
MW-28-090-192-EB	4/18/2013 8:35	Water	X		X		2	
MW-29-192	4/18/2013 10:39	Water		X		X	4	1
MW-29-192-EB	4/18/2013 10:00	Water	X		X		2	

ALERT !!
Level III QC

Signatures	Date/Time	Shipping Details
Approved by	4-23-13 1520	Method of Shipment: courier
Sampled by		On Ice: yes / no
Relinquished by		Airbill No:
Received by	4-23-13 15:20	Lab Name: Truesdail Laboratories, Inc.
Relinquished by	4-23-13 21:30	Lab Phone: (714) 730-6239
Received by	4/23/13 21:30	

ATTN:	Special Instructions:
Sample Custody	April 15 to May 9, 2013
	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	807547	9.5	N/A	N/A	N/A	TM
4/19/13	807561-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
04/24/13	807603	7.0	2 mL	9.5	13:15	NE
04/24/13	807604-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9		✓	✓	✓	✓
✓	-10	✓	✓	✓	✓	✓
04/24/13	807605-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
✓	-9	✓	✓	✓	✓	✓
04/24/13	807606-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
✓	-6	✓	✓	✓	✓	✓

NE 5/01/13
05/01/13



Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
807561(1-34)	<1	<2	4-23-12	BE	yes			
807585(1-5)	↓	↓	4-24-13	↓	↓			
807603	↓	↓	↓	↓	↓	BE		
807604(1-10)	↓	<2	↓	↓	↓			
807605(1-7)	↓	↓	↓	↓	↓			
807606(1-5)	↓	↓	↓	↓	↓			
807572(1-2)	↓	5.72	4/24/13	ES	yes			
807570	<1	<2	↓	↓	↓			
807571	↓	↓	↓	↓	↓			
807582	↓	↓	↓	↓	↓			
807587	↓	↓	↓	↓	↓			
807592(1-2)	<1	72	↓	↓	No	9:00		
807596(1-3)	↓	↓	↓	↓	↓	↓		
807603	<1	>2	4/24/13	ES	yes	11:00		
807604(1-4,7,10)	<1	<2	↓	↓	↓			
807605(1-4,7,9)	↓	↓	↓	↓	↓			
807606(1-5)	↓	↓	↓	↓	↓			
805585(1-5)	↓	↓	↓	↓	↓			
807612	>1	>2	4/24/13	MC	yes	16:20		
807613-2	>1	<2	4/25/13	MC	yes			
807614-10-712	<1	72	↓	↓	No	11:30		
807630	↓	<2	↓	MC	yes			
807631	↓	↓	↓	↓	↓			
807626(1-6)	<1	<2	4-26-13	BZ	yes			
807640(1-6)	↓	↓	↓	↓	↓			
807666	<1	>2	4-30-13	BE	No	10:30		
807683(1-3)	<1	>2	5/1/13	MC	No	14:30		
807692(1-2)	↓	↓	↓	↓	↓	↓		
807696(1-3)	↓	↓	↓	↓	↓	↓		
807704(10-12)	<1	>2	5-2-13	BE	No	7:00		
807602	<1	<2	5/2/13	MC	yes			
807603	↓	↓	↓	↓	↓			
807699	↓	↓	↓	↓	↓			
807705	>1	↓	↓	↓	↓			
807716(3-5-15)	<1	<2	5-2-13	BE	yes			
807716(26-30,32)	↓	↓	↓	↓	↓			
807717(1-2)	↓	>2	↓	↓	↓	11:30	After Filter	
807718	↓	<2	↓	↓	↓			
807719(1-2)	↓	>2	↓	↓	↓	11:30		
807719-2	↓	>2	↓	↓	↓	11:30	After Filter	
807720(1-4)	↓	<2	↓	↓	↓			

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.



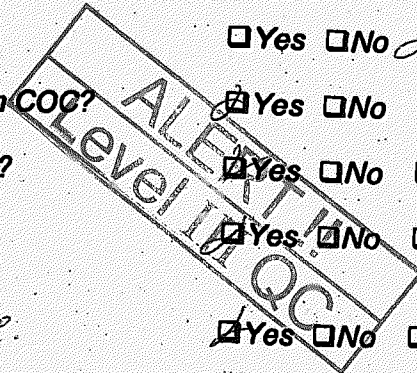
Sample Integrity & Analysis Discrepancy Form

Client: E2

Lab # 807605

Date Delivered: 04/23/13 Time: 11:30 By: ☐ Mail ☒ 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? ☐ Yes ☐ No ☒ 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? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 3.8 °C ☒ Yes ☐ 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 ☒ N/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 ☐ No ☐ N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: ☒ Truesdail ☐ Client ☒ Yes ☐ No ☐ N/A
12. Were samples pH checked? pH = see c.o.c. ☒ Yes ☐ 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 ☒ Std ☒ Yes ☐ No ☐ N/A
15. Sample Matrix: ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water
☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Leidor



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

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.


for Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer



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

Attention: Shawn Duffy

Laboratory No.: 807606
Date Received: April 23, 2013

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:

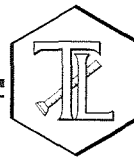
Results below 0.01ppm will have two (2) significant figures.

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

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

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:

Laboratory No. 807606

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Printed 5/7/2013

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

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

Duplicate

Lab ID = 807520-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	2.29	2.35	2.67	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.194	0.200	96.8	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 prior written authorization from Truesdail Laboratories.

008

**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	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.95	5.00	99.0	90 - 110

Matrix Spike

Lab ID = 807520-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.21	7.35(5.00)	97.2	90 - 110

Matrix Spike

Lab ID = 807520-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.33	1.33(1.00)	99.7	90 - 110

Matrix Spike

Lab ID = 807520-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.06(1.00)	98.8	90 - 110

Matrix Spike

Lab ID = 807520-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.46	1.50(1.00)	96.0	90 - 110

Matrix Spike

Lab ID = 807520-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.19	6.40(5.00)	95.8	90 - 110

Matrix Spike

Lab ID = 807520-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.88	7.11(5.00)	95.4	90 - 110

Matrix Spike

Lab ID = 807520-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.87	7.12(5.00)	95.0	90 - 110

Matrix Spike

Lab ID = 807520-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.74	8.08(5.00)	93.2	90 - 110

Matrix Spike

Lab ID = 807520-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.73	8.04(5.00)	93.8	90 - 110

Matrix Spike

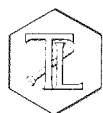
Lab ID = 807520-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.985	1.00(1.00)	98.5	90 - 110

Matrix Spike

Lab ID = 807520-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.973	1.00(1.00)	97.3	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 3 of 6****Project Number: 423575.MP.07.TS****Printed 5/7/2013**

Matrix Spike						Lab ID = 807520-012
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.993	1.00(1.00)	99.3	90 - 110
Matrix Spike						Lab ID = 807603-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.11	1.13(1.00)	98.2	90 - 110
Matrix Spike						Lab ID = 807603-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.91	5.17(5.00)	94.9	90 - 110
Matrix Spike						Lab ID = 807606-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.937	1.00(1.00)	93.7	90 - 110
Matrix Spike						Lab ID = 807606-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.79	5.00(5.00)	95.8	90 - 110
Matrix Spike						Lab ID = 807606-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.03(1.00)	98.3	90 - 110
Matrix Spike						Lab ID = 807606-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	37.9	40.4(25.0)	90.2	90 - 110
Matrix Spike						Lab ID = 807606-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	34.4	36.2(25.0)	92.8	90 - 110
Matrix Spike						Lab ID = 807606-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.943	1.00(1.00)	94.3	90 - 110
Matrix Spike						Lab ID = 807606-006
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.01(1.00)	98.9	90 - 110
Matrix Spike						Lab ID = 807606-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.958	1.01(1.00)	94.7	90 - 110
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.95	5.00	99.0	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.07.TS

Printed 5/7/2013

Metals by EPA 6020A, Dissolved		Batch 042513A				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
807606-001 Chromium	ug/L	04/25/2013 12:03	2.00	0.184	1.0	5.3
807606-002 Chromium	ug/L	04/25/2013 12:09	2.00	0.184	1.0	ND
807606-003 Chromium	ug/L	04/25/2013 12:15	2.00	0.184	1.0	15.7
807606-004 Chromium	ug/L	04/25/2013 12:21	2.00	0.184	1.0	11.8
807606-005 Chromium	ug/L	04/25/2013 12:27	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	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	15.0	15.5	2.91	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.222	0.200	111	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	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/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	64.1	65.5(50.0)	97.3	75 - 125

Matrix Spike Duplicate

Lab ID = 807604-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	63.4	65.5(50.0)	95.7	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.0	20.0	99.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.6	20.0	92.9	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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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 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 Standard 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.

for 

Mona Nassimi

Manager, Analytical Services

For Sample Conditions
See Form Attached

807 606

CH2MHILL

CHAIN OF CUSTODY RECORD

4/23/2013 2:01:56 PM

Page 3 OF 3

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.07.TS Task Order Project 2013-GMP-192-Q2 Turnaround Time 10 Days Shipping Date: 4/23/2013 COC Number: 4				Container: 250 ml Poly Preservatives: (NH4)2S O4/NH4O H, 4°C Filtered: Field Holding Time: 28	2x250 ml Poly Preservatives: (NH4)2S O4/NH4O H, 4°C Filtered: Field Holding Time: 28	500 ml Poly Preservatives: HNO3, 4°C Filtered: Field Holding Time: 180	2x500 ml Poly Preservatives: HNO3, 4°C Filtered: Field Holding Time: 180	<div style="border: 2px solid black; padding: 10px; text-align: center;"> ALERT !! Level III QC </div>	Number of Containers	COMMENTS
C/G (E218.6) Field Filtered	C/G (E218.6R) Field Filtered	Metals (6020A) Field Filtered Chromium	Metals (6020A-R) Field Filtered Chromium							
1 MW-44-125-192	4/18/2013	16:10	Water	X		X			2	4 sec
2 MW-33-040-192	4/22/2013	11:07	Water		X		X		4	
3 MW-33-040-192-EB	4/22/2013	10:18	Water	X		X			2	6020A
4 MW-33-090-192	4/22/2013	13:37	Water	X		X			2	
5 MW-33-150-192	4/22/2013	15:03	Water	X		X			2	mu=2 6020A
6 MW-44-070-192	4/22/2013	9:33	Water		X		X		4	
7 MW-44-070-192-EB	4/22/2013	8:55	Water	X		X			2	
8 MW-208-192	4/23/2013	7:55	Water	X					1	
9 MW-209-192	4/23/2013	8:00	Water	X					1	
10 MW-44-125-192-EB	4-23-13	11:40	Water	X			X		2	
TOTAL NUMBER OF CONTAINERS								86	2	96 REC

Approved by Sampled by Relinquished by Received by Relinquished by Received by	Signatures 	Date/Time 4-23-13 15:20 4-23-13 15:20 4-23-13 21:30 4/23/13 21:30	Shipping Details Method of Shipment: courier On Ice: yes / no Airbill No: Lab Name: Truesdail Laboratories, Inc. Lab Phone: (714) 730-6239
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ATTN: Sample Custody	Special Instructions: April 15 to May 9, 2013 Report Copy to Shawn Duffy (530) 229-3303
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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	807547	9.5	N/A	N/A	N/A	TM
4/19/13	807561-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
04/24/13	807603	7.0	2 mL	9.5	13:15	NE
04/24/13	807604-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9		✓	✓	✓	✓
✓	-10	✓	✓	✓	✓	✓
04/24/13	807605-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
✓	-9	✓	✓	✓	✓	✓
04/24/13	807606-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
✓	-6	✓	✓	✓	✓	✓

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

[illegible]

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
807561(1-34)	<1	<2	4-23-12	BE	yes			
807585(1-5)	↓	↓	4-24-13	↓	↓			
807603	↓	↓	↓	↓	↓	BE		
807604(1-10)	↓	<2	↓	↓	↓			
807605(1-7)	↓	↓	↓	↓	↓			
807606(1-5)	↓	↓	↓	↓	↓			
807572(1-2)	↓	STLC	4/24/13	ES	yes			
807570	<1	<2	↓	↓	↓			
807571	↓	↓	↓	↓	↓			
807582	↓	↓	↓	↓	↓			
807587	↓	↓	↓	↓	↓			
807592(1-2)	<1	72	↓	↓	No	9:00		
807596(1-3)	↓	↓	↓	↓	↓	↓		
807603	<1	72	4/24/13	ES	yes	11:00		
807604(1-4,7,10)	<1	<2	↓	↓	↓			
807605(1-4,7,9)	↓	↓	↓	↓	↓			
807606(1-5)	↓	↓	↓	↓	↓			
805585(1-5)	↓	↓	↓	↓	↓			
807612	>1	>2	4/24/13	ML	yes	16:20		
807613-2	>1	<2	4/25/13	ML	yes			
807614-10-712	<1	72	↓	↓	NO	11:30		
807630	↓	<2	↓	ML	yes			
807631	↓	↓	↓	↓	↓			
807626(1-6)	<1	<2	4-26-13	BE	yes			
807640(1-6)	↓	↓	↓	↓	↓			
807666	<1	72	4-30-13	BE	NO	10:30		
807683(1-3)	<1	72	5/1/13	ML	NO	14:30		
807692(1,2)	↓	↓	↓	↓	↓	↓		
807696(1-3)	↓	↓	↓	↓	↓	↓		
807704(10-12)	<1	72	5-2-13	BE	NO	7:00		
807662	<1	<2	5/2/13	ML	yes			
807663	↓	↓	↓	↓	↓			
807699	↓	↓	↓	↓	↓			
807705	>1	↓	↓	↓	↓			
807716(305-15, 17-23)	<1	<2	5-2-13	BE	yes			
807716(26-30, 32)	↓	↓	↓	↓	↓			
807717(1-2)	↓	72	↓	↓	↓	11:30	After Filter	
807718	↓	<2	↓	↓	↓			
807719(1-2)	↓	>2	↓	↓	↓	11:30		
807719-2	↓	>2	↓	↓	↓	11:30	After Filter	
807720(1-4)	↓	<2	↓	↓	↓			

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: E2

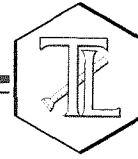
Lab # 807606

Date Delivered: 4/23/13 Time: 2:30 By: ☐ Mail ☒ 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? ☐ Yes ☐ No ☒ 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? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 3.8 °C ☒ Yes ☐ 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 ☒ N/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 ☐ No ☐ N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: ☒ Truesdail ☐ Client ☒ Yes ☐ No ☐ N/A
12. Were samples pH checked? pH = See C.O.C. ☒ Yes ☐ 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 ☒ Std ☒ Yes ☐ No ☐ N/A
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water
☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☐ Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Linda

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

June 3, 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: 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.




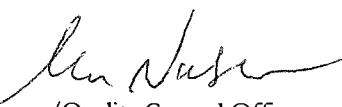
June 3, 2013

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.


for Mona Nassimi
Manager, Analytical Services


for Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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

Attention: Shawn Duffy

Laboratory No.: 807716
Date Received: May 1, 2013

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 Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807716-016	MW-213-192	E218.6	FLDFLT	4/24/2013	16:35	Chromium, Hexavalent	ND	ug/L	0.20
807716-017	MW-36-100-192	E218.6	FLDFLT	4/24/2013	15:20	Chromium, Hexavalent	56.5	ug/L	1.0
807716-017	MW-36-100-192	SW6020	FLDFLT	4/24/2013	15:20	Chromium	52.6	ug/L	1.0
807716-018	MW-44-115-192	E218.6	FLDFLT	4/24/2013	13:50	Chromium, Hexavalent	64.5	ug/L	1.0
807716-018	MW-44-115-192	SW6020	FLDFLT	4/24/2013	13:50	Chromium	65.4	ug/L	1.0
807716-019	MW-46-175-192	E218.6	FLDFLT	4/24/2013	11:08	Chromium, Hexavalent	26.4	ug/L	1.0
807716-019	MW-46-175-192	SW6020	FLDFLT	4/24/2013	11:08	Chromium	26.3	ug/L	1.0
807716-020	MW-46-205-192	E218.6	FLDFLT	4/24/2013	9:08	Chromium, Hexavalent	5.6	ug/L	1.0
807716-020	MW-46-205-192	SW6020	FLDFLT	4/24/2013	9:08	Chromium	5.4	ug/L	1.0
807716-021	MW-47-055-192	E218.6	FLDFLT	4/24/2013	15:13	Chromium, Hexavalent	16.4	ug/L	0.20
807716-021	MW-47-055-192	SW6020	FLDFLT	4/24/2013	15:13	Chromium	14.3	ug/L	1.0
807716-022	MW-47-115-192	E218.6	FLDFLT	4/24/2013	14:37	Chromium, Hexavalent	23.7	ug/L	1.0
807716-022	MW-47-115-192	SW6020	FLDFLT	4/24/2013	14:37	Chromium	21.1	ug/L	1.0
807716-023	MW-50-095-192	E218.6	FLDFLT	4/24/2013	8:55	Chromium, Hexavalent	13.6	ug/L	0.20
807716-023	MW-50-095-192	SW6020	FLDFLT	4/24/2013	8:55	Chromium	12.4	ug/L	1.0
807716-024	MW-214-192	E218.6	FLDFLT	4/25/2013	8:05	Chromium, Hexavalent	ND	ug/L	0.20
807716-025	MW-215-192	E218.6	FLDFLT	4/25/2013	15:25	Chromium, Hexavalent	ND	ug/L	0.20
807716-026	MW-48-192	E218.6	FLDFLT	4/25/2013	8:20	Chromium, Hexavalent	ND	ug/L	1.0
807716-026	MW-48-192	SW6020	FLDFLT	4/25/2013	8:20	Chromium	ND	ug/L	1.0
807716-027	MW-62-065-192	E218.6	FLDFLT	4/25/2013	15:10	Chromium, Hexavalent	589	ug/L	5.0
807716-027	MW-62-065-192	SW6020	FLDFLT	4/25/2013	15:10	Chromium	607	ug/L	2.0
807716-028	MW-63-065-192	E218.6	FLDFLT	4/25/2013	9:40	Chromium, Hexavalent	1.3	ug/L	1.0
807716-028	MW-63-065-192	SW6020	FLDFLT	4/25/2013	9:40	Chromium	1.5	ug/L	1.0
807716-029	MW-70-105-192	E218.6	FLDFLT	4/25/2013	11:45	Chromium, Hexavalent	198	ug/L	2.0
807716-029	MW-70-105-192	SW6020	FLDFLT	4/25/2013	11:45	Chromium	201	ug/L	1.0
807716-030	MW-72-080-192	E218.6	FLDFLT	4/25/2013	13:29	Chromium, Hexavalent	116	ug/L	1.0
807716-030	MW-72-080-192	SW6020	FLDFLT	4/25/2013	13:29	Chromium	124	ug/L	2.0
807716-031	MW-217-192	E218.6	FLDFLT	4/29/2013	15:05	Chromium, Hexavalent	ND	ug/L	0.20
807716-032	MW-72BR-200-192	E218.6	FLDFLT	4/29/2013	14:09	Chromium, Hexavalent	4.9	ug/L	1.0
807716-032	MW-72BR-200-192	SW6020	FLDFLT	4/29/2013	14:09	Chromium	5.7	ug/L	1.0
807716-033	MW-218-192	E218.6	FLDFLT	4/30/2013	15:20	Chromium, Hexavalent	ND	ug/L	0.20
807716-034	MW-219-192	E218.6	FLDFLT	4/30/2013	19:20	Chromium, Hexavalent	ND	ug/L	0.20
807716-035	MW-37D-192	E218.6	FLDFLT	4/30/2013	13:57	Chromium, Hexavalent	108	ug/L	1.0
807716-035	MW-37D-192	SW6020	FLDFLT	4/30/2013	13:57	Chromium	120	ug/L	1.0
807716-036	MW-58BR-192	E218.6	FLDFLT	4/30/2013	11:53	Chromium, Hexavalent	ND	ug/L	1.0
807716-036	MW-58BR-192	SW6020	FLDFLT	4/30/2013	11:53	Chromium	ND	ug/L	1.0

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Lab Sample ID	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.

TRUESDAIL LABORATORIES, INC.

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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:

Laboratory No. 807716

Page 1 of 16

Printed 5/29/2013

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 T	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

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Report Continued

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
Page 2 of 16
Project Number: 423575.MP.07.TS
Printed 5/29/2013
Chrome VI by EPA 218.6

Batch 05CrH13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807716-001 Chromium, Hexavalent	ug/L	05/02/2013 13:40	1.00	0.00920	0.20	ND
807716-002 Chromium, Hexavalent	ug/L	05/02/2013 13:50	1.00	0.00920	0.20	ND
807716-004 Chromium, Hexavalent	ug/L	05/02/2013 14:01	1.00	0.00920	0.20	ND
807716-005 Chromium, Hexavalent	ug/L	05/02/2013 14:21	5.00	0.0460	1.0	34.3
807716-006 Chromium, Hexavalent	ug/L	05/02/2013 15:56	5.00	0.0460	1.0	14.0
807716-007 Chromium, Hexavalent	ug/L	05/02/2013 17:18	5.00	0.0460	1.0	10.2
807716-008 Chromium, Hexavalent	ug/L	05/02/2013 17:29	5.00	0.0460	1.0	25.4
807716-009 Chromium, Hexavalent	ug/L	05/02/2013 17:39	5.00	0.0460	1.0	27.4
807716-010 Chromium, Hexavalent	ug/L	05/02/2013 17:49	5.00	0.0460	1.0	2.9

Method Blank

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

Duplicate

Lab ID = 807716-008

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	25.3	25.4	0.521	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.199	0.200	99.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.88	5.00	97.5	90 - 110

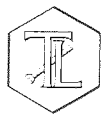
Matrix Spike

Lab ID = 807716-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.957	1.00(1.00)	95.7	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 3 of 16****Project Number: 423575.MP.07.TS****Printed 5/29/2013**

Matrix Spike						Lab ID = 807716-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.943	1.00(1.00)	94.3	90 - 110
Matrix Spike						Lab ID = 807716-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.961	1.00(1.00)	96.1	90 - 110
Matrix Spike						Lab ID = 807716-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	81.6	84.3(50.0)	94.6	90 - 110
Matrix Spike						Lab ID = 807716-006
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	38.1	39.0(25.0)	96.4	90 - 110
Matrix Spike						Lab ID = 807716-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	33.7	35.2(25.0)	94.1	90 - 110
Matrix Spike						Lab ID = 807716-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	74.3	75.4(50.0)	97.8	90 - 110
Matrix Spike						Lab ID = 807716-009
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	76.0	77.4(50.0)	97.3	90 - 110
Matrix Spike						Lab ID = 807716-010
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	7.86	7.90(5.00)	99.2	90 - 110
Matrix Spike						Lab ID = 807717-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	14.4	15.0(10.0)	93.8	90 - 110
Matrix Spike						Lab ID = 807718-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	29.0	31.0(25.0)	92.1	90 - 110
Matrix Spike						Lab ID = 807719-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.09(1.00)	97.0	90 - 110
Matrix Spike						Lab ID = 807719-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.90	5.10(5.00)	95.9	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.07.TS

Printed 5/29/2013

Chrome VI by EPA 218.6		Batch 05CrH13B				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
807716-011 Chromium, Hexavalent	ug/L	05/03/2013 14:21	5.00	0.0460	1.0	10.2
807716-012 Chromium, Hexavalent	ug/L	05/03/2013 11:30	1.00	0.00920	0.20	13.4
807716-013 Chromium, Hexavalent	ug/L	05/03/2013 11:41	1.00	0.00920	0.20	10.6
807716-014 Chromium, Hexavalent	ug/L	05/03/2013 12:58	1.00	0.00920	0.20	12.9
807716-015 Chromium, Hexavalent	ug/L	05/03/2013 14:32	5.00	0.0460	1.0	1.5
807716-016 Chromium, Hexavalent	ug/L	05/03/2013 13:19	1.00	0.00920	0.20	ND
807716-017 Chromium, Hexavalent	ug/L	05/03/2013 13:29	5.00	0.0460	1.0	56.5
807716-018 Chromium, Hexavalent	ug/L	05/03/2013 13:40	5.00	0.0460	1.0	64.5
807716-019 Chromium, Hexavalent	ug/L	05/03/2013 13:50	5.00	0.0460	1.0	26.4
807716-020 Chromium, Hexavalent	ug/L	05/03/2013 15:03	5.00	0.0460	1.0	5.6
807716-021 Chromium, Hexavalent	ug/L	05/03/2013 10:19	1.00	0.00920	0.20	16.4
807716-022 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	1.00	0.00920	0.20	13.6
807716-024 Chromium, Hexavalent	ug/L	05/03/2013 10:59	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
Chromium, Hexavalent	ug/L	1.00	ND

Duplicate

Lab ID = 807716-021

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	16.1	16.4	1.76	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.207	0.200	104	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.13	5.00	103	90 - 110

Matrix Spike

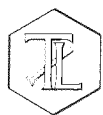
Lab ID = 807716-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	35.1	35.2(25.0)	99.5	90 - 110

Matrix Spike

Lab ID = 807716-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.03	28.7	28.4(15.0)	102	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 6 of 16****Project Number: 423575.MP.07.TS****Printed 5/29/2013**

Matrix Spike						Lab ID = 807716-013
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.03	25.9	25.6(15.0)	102	90 - 110
Matrix Spike						Lab ID = 807716-014
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.03	28.4	27.9(15.0)	103	90 - 110
Matrix Spike						Lab ID = 807716-015
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	6.56	6.48(5.00)	102	90 - 110
Matrix Spike						Lab ID = 807716-016
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.00(1.00)	101	90 - 110
Matrix Spike						Lab ID = 807716-017
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	132	132(75.0)	101	90 - 110
Matrix Spike						Lab ID = 807716-018
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	137	140(75.0)	97.2	90 - 110
Matrix Spike						Lab ID = 807716-019
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	79.3	76.4(50.0)	106	90 - 110
Matrix Spike						Lab ID = 807716-020
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	30.8	30.6(25.0)	101	90 - 110
Matrix Spike						Lab ID = 807716-021
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.02	37.1	36.4(20.0)	104	90 - 110
Matrix Spike						Lab ID = 807716-022
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	49.0	48.7(25.0)	101	90 - 110
Matrix Spike						Lab ID = 807716-023
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.03	29.2	28.6(15.0)	104	90 - 110
Matrix Spike						Lab ID = 807716-024
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.00(1.00)	103	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 7 of 16****Project Number: 423575.MP.07.TS****Printed 5/29/2013****Matrix Spike****Lab ID = 807716-025**

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.00(1.00)	103	90 - 110

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.91	5.00	98.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.73	10.0	97.3	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.69	10.0	96.9	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.5	10.0	105	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.3	10.0	103	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.4	10.0	104	95 - 105



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Project Number: 423575.MP.07.TS

Printed 6/3/2013

Chrome VI by EPA 218.6		Batch 05CrH13C				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
807716-026 Chromium, Hexavalent	ug/L	05/07/2013 09:16	5.00	0.0460	1.0	ND
807716-027 Chromium, Hexavalent	ug/L	05/07/2013 09:27	25.0	0.230	5.0	589
807716-028 Chromium, Hexavalent	ug/L	05/07/2013 11:00	5.00	0.0460	1.0	1.3
807716-029 Chromium, Hexavalent	ug/L	05/07/2013 09:37	10.0	0.0920	2.0	198
807716-030 Chromium, Hexavalent	ug/L	05/07/2013 10:08	5.00	0.0460	1.0	116
807716-031 Chromium, Hexavalent	ug/L	05/07/2013 07:22	1.00	0.00920	0.20	ND
807716-032 Chromium, Hexavalent	ug/L	05/07/2013 10:19	5.00	0.0460	1.0	4.9
807716-033 Chromium, Hexavalent	ug/L	05/07/2013 08:03	1.00	0.00920	0.20	ND
807716-034 Chromium, Hexavalent	ug/L	05/07/2013 08:14	1.00	0.00920	0.20	ND
807716-035 Chromium, Hexavalent	ug/L	05/07/2013 10:29	5.00	0.0460	1.0	108
807716-036 Chromium, Hexavalent	ug/L	05/07/2013 10:39	5.00	0.0460	1.0	ND
807716-037 Chromium, Hexavalent	ug/L	05/07/2013 08:45	1.00	0.00920	0.20	0.44
807716-038 Chromium, Hexavalent	ug/L	05/07/2013 08:55	1.00	0.00920	0.20	ND
807716-039 Chromium, Hexavalent	ug/L	05/07/2013 09:06	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate

Lab ID = 807716-031

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0610	0.0606	0.658	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.199	0.200	99.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.93	5.00	98.6	90 - 110

Matrix Spike

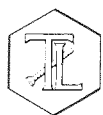
Lab ID = 807716-026

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.01	5.20(5.00)	96.3	90 - 110

Matrix Spike

Lab ID = 807716-027

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	1170	1210(625)	92.7	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 9 of 16****Project Number: 423575.MP.07.TS****Printed 5/29/2013**

Matrix Spike						Lab ID = 807716-028
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	6.06	6.27(5.00)	95.9	90 - 110
Matrix Spike						Lab ID = 807716-028
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.21	6.32(5.00)	97.8	90 - 110
Matrix Spike						Lab ID = 807716-029
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	385	398(200)	93.4	90 - 110
Matrix Spike						Lab ID = 807716-030
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	236	241(125)	95.6	90 - 110
Matrix Spike						Lab ID = 807716-031
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.06(1.00)	94.9	90 - 110
Matrix Spike						Lab ID = 807716-032
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	9.63	9.86(5.00)	95.4	90 - 110
Matrix Spike						Lab ID = 807716-033
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.921	1.00(1.00)	92.1	90 - 110
Matrix Spike						Lab ID = 807716-034
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.950	1.00(1.00)	95.0	90 - 110
Matrix Spike						Lab ID = 807716-035
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	221	233(125)	90.6	90 - 110
Matrix Spike						Lab ID = 807716-036
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.66	5.00(5.00)	93.1	90 - 110
Matrix Spike						Lab ID = 807716-036
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.908	1.00(1.00)	90.8	90 - 110
Matrix Spike						Lab ID = 807716-037
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.29	5.46(5.00)	96.6	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 10 of 16****Project Number: 423575.MP.07.TS****Printed 5/29/2013****Matrix Spike****Lab ID = 807716-038**

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.946	1.00(1.00)	94.6	90 - 110

Matrix Spike**Lab ID = 807716-039**

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.954	1.00(1.00)	95.4	90 - 110

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.94	5.00	98.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.0	10.0	100.	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.95	10.0	99.5	95 - 105

MRCVS - Primary

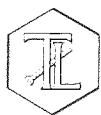
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.2	10.0	102	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.2	10.0	102	95 - 105



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Metals by EPA 6020A, Dissolved		Batch 050313A-ICPMS-1				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
807716-005 Chromium	ug/L	05/03/2013 14:08	2.00	0.184	1.0	38.3
807716-006 Chromium	ug/L	05/03/2013 14:44	2.00	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
807716-009 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
807716-011 Chromium	ug/L	05/03/2013 16:01	2.00	0.184	1.0	9.8
807716-012 Chromium	ug/L	05/03/2013 16:08	2.00	0.184	1.0	12.3
807716-014 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
807716-018 Chromium	ug/L	05/03/2013 17:32	2.00	0.184	1.0	65.4
807716-019 Chromium	ug/L	05/03/2013 17:47	2.00	0.184	1.0	26.3
807716-020 Chromium	ug/L	05/03/2013 17:54	2.00	0.184	1.0	5.4
807716-021 Chromium	ug/L	05/03/2013 18:01	2.00	0.184	1.0	14.3
807716-022 Chromium	ug/L	05/03/2013 18:08	2.00	0.184	1.0	21.1
807716-023 Chromium	ug/L	05/03/2013 18:16	2.00	0.184	1.0	12.4
807716-026 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 = 807716-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.191	0.200	95.4	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	48.3	50.0	96.6	85 - 115

Matrix Spike

Lab ID = 807716-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	51.3	50.0(50.0)	102	75 - 125

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 12 of 16****Project Number: 423575.MP.07.TS****Printed 5/29/2013****Matrix Spike Duplicate**

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

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.7	20.0	98.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.7	20.0	93.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.3	20.0	91.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.2	20.0	95.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	95.2	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 Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	17.9	20.0	89.6	80 - 120

Interference Check 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



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Metals by EPA 6020A, Dissolved		Batch 050613A-ICPMS-1				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
807716-027 Chromium	ug/L	05/06/2013 16:37	10.0	0.920	2.0	607
807716-029 Chromium	ug/L	05/06/2013 16:44	5.00	0.460	1.0	201
807716-030 Chromium	ug/L	05/06/2013 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	05/06/2013 18:32	5.00	0.460	1.0	ND
807716-037 Chromium	ug/L	05/06/2013 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 Range
Chromium	ug/L	2.00	2.97	2.47	18.5	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.218	0.200	109	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	51.8	50.0	104	85 - 115

Matrix Spike

Lab ID = 807716-028

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	56.4	52.5(50.0)	108	75 - 125

MRCCS - Secondary

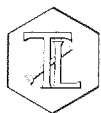
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.7	20.0	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance 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 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 Standard AB

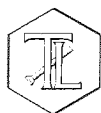
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	98.8	80 - 120

Interference Check 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

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Project Number: 423575.MP.07.TS

Printed 5/29/2013

Metals by EPA 6020A, Dissolved		Batch 052813A-ICPMS-1				
Parameter	Unit	Analyzed	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	RPD	Acceptance Range
Chromium	ug/L	2.00	9.68	10.4	7.15	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.190	0.200	95.2	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	51.1	50.0	102	85 - 115

Matrix Spike

Lab ID = 807716-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	56.3	60.4(50.0)	91.9	75 - 125

Matrix Spike Duplicate

Lab ID = 807716-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	54.6	60.4(50.0)	88.5	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.5	20.0	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.5	20.0	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	99.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.1	20.0	100	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

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 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 Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.1	20.0	105	80 - 120

Interference Check 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.


for Mona Nassimi

Manager, Analytical Services

807716

CH2MHILL

CHAIN OF CUSTODY RECORD

5/1/2013 11:42:21 AM

Page 1 OF 3

Project Name PG&E Topock				Container:	250 ml Poly	2x250 ml Poly	500 ml Poly	2x500 ml Poly	Rec'd 5/1/13 S 807716 <div style="border: 2px solid black; padding: 5px; text-align: center;"> ALERT !! Level III QC </div>	Number of Containers	COMMENTS
Location Topock				Preservatives:	(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	HN03, 4°C	HN03, 4°C			
Project Manager Jay Piper				Filtered:	Field	Field	Field	Field			
Sample Manager Shawn Duffy				Holding Time:	28	28	180	180			
Project Number 423575.MP.07.TS					Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Metals (6020A) Field Filtered Chromium	Metals (6020A-R) Field Filtered Chromium			
Task Order											
Project 2013-GMP-192-Q2											
Turnaround Time 10 Days											
Shipping Date: 4/30/2013											
COC Number: 9											
DATE	TIME	Matrix									
1 MW-210-192	4/23/2013	14:00	Water	X						1	
2 MW-211-192	4/23/2013	15:55	Water	X						1	
3 MW-21-192-EB	4/23/2013	9:33	Water	X		X				2	pH-2 6020A
4 MW-212-192	4/23/2013	15:58	Water	X						1	
5 MW-23-060-192	4/23/2013	11:13	Water	X		X				2	
6 MW-23-080-192	4/23/2013	13:08	Water	X		X				2	
7 MW-33-210-192	4/23/2013	9:24	Water	X		X				2	
8 MW-35-060-192	4/23/2013	14:15	Water	X		X				2	pH-2 6020A
9 MW-35-135-192	4/23/2013	15:24	Water	X		X				2	
10 MW-410-192	4/23/2013	11:52	Water	X		X				2	
11 MW-57-185-192	4/23/2013	15:26	Water	X		X				2	
12 MW-126-192	4/24/2013	8:57	Water	X		X				2	
13 MW-16-192	4/24/2013	11:00	Water	X		X				2	
14 MW-17-192	4/24/2013	12:20	Water	X		X				2	

For Sample Conditions
See Form Attached

Approved by	Signatures	Date/Time	Shipping Details
Sampled by	<i>[Signature]</i>	5-1-13	Method of Shipment: courier
Relinquished by	<i>[Signature]</i>	1530	On Ice: yes / no
Received by	<i>Rafael Davila</i>	5/1/13 15:30	Airbill No:
Relinquished by	<i>Rafael Davila</i>	5-1-13 22:30	Lab Name: Truesdail Laboratories, Inc.
Received by	<i>[Signature]</i>	5-1-13 22:30	Lab Phone: (714) 730-6239

ATTN:

Sample Custody

Special Instructions:
April 15 to May 9, 2013

Report Copy to
Shawn Duffy
(530) 229-3303



807716

CH2MHILL

CHAIN OF CUSTODY RECORD

5/1/2013 11:42:22 AM

Page 2 OF 3

Project Name PG&E Topock				Container:	250 ml Poly	2x250 ml Poly	500 ml Poly	2x500 ml Poly	<div style="border: 2px solid black; padding: 10px; text-align: center;"> ALERT !! Level III QC </div>	Number of Containers	COMMENTS
Location Topock				Preservatives:	(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C			
Project Manager Jay Piper				Filtered:	Field	Field	Field	Field			
Sample Manager Shawn Duffy				Holding Time:	28	28	180	180			
Project Number 423575.MP.07.TS											
Task Order											
Project 2013-GMP-192-Q2											
Turnaround Time 10 Days											
Shipping Date: 4/30/2013											
COC Number: 9											
DATE	TIME	Matrix									
15 MW-21-192	4/24/2013	9:55	Water		X		X			4	H-2
16 MW-213-192	4/24/2013	16:35	Water	X						1	6020A
17 MW-36-100-192	4/24/2013	15:20	Water	X		X				2	
18 MW-44-115-192	4/24/2013	13:50	Water	X		X				2	
19 MW-46-175-192	4/24/2013	11:08	Water	X		X				2	
20 MW-46-205-192	4/24/2013	9:08	Water	X		X				2	H-2
21 MW-47-055-192	4/24/2013	15:13	Water	X		X				2	6020A
22 MW-47-115-192	4/24/2013	14:37	Water	X		X				2	
23 MW-50-095-192	4/24/2013	8:55	Water	X		X				2	
24 MW-214-192	4/25/2013	8:05	Water	X						1	
25 MW-215-192	4/25/2013	15:25	Water	X						1	
26 MW-48-192	4/25/2013	8:20	Water	X		X				2	
27 MW-62-065-192	4/25/2013	15:10	Water	X		X				2	H-2
28 MW-63-065-192	4/25/2013	9:40	Water	X		X				2	6020A

For Sample Conditions
See Form Attached

Approved by
Sampled by
Relinquished by
Received by
Relinquished by
Received by

Signatures

Date/Time

Shipping Details

Method of Shipment: courier

On Ice: yes / no

Airbill No:

Lab Name: Truesdail Laboratories, Inc.

Lab Phone: (714) 730-6239

ATTN:

Sample Custody

Special Instructions:

April 15 to May 9, 2013

Report Copy to

Shawn Duffy
(530) 229-3303

207716

CH2MHILL

CHAIN OF CUSTODY RECORD

5/1/2013 2:51:00 PM

Page 3 OF 3

Project Name PG&E Topock				Container:	250 ml Poly	2x250 ml Poly	500 ml Poly	2x500 ml Poly	<div style="border: 2px solid black; padding: 10px; text-align: center;"> ALERT !! Level III QC </div>	Number of Containers	COMMENTS
Location Topock				Preservatives:	(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	HNO3 4°C	HNO3 4°C			
Project Manager Jay Piper				Filtered:	Field	Field	Field	Field			
Sample Manager Shawn Duffy				Holding Time:	28	28	180	180			
Project Number 423575.MP.07.TS					C/6 (E218.6) Field Filtered	C/6 (E218.6R) Field Filtered	Metals (6020A) Field Filtered Chromium	Metals (6020A-R) Field Filtered Chromium			
Task Order											
Project 2013-GMP-192-Q2											
Turnaround Time 10 Days											
Shipping Date: 4/30/2013											
COC Number: 9											
DATE TIME Matrix											
29	MW-70-105-192	4/25/2013	11:45	Water	X		X			2	pH-2
30	MW-72-080-192	4/25/2013	13:29	Water	X		X			2	6020A
31	MW-217-192	4/29/2013	15:05	Water	X					1	
32	MW-72BR-200-192	4/29/2013	14:09	Water	X		X			2	pH-2
33	MW-218-192	4/30/2013	15:20	Water	X					1	6020A
34	MW-219-192	4/30/2013	19:20	Water	X					1	
35	MW-37D-192	4/30/2013	13:57	Water	X		X			2	
36	MW-58BR-192	4/30/2013	11:53	Water	X		X			2	pH-2
37	MW-71-035-192	4/30/2013	7:32	Water	X		X			2	6020A
38	GMP-AB1-192	4-23-13	1113	water	X					1	
39	GMP-AB2-192	4-23-13	1152	water	X					1	
TOTAL NUMBER OF CONTAINERS										67	1

For Sample Conditions
See Form Attached

Approved by	Signatures	Date/Time	Shipping Details
Sampled by		5-1-13	Method of Shipment: courier
Relinquished by		1530	On Ice: yes / no
Received by		5-1-13 15:30	Airbill No:
Relinquished by		5-1-13 22:30	Lab Name: Truesdail Laboratories, Inc.
Received by		5-1-13 22:30	Lab Phone: (714) 730-6239

ATTN:

Sample Custody

Special Instructions:

April 15 to May 9, 2013

Report Copy to

Shawn Duffy
(530) 229-3303

BSC 1
69

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	N/A	N/A	N/A	NE
4/25/13	807637-1	7.0	50 mL / 250 mL	9.5	17:00	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
✓	✓ -10	✓	✓	✓	✓	✓
5/2/13	807716-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
	-17					
	-18					
	-19					
✓	✓ -20	✓	✓	✓	✓	✓

NE 5/7/13

05/08/13

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
5/21/13	807716-21	9.5	N/A	N/A	N/A	NE
	-22					
	-23					
	-24					
	-25					
	-26					
	-27					
	-28					
	-29					
	-30					
	-31					
	-32					
	-33					
	-34					
	-35					
	-36					
	-37					
	-38					
	-39	✓	✓	✓	✓	✓
	807717-1	7.0	2 ml / 100 ml	9.5	9:30	NE
	↓ -2	↓	↓	↓	↓	↓
	807718	9.5	N/A	N/A	N/A	NE
	807719-1	7.0	2 ml / 100 ml	9.5	9:30	↓
✓	↓ -2		↓	↓	↓	↓
5/6/13	807753	7.0	40 ml / 250 ml	9.5	14:30	TM

NE 5/8/13

05/08/13



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
807561(1-34)	<1	<2	4-23-12	BE	yes			
807585(1-5)	↓	↓	4-24-13	↓	↓			
807603						BE		
807604(1-19)	↓	<2	↓	↓	↓			
807605(1-7)	↓	↓	↓	↓	↓			
807606(1-5)	↓	↓	↓	↓	↓			
807572(1-2)	↓	5.72	4/24/13	ES	yes			
807570	<1	<2	↓	↓	↓			
807571	↓	↓	↓	↓	↓			
807582	↓	↓	↓	↓	↓			
807587	↓	↓	↓	↓	↓			
807592(1-2)	<1	72	↓	↓	No	9:00		
807596(1-3)	↓	↓	↓	↓	↓	↓		
807603	<1	>2	4/24/13	ES	yes	11:00		
807604(1-4,7,10)	<1	<2	↓	↓	↓			
807605(1-4,7,9)	↓	↓	↓	↓	↓			
807606(1-5)	↓	↓	↓	↓	↓			
805585(1-5)	↓	↓	↓	↓	↓			
807612	>1	>2	4/24/13	DL	yes	16:20		
807613-2	>1	<2	4/25/13	DL	yes			
807614-10-712	<1	72	↓	↓	No	11:30		
807630	↓	<2	↓	DL	yes			
807631	↓	↓	↓	↓	↓			
807627(1-6) 807626(1-6)	<1	<2	4-26-13	BE	yes			
807640(1-6)	↓	↓	↓	↓	↓			
807666	<1	72	4-30-13	BE	No	10:30		
807683(1-3)	<1	72	5/1/13	DL	No	14:30		
807692(1,2)	↓	↓	↓	↓	↓	↓		
807696(1-3)	↓	↓	↓	↓	↓	↓		
807704(1-12)	<1	72	5-2-13	BE	No	7:00		
807662	<1	<2	5/2/13	DL	yes			
807663	↓	↓	↓	↓	↓			
807699	↓	↓	↓	↓	↓			
807705	>1	↓	↓	↓	↓			
807716(3-5-13) 807717(2-2)	<1	<2	5-2-13	BE	yes			
807716(26-30, 35-37)	↓	↓	↓	↓	↓			
807717(1-2)	↓	>2	↓	↓	↓	11:30	After Filter	
807718	↓	<2	↓	↓	↓			
807719(1-2)	↓	>2	↓	↓	↓	11:30		
807719-2	↓	>2	↓	↓	↓	11:30	After Filter	
807720(1-4)	↓	<2	↓	↓	↓			
807753	<1	>2	5-7-13	BE	No	11:00	5-8-13	<2
807759-24, 17	↓	↓	↓	↓	↓	↓		
807769-6	↓	↓	↓	↓	↓	↓		

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.



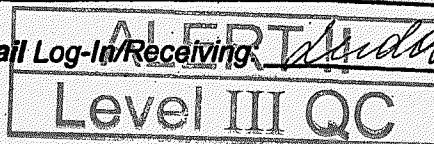
Sample Integrity & Analysis Discrepancy Form

Client: E2

Lab # 807716

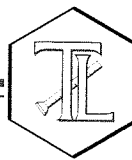
Date Delivered: 05/01/13 Time: 22:30 By: ☐ Mail ☒ Field Service ☐ Client

1. Was a Chain of Custody received and signed? ☒ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☐ No ☒ 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? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 7 °C ☒ Yes ☐ 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 ☒ N/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 ☐ No ☐ N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: ☒ Truesdail ☐ Client ☒ Yes ☐ No ☐ N/A
12. Were samples pH checked? pH = See C.O.C. ☒ Yes ☐ 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 ☒ Std ☒ Yes ☐ No ☐ N/A
15. Sample Matrix: ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water
☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving [Signature]



TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

May 23, 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-265, GROUNDWATER MONITORING PROJECT, TLI NO.: 807717

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-EW-206 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 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.

fw - [Signature]
Mona Nassimi
Manager, Analytical Services

[Signature]
Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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Established 1931

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

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

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	pH	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
EPA 200.8	Metals by ICP/MS	Bitu Emami
EPA 218.6	Hexavalent Chromium	Tom Martinez
SM 3500-CrB	Hexavalent Chromium	Jenny Tankunakorn



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

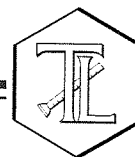
Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807717-001	PE-01-206	E120.1	NONE	5/1/2013	14:07	EC	4540	umhos/cm	2.00
807717-001	PE-01-206	E200.8	LABFLT	5/1/2013	14:07	Chromium	5.8	ug/L	1.0
807717-001	PE-01-206	E218.6	LABFLT	5/1/2013	14:07	Chromium, 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	pH	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	pH	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.

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14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
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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: 456827.01.DM

P.O. Number: 456827.01.DM

Release Number:

Laboratory No. 807717

Page 1 of 8

Printed 5/23/2013

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

Field ID	Lab ID	Collected	Matrix
PE-01-206	807717-001	05/01/2013 14:07	Water
TW-03D-206	807717-002	05/01/2013 13:59	Water

Specific Conductivity - EPA 120.1

Batch 05EC13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807717-001 Specific Conductivity	umhos/cm	05/02/2013	1.00	0.116	2.00	4540
807717-002 Specific Conductivity	umhos/cm	05/02/2013	1.00	0.116	2.00	8040

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 807719-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7330	7330	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	690	706	97.7	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	695	706	98.4	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	696	706	98.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	940	998	94.2	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

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Project Number: 456827.01.DM

Printed 5/23/2013

Chrome VI by EPA 218.6

Batch: 05CrH13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807717-001 Chromium, Hexavalent	ug/L	05/02/2013 16:05	1.00	0.00920	0.20	5.0

Method Blank

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

Duplicate

Lab ID = 807716-008

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	25.3	25.4	0.521	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.199	0.200	99.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.88	5.00	97.5	90 - 110

Matrix Spike

Lab ID = 807716-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.957	1.00(1.00)	95.7	90 - 110

Matrix Spike

Lab ID = 807716-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.943	1.00(1.00)	94.3	90 - 110

Matrix Spike

Lab ID = 807716-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.961	1.00(1.00)	96.1	90 - 110

Matrix Spike

Lab ID = 807716-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	81.6	84.3(50.0)	94.6	90 - 110

Matrix Spike

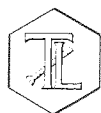
Lab ID = 807716-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	38.1	39.0(25.0)	96.4	90 - 110

Matrix Spike

Lab ID = 807716-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	33.7	35.2(25.0)	94.1	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 5/23/2013

Matrix Spike						Lab ID = 807716-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	74.3	75.4(50.0)	97.8	90 - 110
Matrix Spike						Lab ID = 807716-009
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	76.0	77.4(50.0)	97.3	90 - 110
Matrix Spike						Lab ID = 807716-010
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	7.86	7.90(5.00)	99.2	90 - 110
Matrix Spike						Lab ID = 807717-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	14.4	15.0(10.0)	93.8	90 - 110
Matrix Spike						Lab ID = 807718-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	29.0	31.0(25.0)	92.1	90 - 110
Matrix Spike						Lab ID = 807719-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.09(1.00)	97.0	90 - 110
Matrix Spike						Lab ID = 807719-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.90	5.10(5.00)	95.9	90 - 110
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.91	5.00	98.3	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.2	10.0	102	95 - 105
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.73	10.0	97.3	95 - 105
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.89	10.0	98.9	95 - 105
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.96	10.0	99.6	95 - 105



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Chromium, Hexavalent by SM 3500-Cr B

Batch 05CrH13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807717-002 Chromium, Hexavalent	ug/L	05/02/2013 15:28	25.0	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	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	776	746	3.96	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	95.4	100	95.4	90 - 110

Matrix Spike

Lab ID = 807717-002

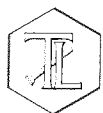
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3280	3250(2500)	101	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	95.4	100	95.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	54.9	60.0	91.5	90 - 110



Client: E2 Consulting Engineers, Inc.

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Project Number: 456827.01.DM

Printed 5/23/2013

pH by SM 4500-H B

Batch 05pH13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
807717-001 pH	pH	05/02/2013 14:45	1.00	0.0784	4.00	7.43	J
807717-002 pH	pH	05/02/2013 14:47	1.00	0.0784	4.00	7.18	J

Duplicate

Lab ID = 807717-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.19	7.18	0.139	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.02	7.00	100	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.03	7.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.04	7.00	100	90 - 110

Total Dissolved Solids by SM 2540 C

Batch 05TDS13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807717-001 Total Dissolved Solids	mg/L	05/02/2013	1.00	1.76	125	2760
807717-002 Total Dissolved Solids	mg/L	05/02/2013	1.00	1.76	250	4990

Method Blank

Parameter	Unit	DF	Result
Total Dissolved Solids	mg/L	1.00	ND

Duplicate

Lab ID = 807719-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4690	4690	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	495	500	99.0	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 5/23/2013

Metals by EPA 200.8, Dissolved

Batch 050313A

Parameter	Unit	Analyzed	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	10.0	0.920	5.0	881

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.523	0.500	105	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	49.1	50.0	98.2	85 - 115

Matrix Spike

Lab ID = 807716-028

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	52.4	52.2(50.0)	100	75 - 125

Matrix Spike Duplicate

Lab ID = 807716-028

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	51.7	52.2(50.0)	98.9	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.2	20.0	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.2	20.0	101	90 - 110

MRCVS - Primary

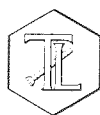
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.5	20.0	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.4	20.0	107	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.0	20.0	100	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

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 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 Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.6	20.0	103	80 - 120

Interference Check Standard 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

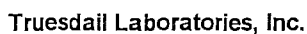
Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 

Mona Nassimi

Manager, Analytical Services



22

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

Calculation as follows:

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)

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					

$$P = \left(\frac{LC}{LT} \right) \times 100$$

P = Percent recovery.

LC= Measured LCS value (ppm).

LT = Theoretical LCS value (ppm).

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

$$\% \text{ Difference} = \frac{|A \text{ or } B - C|}{C} \times 100$$

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

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

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

C = Average weight in (g).

Jenny T.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature _____

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

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

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc 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
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CHAIN OF CUSTODY RECORD

[IM3Plant-EW-206]

TURNAROUND TIME
DATE 5/01/13

10 Days

PAGE 1 OF 1

COMPANY CH2M HILL /E2				<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Dissolved Cr (200.7) Lab filtered</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Cr(VI) (3500-Cr B)</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">pH (150.0) EC (120.1)</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">TDS (160.1)</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Cr(VI) (218.6)</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">NUMBER OF CONTAINERS</div> </div> <div style="text-align: center; margin-top: 20px;"> Rec'd 5/1/13 S 807717 </div>												PROJECT NAME PG&E Topock IM3Plant-EW				COMMENTS			
PHONE 530-229-3303 FAX 530-339-3303																							
ADDRESS 155 Grand Ave Ste 1000 Oakland, CA 94612																							
P.O. NUMBER 456827.01.DM																							
SAMPLERS (SIGNATURE)																							
SAMPLE I.D.	DATE	TIME	DESCRIPTION																				
PE-01-206	5/01/13	14:07	Ground water	X		X	X	X								4	pH=7 (200.7)						
TW-03D-206	5/01/13	1359	Ground water	X	X	X	X									4							
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="font-size: 2em; font-weight: bold;">For Sample Conditions See Form Attached</div> <div style="border: 2px solid black; padding: 10px; text-align: center;"> ALERT!! Level III QC </div> </div>																							
																8	TOTAL NUMBER OF CONTAINERS						

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Printed Name	Company/Agency	Date/Time
	Ryan Phelps	CH2M HILL	5-1-13 16:30
Signature (Received)	Printed Name	Company/Agency	Date/Time
	Rafael	T.C.I.	5-1-13 16:30
Signature (Relinquished)	Printed Name	Company/Agency	Date/Time
	Rafael	T.C.I.	5-1-13 22:30
Signature (Received)	Printed Name	Company/Agency	Date/Time
	Rafael	TLI	5-1-13 22:30
Signature (Relinquished)	Printed Name	Company/Agency	Date/Time
Signature (Received)	Printed Name	Company/Agency	Date/Time

SAMPLE CONDITIONS

RECEIVED COOL ☒ WARM ☐ 4 °C

CUSTODY SEALED YES ☐ NO ☒

SPECIAL REQUIREMENTS:

046

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
5/21/13	807716-21	9.5	N/A	N/A	N/A	NE
	-22					
	-23					
	-24					
	-25					
	-26					
	-27					
	-28					
	-29					
	-30					
	-31					
	-32					
	-33					
	-34					
	-35					
	-36					
	-37					
	-38					
	-39	✓	✓	✓	✓	✓
	807717-1	7.0	2 mL / 100 mL	9.5	9:30	NE
	↓ -2	↓	↓	↓	↓	↓
	807718	9.5	N/A	N/A	N/A	NE
	807719-1	7.0	2 mL / 100 mL	9.5	9:30	↓
✓	↓ -2		↓	↓	↓	↓
5/6/13	807753	7.0	40 mL / 250 mL	9.5	14:30	T24

NE
5/8/13

NE
05/08/13



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
807561(1-34)	<1	<2	4-23-12	BE	yes			
807585(1-5)	↓	↓	4-24-13	↓	↓			
807603	↓	↓	↓	↓	↓	BE		
807604(1-10)	↓	<2	↓	↓	↓			
807605(1-7)	↓	↓	↓	↓	↓			
807606(1-5)	↓	↓	↓	↓	↓			
807572(1-2)	↓	9.2	4/24/13	ES	yes			
807570	<1	<2	↓	↓	↓			
807571	↓	↓	↓	↓	↓			
807582	↓	↓	↓	↓	↓			
807587	↓	↓	↓	↓	↓			
807592(1-2)	<1	72	↓	↓	No	9:00		
807596(1-3)	↓	↓	↓	↓	↓	↓		
807603	<1	>2	4/24/13	ES	yes	11:00		
807604(1-10)	<1	<2	↓	↓	↓			
807605(1-7)	↓	↓	↓	↓	↓			
807606(1-5)	↓	↓	↓	↓	↓			
805585(1-5)	↓	↓	↓	↓	↓			
807612	>1	>2	4/24/13	MC	yes	16:20		
807613-2	>1	<2	4/25/13	MC	yes			
807614-10-712	<1	72	↓	↓	NO	11:30		
807630	↓	<2	↓	MC	yes			
807631	↓	↓	↓	↓	↓			
807627(1-6)	<1	<2	4-26-13	BE	yes			
807640(1-6)	↓	↓	↓	↓	↓			
807666	<1	>2	4-30-13	BE	NO	14:30		
807683(1-3)	<1	72	5/1/13	MC	NO	14:30		
807692(1-2)	↓	↓	↓	↓	↓	↓		
807696(1-3)	↓	↓	↓	↓	↓	↓		
807704(1-12)	<1	72	5-2-13	BE	NO	7:00		
807602	<1	<2	5/2/13	MC	yes			
807663	↓	↓	↓	↓	↓			
807699	↓	↓	↓	↓	↓			
807705	>1	↓	↓	↓	↓			
807716(3-5-13)	<1	<2	5-2-13	BE	yes			
807716(26-30/32)	↓	↓	↓	↓	↓			
807717(1-2)	↓	>2	↓	↓	↓	11:30	After Filter	
807718	↓	<2	↓	↓	↓			
807719(1-2)	↓	>2	↓	↓	↓	11:30		
807719-2	↓	>2	↓	↓	↓	11:30	After Filter	
807720(1-4)	↓	<2	↓	↓	↓			
807753	<1	>2	5-7-13	BE	NO	11:00	5-8-13	<2
807759-24,17	↓	↓	↓	↓	↓	↓		
807769-6	↓	↓	↓	↓	↓	↓		

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.



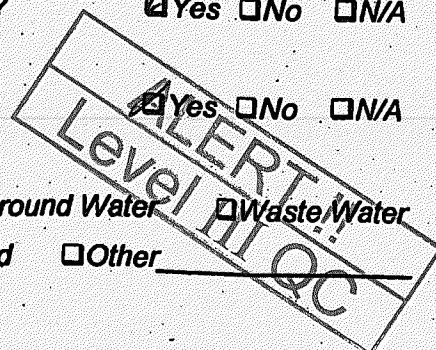
Sample Integrity & Analysis Discrepancy Form

Client: E2

Lab # 807717

Date Delivered: 05/04/13 Time: 22:30 By: ☐ Mail ☒ 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? ☐ Yes ☐ No ☒ 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? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? Y °C ☒ Yes ☐ 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 ☒ N/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 ☐ No ☐ N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: ☐ Truesdail ☐ Client ☐ Yes ☐ No ☒ N/A
12. Were samples pH checked? pH = see C.O.C. ☒ Yes ☐ 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 ☒ Std ☒ Yes ☐ No ☐ N/A
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☒ Ground Water ☐ Waste Water
☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☐ Other _____
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: L. Shabunov



TRUESDAIL LABORATORIES, INC.

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Established 1931

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.

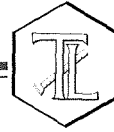
No violations or non-conformance actions occurred for this data package.

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer



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

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

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:

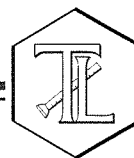
Results below 0.01ppm will have two (2) significant figures.

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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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:

Laboratory No. 807819

Page 1 of 9

Printed 5/23/2013

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
GMP-AB4-192	807819-013	05/02/2013 11:14	Water

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

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**TRUESDAIL LABORATORIES, INC.***Report Continued***Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 2 of 9****Project Number: 423575.MP.07.TS****Printed 5/23/2013**

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

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TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 3 of 9

Project Number: 423575.MP.07.TS

Printed 5/23/2013

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



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 5 of 9

Project Number: 423575.MP.07.TS

Printed 5/23/2013

Metals by EPA 6020A, Dissolved

Batch 051013B-ICMPS-1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807819-001 Chromium	ug/L	05/11/2013 01:03	2.00	0.184	1.0	ND
807819-004 Chromium	ug/L	05/11/2013 01:17	50.0	4.60	10.0	696
807819-005 Chromium	ug/L	05/11/2013 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	05/11/2013 01:39	2.00	0.184	1.0	ND
807819-010 Chromium	ug/L	05/11/2013 01:53	2.00	0.184	1.0	49.7
807819-011 Chromium	ug/L	05/11/2013 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	Acceptance Range
Chromium	ug/L	5.00	137	137	0.0730	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.204	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance 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/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	388	387(250)	100	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	97.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	95.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	97.8	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.07.TS

Printed 5/23/2013

Metals by EPA 6020A, Dissolved

Batch 051313A-ICMPS-1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807819-009 Chromium	ug/L	05/13/2013 14:45	50.0	4.60	10.0	1870

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 807818-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	138	136	1.17	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.198	0.200	98.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	47.0	50.0	94.0	85 - 115

Matrix Spike

Lab ID = 807818-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	387	386(250)	100	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.0	20.0	100	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		

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 8 of 9****Project Number: 423575.MP.07.TS****Printed 5/23/2013****Interference Check Standard AB**

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.4	20.0	102	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.2	20.0	96.2	80 - 120

Serial Dilution

Lab ID = 807818-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	25.0	135	136	0.664	0 - 10

Chromium, Hexavalent by SM 3500-Cr B

Batch 05CrH13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807819-009 Chromium, Hexavalent	ug/L	05/14/2013 16:50	25.0	110	250	1790

Method Blank

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

Duplicate

Lab ID = 807819-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	1700	1790	5.19	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	95.4	100	95.4	90 - 110

Matrix Spike

Lab ID = 807819-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	4500	4290(2500)	108	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	95.4	100	95.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	65.6	60.0	109	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

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

807819

CH2MHILL

CHAIN OF CUSTODY RECORD

5/7/2013 3:03:00 PM

Page 2 OF 2

Project Name PG&E Topock	Container:	250 ml Poly	250 ml Poly	500 ml Poly
Location Topock	Preservatives:	(NH4)2S O4/NH4O H. 4°C	(NH4)2S O4/NH4O H. 4°C	HNO3 4°C
Project Manager Jay Piper	Filtered:	Field	Field	Field
Sample Manager Shawn Duffy	Holding Time:	28	28	180
Project Number 423575.MP.07.TS		Cr6 (E219.6) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020A) Field Filtered Chromium
Task Order				
Project 2013-GMP-192-Q2				
Turnaround Time 10 Days				
Shipping Date: 5/7/2013				
COC Number: 16				
DATE	TIME	Matrix		

ALERT !!
Level III QC

**For Sample Conditions
See Form Attached**

Number of Containers

pH for
6020A

COMMENTS

MW-74-240-192	5/2/2013	8:21	Water	X		X		2	pH=2
MW-226-192	5/6/2013	13:55	Water	X				1	
MW-227-192	5/6/2013	15:25	Water	X				1	
MW-57-070-192	5/6/2013	13:39	Water	X		X		2	
MW-60-125-192	5/6/2013	11:30	Water	X		X		2	pH=2
MW-69-195-192	5/6/2013	14:50	Water	X		X		2	
MW-229-192	5/7/2013	14:35	Water	X				1	
MW-24BR-192	5/7/2013	9:32	Water	X		X		2	
MW-26-192	5/7/2013	10:57	Water		X	X		2	
MW-60BR-245-192	5/7/2013	8:38	Water	X		X		2	pH=2
MW-70BR-225-192	5/7/2013	13:55	Water	X		X		2	
GMP-AB3-142	5-1-13	1522	Water	X				2	
GMP-AB4-142	5-2-13	1114	Water	X				2	
TOTAL NUMBER OF CONTAINERS								42	1

45
BEC

Signatures	Date/Time	Shipping Details
Approved by	5-7-13	Method of Shipment: courier
Sampled by	1510	On Ice: yes / no
Relinquished by		Airbill No:
Received by	5-7-13 15:10	Lab Name: Truesdail Laboratories, Inc.
Relinquished by	5-7-13 21:30	Lab Phone: (714) 730-6239
Received by	5/7/13 21:30	

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

[illegible]



Turbidity/pH Check

	Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
	807748	<1	<2	5/8/13	DL	yes			
	807749	↓	↓	↓	↓	↓			
	807750	↓	↓	↓	↓	↓			
	807755	↓	↓	↓	↓	↓			
	807756	↓	↓	↓	↓	↓			
	807732-4	>1	↓	↓	↓	↓			
	807788-1-4	↓	↓	↓	↓	↓			
	807765-1-2	↓	↓	↓	↓	↓			
	807766	<1	↓	↓	↓	↓			
T D	807817 (1-2)	<1	>2	5-8-13	BE	yes	14:00	<2	
	807817 (2)	↓	↓	↓	↓	↓	14:00	<2	acidified after fil.
	807825 (1-3)	↓	<2	↓	↓	↓			
	807814 (1-5)	↓	↓	↓	↓	↓			
	807815 (1-2)	↓	↓	↓	↓	↓			
	807816 (1-2)	↓	↓	↓	↓	↓			
	807813 (1-10)	↓	↓	↓	↓	↓			
	807812	↓	↓	↓	↓	↓			
	807811	↓	↓	↓	↓	↓			
	807801-1-2	<1	>2	↓	DL	NO	15:30		
	807833-4,5,6	<1	↓	↓	↓	↓	↓		
	807836-11-13	↓	↓	↓	↓	↓	↓		
	807837-1-7	↓	↓	↓	↓	↓	↓		
	807834	>1	↓	↓	↓	yes	↓		
	807846	<1	<2	5-8-13	BE	yes			
	807849 (1-5)	↓	↓	↓	↓	↓			
	807819 (4-6, 8-11)	↓	↓	↓	↓	↓			
	807818 (3-7, 12-14)	↓	↓	↓	↓	↓			
	807828 (1-2)	>1	<2	↓	↓	yes			
	807771	↓	↓	↓	↓	↓			
	807772	↓	↓	↓	↓	↓			
	807773	↓	↓	↓	↓	↓			
	807774	↓	↓	↓	↓	↓			
	807775	↓	↓	↓	↓	↓			
	807778 (1-3)	↓	↓	↓	↓	↓			
	807779	↓	↓	↓	↓	↓			
	807780 (1-4)	↓	↓	↓	↓	↓			
	807782 (1-2)	↓	↓	↓	↓	↓			
	807791	↓	↓	↓	↓	↓			
	807847	↓	↓	↓	↓	↓			
	807895	↓	↓	↓	↓	↓			
	807867 (1-3)	<1	>2	5-10-13	BE	NO	14:00		
	807857	>1	<2	5/12/13	ES	yes			
	807863	↓	↓	↓	↓	↓			
	807872	↓	↓	↓	↓	↓			

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.



TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: EL

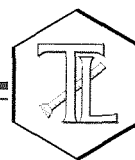
Lab # 807819

Date Delivered: 05/07/13 Time: 21:30 By: ☐ Mail ☒ 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? ☐ Yes ☐ No ☒ 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? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 4.1 °C ☒ Yes ☐ 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 ☒ N/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 ☐ No ☐ N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: ☒ Truesdail ☐ Client ☒ Yes ☐ No ☐ N/A
12. Were samples pH checked? pH = see c.o.p. ☒ Yes ☐ 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 ☒ Std ☒ Yes ☐ No ☐ N/A
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water
☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Luda

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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


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

Laboratory No.: 807949

Date Received: May 14, 2013

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

004

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.



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:

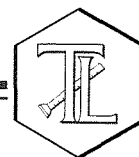
Results below 0.01ppm will have two (2) significant figures.

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

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

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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:

Laboratory No. 807949

Page 1 of 14

Printed 6/4/2013

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

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

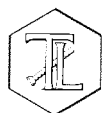
Chrome VI by EPA 218.6

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

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 Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.07.TS

Printed 6/4/2013

807949-004 Chromium, Hexavalent	ug/L	05/22/2013 12:45	5.00	0.0460	1.0	ND
807949-005 Chromium, Hexavalent	ug/L	05/22/2013 13:05	100	0.920	20.0	2050
807949-006 Chromium, Hexavalent	ug/L	05/22/2013 13:47	5.00	0.0460	1.0	ND
807949-008 Chromium, Hexavalent	ug/L	05/22/2013 15:41	100	0.920	20.0	2140
807949-011 Chromium, Hexavalent	ug/L	05/22/2013 16:02	1.00	0.00920	0.20	ND
807949-012 Chromium, Hexavalent	ug/L	05/22/2013 16:54	1.00	0.00920	0.20	ND
807949-013 Chromium, Hexavalent	ug/L	05/22/2013 17:15	250	2.30	50.0	2400
807949-014 Chromium, Hexavalent	ug/L	05/22/2013 17:36	250	2.30	50.0	3140
807949-015 Chromium, Hexavalent	ug/L	05/22/2013 17:57	100	0.920	20.0	2120
807949-016 Chromium, Hexavalent	ug/L	05/22/2013 14:18	1.00	0.00920	0.20	ND
807949-019 Chromium, Hexavalent	ug/L	05/22/2013 15:00	500	4.60	100	6520
807949-023 Chromium, Hexavalent	ug/L	05/22/2013 15:21	1.00	0.00920	0.20	0.64

Method Blank

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

Duplicate

Lab ID = 807949-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0593	0.0582	1.87	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.199	0.200	99.3	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.92	5.00	98.3	90 - 110

Matrix Spike

Lab ID = 807947-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance 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	Acceptance 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	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1480	1480(750)	98.9	90 - 110

Matrix Spike

Lab ID = 807949-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.99	5.00(5.00)	99.7	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 3 of 14****Project Number: 423575.MP.07.TS****Printed 6/4/2013**

Matrix Spike						Lab ID = 807949-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.615	1.00(1.00)	61.5	90 - 110
Matrix Spike						Lab ID = 807949-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4440	4550(2500)	95.6	90 - 110
Matrix Spike						Lab ID = 807949-006
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.08	5.00(5.00)	102	90 - 110
Matrix Spike						Lab ID = 807949-006
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.482	1.00(1.00)	48.2	90 - 110
Matrix Spike						Lab ID = 807949-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4520	4640(2500)	95.2	90 - 110
Matrix Spike						Lab ID = 807949-011
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.02(1.00)	102	90 - 110
Matrix Spike						Lab ID = 807949-012
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.07	1.06(1.00)	101	90 - 110
Matrix Spike						Lab ID = 807949-013
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	4820	4900(2500)	96.8	90 - 110
Matrix Spike						Lab ID = 807949-014
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	6740	6890(3750)	96.1	90 - 110
Matrix Spike						Lab ID = 807949-015
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4520	4620(2500)	96.1	90 - 110
Matrix Spike						Lab ID = 807949-016
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.02(1.00)	102	90 - 110
Matrix Spike						Lab ID = 807949-019
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	500	13800	14000(7500)	97.7	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****Lab ID = 807949-023**

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.64	1.64(1.00)	100	90 - 110

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.93	5.00	98.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.2	10.0	102	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101	95 - 105

MRCVS - Primary

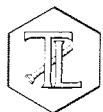
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.0	10.0	100	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101	95 - 105



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.07.TS

Printed 6/4/2013

Chrome VI by EPA 218.6		Batch 05CrH13M				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
807949-018 Chromium, Hexavalent	ug/L	05/23/2013 22:00	250	2.30	50.0	4110
807949-020 Chromium, Hexavalent	ug/L	05/23/2013 22:21	250	2.30	50.0	5010

Method Blank

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

Duplicate

Lab ID = 808086-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0374	0.0362	3.26	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.204	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance 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	Acceptance 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	Acceptance 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	Acceptance 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	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.02(1.00)	102	90 - 110

Matrix Spike

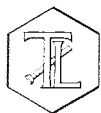
Lab ID = 808086-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance 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	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.04(1.00)	102	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.07.TS

Printed 6/6/2013

Revised

Metals by EPA 6020A, Dissolved		Batch 051613A				
Parameter	Unit	Analyzed	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	25.0	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	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	284	271	4.67	0 - 20

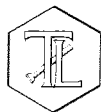
Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.246	0.200	123	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	49.9	50.0	99.9	85 - 115

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****Page 9 of 14****Project Number: 423575.MP.07.TS****Printed 6/4/2013****Matrix Spike**

Lab ID = 807949-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	428	421(150)	104	75 - 125

Matrix Spike Duplicate

Lab ID = 807949-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	439	421(150)	112	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.6	20.0	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.3	20.0	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.1	20.0	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.6	20.0	103	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 Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.3	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	94.8	80 - 120

Serial Dilution

Lab ID = 807949-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	25.0	281	271	3.65	0 - 10


Client: E2 Consulting Engineers, Inc.
Project Name: PG&E Topock Project
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Project Number: 423575.MP.07.TS
Printed 6/4/2013

Metals by EPA 6020A, Dissolved		Batch 060313A				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
807949-018 Chromium	ug/L	06/03/2013 13:11	50.0	4.60	10.0	4150
Method Blank						
Parameter	Unit	DF	Result			
Chromium	ug/L	1.00	ND			
Duplicate					Lab ID = 808086-003	
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Low Level Calibration Verification						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.206	0.200	103	70 - 130
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	48.8	50.0	97.7	85 - 115
Matrix Spike					Lab ID = 808086-003	
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	49.8	50.0(50.0)	99.5	75 - 125
Matrix Spike Duplicate					Lab ID = 808086-003	
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	50.2	50.0(50.0)	100	75 - 125
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	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	20.0	20.0	99.8	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	98.9	90 - 110
Interference Check Standard A						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 12 of 14****Project Number: 423575.MP.07.TS****Printed 6/4/2013****Interference Check Standard A**

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		

Interference Check Standard AB

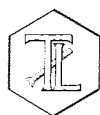
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	99.2	80 - 120

Interference Check Standard 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

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Project Number: 423575.MP.07.TS

Printed 6/4/2013

Chromium, Hexavalent by SM 3500-Cr B		Batch 05CrH13C				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
807949-001 Chromium, Hexavalent	ug/L	05/22/2013 15:53	1.00	4.40	10.0	275
807949-007 Chromium, Hexavalent	ug/L	05/22/2013 15:54	25.0	110	250	2440
807949-009 Chromium, Hexavalent	ug/L	05/22/2013 15:55	25.0	110	250	2800
807949-010 Chromium, Hexavalent	ug/L	05/22/2013 15:56	25.0	110	250	3340
807949-017 Chromium, Hexavalent	ug/L	05/22/2013 15:57	25.0	110	250	4170
807949-021 Chromium, Hexavalent	ug/L	05/22/2013 15:58	1.00	4.40	10.0	267
807949-022 Chromium, Hexavalent	ug/L	05/22/2013 15:59	50.0	220	500	9120
807949-024 Chromium, Hexavalent	ug/L	05/22/2013 16:04	50.0	220	500	7630
807949-025 Chromium, Hexavalent	ug/L	05/22/2013 16:05	25.0	110	250	2830
Method Blank						
Parameter	Unit	DF	Result			
Chromium, Hexavalent	ug/L	1.00	ND			
Duplicate					Lab ID = 807949-022	
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	9410	9120	3.18	0 - 20
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	91.8	100	91.8	90 - 110
Matrix Spike					Lab ID = 807949-022	
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	14200	14100(5000)	101	85 - 115
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	91.8	100	91.8	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	60.8	60.0	101	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	60.8	60.0	101	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project


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Project Number: 423575.MP.07.TS

Printed 6/4/2013

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services

CH2MHILL

CHAIN OF CUSTODY RECORD

807 949

5/14/2013 3:36:25 PM

Page 1 OF 2

Project Name PG&E Topock				Container:	250 ml Poly	250 ml Poly	500 ml Poly	<div style="text-align: center;"> For Sample Conditions See Form Attached </div> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 150px;"> ALERT !! Level III QC </div>	Number of Containers	COMMENTS
Location Topock				Preservatives:	(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	HNO3 4°C			
Project Manager Jay Piper				Filtered:	Field	Field	Field			
Sample Manager Shawn Duffy				Holding Time:	28	28	180			
Project Number 423575.MP.07.TS										
Task Order										
Project 2013-GMP-192-Q2										
Turnaround Time 10 Days										
Shipping Date: 5/14/2013										
COC Number: 21										
DATE	TIME	Matrix								
1 MW-31-060-192	5/7/2013	15:36	Water		X	X		2	pH=2	
2 MW-230-192	5/8/2013	13:45	Water	X				1		
3 MW-62-110-192	5/8/2013	14:39	Water	X		X		2		
4 MW-62-190-192	5/8/2013	14:52	Water	X		X		2		
5 MW-68-240-192	5/8/2013	11:46	Water	X		X		2		
6 MW-68BR-280-192	5/8/2013	10:28	Water	X		X		2		
7 MW-12-192	5/9/2013	11:22	Water		X	X		2	pH=2	
8 MW-128-192	5/9/2013	6:42	Water	X		X		2		
9 MW-20-070-192	5/9/2013	13:08	Water		X	X		2		
10 MW-20-100-192	5/9/2013	14:23	Water		X	X		2		
11 MW-231-192	5/9/2013	14:20	Water	X				1		
12 MW-232-192	5/9/2013	14:45	Water	X				1		
13 MW-67-185-192	5/9/2013	10:08	Water	X		X		2		
14 MW-67-225-192	5/9/2013	9:11	Water	X		X		2		

Signatures	Date/Time	Shipping Details
Approved by	5-14-13 1545	Method of Shipment: courier
Sampled by		On Ice: yes / no
Relinquished by		Airbill No:
Received by	5/14/13 15:45	Lab Name: Truesdail Laboratories, Inc.
Relinquished by	5/14/13 23:00	Lab Phone: (714) 730-6239
Received by	5/14/13 23:00	

ATTN:

Special Instructions:

April 15 to May 9, 2013

Sample Custody

Report Copy to

Shawn Duffy
(530) 229-3303

807949

CH2MHILL

CHAIN OF CUSTODY RECORD

5/14/2013 3:36:25 PM

Page 2 OF 2

Project Name PG&E Topock				Container:	250 ml Poly	250 ml Poly	500 ml Poly	<div style="border: 2px solid black; padding: 10px; text-align: center;"> ALERT !! Level III QC </div>	Number of Containers	COMMENTS
Location Topock				Preservatives:	(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C			
Project Manager Jay Piper				Filtered:	Field	Field	Field			
Sample Manager Shawn Duffy				Holding Time:	28	28	180			
Project Number 423575.MP.07.TS					Cr6 (E218.6) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020A) Field Filtered Chromium			
Task Order										
Project 2013-GMP-192-Q2										
Turnaround Time 10 Days										
Shipping Date: 5/14/2013										
COC Number: 21										
DATE	TIME	Matrix								
MW-67-260-192	5/9/2013	8:23	Water	X		X		2	pu=2	
MW-233-192	5/13/2013	15:25	Water	X				1		
MW-51-192	5/13/2013	15:05	Water		X	X		2		
MW-59-100-192	5/13/2013	12:52	Water	X		X		2		
MW-66-230-192	5/13/2013	9:05	Water	X		X		2		
MW-68-180-192	5/13/2013	10:56	Water	X		X		2	pu=2	
MW-10-192	5/14/2013	11:11	Water		X	X		2		
MW-20-130-192	5/14/2013	8:20	Water		X	X		2		
MW-234-192	5/14/2013	15:25	Water	X				1		
MW-50-200-192	5/14/2013	15:11	Water		X	X		2	pu=2	
TW-01-192	5/14/2013	13:52	Water		X	X		2		
TOTAL NUMBER OF CONTAINERS								45		

Approved by	Signatures	Date/Time	Shipping Details
Sampled by	<i>[Signature]</i>	5-14-13	Method of Shipment: courier
Relinquished by	<i>[Signature]</i>	1545	On Ice: yes / no
Received by	<i>Rafael Davila</i>	5/14/13 15:45	Airbill No:
Relinquished by	<i>Rafael Davila</i>	5/14/13 23:00	Lab Name: Truesdail Laboratories, Inc.
Received by	<i>Linda, TLI</i>	5/14/13 23:00	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
5/8/13	807819-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
✓	✓ -13	✓	✓	✓	✓	✓
5/9/13	807946	9.5	N/A	N/A	N/A	TM
5/15/13	807949-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
✓	✓ -17	✓	✓	✓	✓	✓

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	807949-15	9.5	N/A	N/A	N/A	NE
	-19					
	-20					
	-21					
	-22					
	-23					
	-24					
	-25					
5/15/13	807947	7.0	2mL/100mL	9.5	7:45am	TM
05/15/13	807948-1	8.0	0.3mL/25mL	9.5	7:15am	TM
	-2	9.7	N/A	N/A	N/A	
	-3	8.0	0.5mL/25mL	9.5	7:15am	
	-4	9.5	N/A	N/A	N/A	
	-5	7.0	2mL/100mL	9.5mL	7:20am	
	-6				7:25	
	-7				7:25	
	-8				7:30	
	-9				7:30	
	-10				7:30	
	-11				7:35	
	-12				7:35	
5/22/13	808083	6.0	2mL/100mL	9.5	10:15	TM
5/22/13	808084-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
5/22/13	808085-1	9.5	N/A	N/A	N/A	TM
	-2					



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
807886	<1	<2	5/12/13	ES	yes			
807887	↓	↓	↓	↓	↓			
807889	↓	>2	↓	↓	No	11:00		
807894	↓	<2	↓	BE	yes			
807893	↓	↓	↓	↓	↓			
807871(1-10)	<1	<2	5-14-15	BE	yes			
807897(1-4)	<1	>2	↓	↓	No	11:00		
807901(1-3)	↓	↓	↓	↓	↓	↓		
807911	<1	<2	5/14/13	m	yes			
807912	↓	↓	↓	↓	↓			
807913	↓	↓	↓	↓	↓			
807914	↓	↓	↓	↓	↓			
807915	↓	↓	↓	↓	↓			
807916	↓	↓	↓	↓	↓			
807917	↓	↓	↓	↓	↓			
807918	<1	>2	5-15-13	BE	No	8:00		
807949(12-10-13-15)	↓	<2	↓	↓	yes			
807949(17-22, 24-25)	↓	↓	↓	↓	↓			
807941(1-2)	<1	>2	↓	↓	No	13:00		
807970(10-12)	<1	>2	5-16-13	BE	No	8:00		
807969(1-3)	↓	↓	↓	↓	↓	↓		
807991(1-6)	>1	<2	5-17-13	BE	yes			
807993(1-4)	↓	↓	↓	↓	↓			
807994	↓	↓	↓	↓	↓			
807995(1-4)	↓	↓	↓	↓	↓			
807997(1-4)	<1	<2	5-17-13	BE	yes			
807947 BE	↓	>2 BE	↓	↓	↓	11:00		
808020	>1	>2	5-20-13	BE	yes	7:00		
808021-1	>1	<2	5-21-13	ES	yes			
-6	↓	↓	↓	↓	↓			
808022-(1-6)	<1	↓	↓	↓	↓			
023	↓	↓	↓	↓	↓			
024	↓	↓	↓	↓	↓			
028(1-2)	↓	↓	↓	↓	↓			
094	↓	↓	↓	↓	↓			
051	↓	↓	↓	↓	↓			
052	↓	↓	↓	↓	↓			
053	↓	↓	↓	↓	↓			
054	↓	↓	↓	↓	↓			
055	↓	↓	↓	↓	↓			
808031(1-6)	<1	<2	5/22/13	ES	yes			
808036(1-4)	<1	<2	↓	↓	↓			
808083	<1	>2	↓	↓	↓	10:00		
808084(1-7)	<1	<2	↓	↓	↓			

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: E2

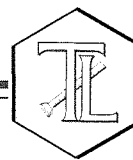
Lab # 807949

Date Delivered: 05/14/13 Time: 23:00 By: ☐ Mail ☒ 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? ☐ Yes ☐ No ☒ 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? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 3.8°C ☒ Yes ☐ 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 ☒ N/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 ☐ No ☐ N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: ☒ Truesdail ☐ Client ☒ Yes ☐ No ☐ N/A
12. Were samples pH checked? pH = see C.O.C. ☒ Yes ☐ 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 ☒ Std ☒ Yes ☐ No ☐ N/A
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water
☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Linda

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: CASE NARRATIVE PG&E TOPOCK 2013-GMP-192-Q2, GROUNDWATER MONITORING
PROJECT, TLI NO.: 808084

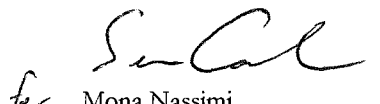
Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-192-Q2 groundwater-monitoring project for Hexavalent and Total Dissolved Chromium. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, 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.

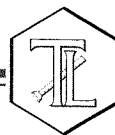
No violations or non-conformance actions occurred for this data package.

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


for Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer



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

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

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:

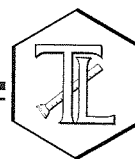
Results below 0.01ppm will have two (2) significant figures.

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

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

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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:

Laboratory No. 808084

Page 1 of 10

Printed 6/3/2013

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

Chromium 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

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

Duplicate

Lab ID = 808086-017

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0383	0.0342	11.3	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.207	0.200	104	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 prior written authorization from Truesdail Laboratories.

007



Client: E2 Consulting Engineers, Inc.

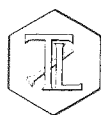
Project Name: PG&E Topock Project

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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	Recovery	Acceptance 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/Added	Recovery	Acceptance 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/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.97	5.00(5.00)	99.4	90 - 110
Matrix Spike Lab ID = 808084-002						
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance 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/Added	Recovery	Acceptance 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/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.17	5.06(5.00)	102	90 - 110
Matrix Spike Lab ID = 808084-004						
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.23	5.07(5.00)	103	90 - 110
Matrix Spike Lab ID = 808084-004						
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.00(1.00)	101	90 - 110
Matrix Spike Lab ID = 808084-005						
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.05	5.00(5.00)	101	90 - 110
Matrix Spike Lab ID = 808084-005						
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.995	1.00(1.00)	99.5	90 - 110
Matrix Spike Lab ID = 808084-006						
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.12	5.13(5.00)	99.8	90 - 110

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

Lab ID = 808084-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.966	1.00(1.00)	96.6	90 - 110

Matrix Spike

Lab ID = 808084-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.954	1.00(1.00)	95.4	90 - 110

Matrix Spike

Lab ID = 808084-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.18	5.08(5.00)	102	90 - 110

Matrix Spike

Lab ID = 808086-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.00(1.00)	104	90 - 110

Matrix Spike

Lab ID = 808086-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.00(1.00)	102	90 - 110

Matrix Spike

Lab ID = 808086-017

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.03(1.00)	103	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.93	5.00	98.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.2	10.0	102	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.0	10.0	100	95 - 105

MRCVS - Primary

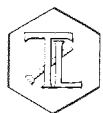
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.3	10.0	103	95 - 105



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.07.TS

Printed 6/3/2013

Metals by EPA 6020A, Dissolved		Batch 052313A-ICPMS-1				
Parameter	Unit	Analyzed	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

Lab ID = 808085-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	2.61	2.60	0.269	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	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.195	0.200	97.4	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



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 6 of 10

Project Number: 423575.MP.07.TS

Printed 6/3/2013

Lab Control Sample

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

MRCSS - 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

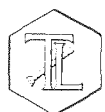
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.0	20.0	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.0	20.0	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.8	20.0	99.2	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 10 of 10****Project Number: 423575.MP.07.TS****Printed 6/3/2013****Interference Check Standard 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 Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.9	20.0	99.5	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0		

Serial Dilution

Lab ID = 808085-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	10.0	43.4	42.6	1.79	0 - 10

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services

CH2MHILL

CHAIN OF CUSTODY RECORD

808 084

5/16/2013 1:47:25 PM

Page 1 OF 1

Project Name PG&E Topock				Container:	250 ml Poly	2x250 ml Poly	500 ml Poly	2x500 ml Poly	Rec'd 5/21/13 808 08084	Number of Containers	COMMENTS
Location Topock				Preservatives:	(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	HNO3 4°C	HNO3 4°C			
Project Manager Jay Piper				Filtered:	Field	Field	Field	Field			
Sample Manager Shawn Duffy				Holding Time:	28	28	180	180			
Project Number 423575.MP.07.TS											
Task Order											
Project 2013-GMP-192-Q2											
Turnaround Time 10 Days											
Shipping Date: 5/21/2013											
COC Number: 24											
DATE TIME Matrix											
1	MW-22-192	5/15/2013	12:06	Water	X		X			2	
2	MW-36-090-192	5/15/2013	14:17	Water	X		X			2	
3	MW-52D-192	5/16/2013	10:45	Water		X		X		4	
4	MW-52M-192	5/16/2013	10:42	Water		X		X		4	DN=2
5	MW-52S-192	5/16/2013	11:29	Water		X		X		4	6020A
6	MW-53D-192	5/16/2013	9:15	Water		X		X		4	
7	MW-53M-192	5/16/2013	9:29	Water		X		X		4	
TOTAL NUMBER OF CONTAINERS										24	

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

Approved by	Signatures	Date/Time	Shipping Details
Sampled by		5-21-13	Method of Shipment: courier
Relinquished by		17:00	On Ice: yes / no
Received by	Rafael Davila	5-21-13	Airbill No:
Relinquished by	Rafael Davila	5-21-13 17:00	Lab Name: Truesdail Laboratories, Inc.
Received by	Linda, MD	5/21/13 23:00	Lab Phone: (714) 730-6239

ATTN:	Special Instructions:
Sample Custody	April 15 to May 9, 2013
	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
5/15/13	807949-18	9.5	N/A	N/A	N/A	NE
	-19					
	-20					
	-21					
	-22					
	-23					
	-24					
	-25					
5/15/13	807947	7.0	2mL/100mL	9.5	7:45am	TM
05/15/13	807948-1	8.0	0.3mL/25mL	9.5	7:15am	TM
	-2	9.7	N/A	N/A	N/A	
	-3	8.0	0.5mL/25mL	9.5	7:15am	
	-4	9.5	N/A	N/A	N/A	
	-5	7.0	2mL/100mL	9.5mL	7:20am	
	-6				7:25	
	-7				7:25	
	-8				7:30	
	-9				7:30	
	-10				7:30	
	-11				7:35	
	-12				7:35	
5/22/13	808083	6.0	2mL/100mL	9.5	10:15	TM
5/22/13	808084-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
5/22/13	808085-1	9.5	N/A	N/A	N/A	TM
	-2					

TM
05/29/13 5/28/13



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
807886	<1	<2	5/12/13	ES	yes			
807887	↓	↓	↓	↓	↓			
807889	↓	>2	↓	↓	No	11:00		
807894	↓	<2	↓	BE	yes			
807893	↓	↓	↓	↓	↓			
807871(1-10)	<1	<2	5-14-15	BE	yes			
807897(1-4)	<1	>2	↓	↓	No	11:00		
807901(1-3)	↓	↓	↓	↓	↓	↓		
807911	<1	<2	5/14/13	MC	yes			
807912	↓	↓	↓	↓	↓			
807913	↓	↓	↓	↓	↓			
807914	↓	↓	↓	↓	↓			
807915	↓	↓	↓	↓	↓			
807916	↓	↓	↓	↓	↓			
807917	↓	↓	↓	↓	↓			
807918	<1	>2	5-15-13	BE	No	8:00		
807949(12-10 13-15)	↓	<2	↓	↓	yes			
807949(17-22, 24-25)	↓	↓	↓	↓	↓			
807941(1-2)	<1	>2	↓	↓	No	13:00		
807970(10-12)	<1	>2	5-16-13	BE	No	8:00		
807969(1-3)	↓	↓	↓	↓	↓	↓		
807991(1-6)	>1	<2	5-17-13	BE	yes			
807993(1-4)	↓	↓	↓	↓	↓			
807994	↓	↓	↓	↓	↓			
807995(1-4)	↓	↓	↓	↓	↓			
807997(1-4)	<1	<2	5-17-13	BE	yes			
807947 BE	↓	>2 BE	↓	↓	↓	11:00		
808020	>1	>2	5-20-13	BE	yes	7:00		
808021-1	>1	<2	5-21-13	ES	yes			
-6	↓	↓	↓	↓	↓			
808022-(1-6)	<1	↓	↓	↓	↓			
023	↓	↓	↓	↓	↓			
024	↓	↓	↓	↓	↓			
028 (1-6)	↓	↓	↓	↓	↓			
094	↓	↓	↓	↓	↓			
051	↓	↓	↓	↓	↓			
052	↓	↓	↓	↓	↓			
053	↓	↓	↓	↓	↓			
054	↓	↓	↓	↓	↓			
055	↓	↓	↓	↓	↓			
808039 (1-6)	<1	<2	5/22/13	ES	yes			
808036(1-4)	<1	<2	↓	↓	↓			
808033	<1	>2	↓	↓	↓	10:00		
808084(1-7)	<1	<2	↓	↓	↓			

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: E2

Lab # 808084

Date Delivered: 5/2/13 Time: 8:00 By: ☐ Mail ☒ 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? ☐ Yes ☐ No ☒ 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? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 4.0 °C ☒ Yes ☐ 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 ☒ N/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 ☐ No ☐ N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: ☒ Truesdail ☐ Client ☒ Yes ☐ No ☐ N/A
12. Were samples pH checked? pH = See C.O.C. ☒ Yes ☐ 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 ☒ Std ☒ Yes ☐ No ☐ N/A
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water
☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: [Signature]



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 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.

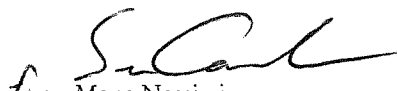
The samples were received and delivered with the chain of custody on May 21, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.


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.


to: Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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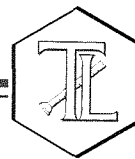
Event 2013-RMP-191 Cr by SW 6020, Surfacewater Samples

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			
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.

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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

Laboratory No.: 808085

Date Received: May 21, 2013

Project Name: PG&E Topock Project

Project No.: 423575.MP.02.RM

P.O. No.: 423575.MP.02.RM

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample 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 CaCO ₃)	129	mg/L	5.00
808085-001	C-BNS-D-191	SM2320B	NONE	5/20/2013	11:43	Alkalinity, Carbonate (As CaCO ₃)	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	pH	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 CaCO ₃)	125	mg/L	5.00
808085-002	C-I-3-D-191	SM2320B	NONE	5/20/2013	10:10	Alkalinity, Carbonate (As CaCO ₃)	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	pH	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

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.



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



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample 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	pH	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	pH	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 ID	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	pH	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	pH	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



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample 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 CaCO ₃)	118	mg/L	5.00
808085-013	C-TAZ-S-191	SM2320B	NONE	5/20/2013	9:45	Alkalinity, Carbonate (As CaCO ₃)	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	pH	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 CaCO ₃)	119	mg/L	5.00
808085-014	R63-191	SM2320B	NONE	5/20/2013	10:45	Alkalinity, Carbonate (As CaCO ₃)	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	pH	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.

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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.02.RM

P.O. Number: 423575.MP.02.RM

Release Number:

Laboratory No. 808085

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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 CaCO ₃	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 CaCO ₃	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 CaCO ₃	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 CaCO ₃	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

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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TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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808085-004 Carbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	ND
808085-005 Alkalinity as CaCO ₃	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 CaCO ₃	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 CaCO ₃	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 CaCO ₃	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 CaCO ₃	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 CaCO ₃	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 CaCO ₃	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 CaCO ₃	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 CaCO ₃	mg/L	1.00	ND

Duplicate

Lab ID = 808085-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	129	130	0.772	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	102	100	102	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.RM

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Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	101	100	101	90 - 110

Matrix Spike

Lab ID = 808085-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	232	219(100)	113	75 - 125



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

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 808085-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	830	830	0	0 - 10

Duplicate

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 Duplicate

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



TRUESDAIL LABORATORIES, INC.

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Metals by EPA 6010B, Total		Batch 052413A-Th2				
Parameter	Unit	Analyzed	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

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 808083-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	56.0	50.0	112	85 - 115

Matrix Spike

Lab ID = 808083-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	50.2	50.0(50.0)	100	75 - 125

Matrix Spike Duplicate

Lab ID = 808083-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	50.3	50.0(50.0)	101	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5120	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5300	5000	106	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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Chrome VI by EPA 218.6		Batch 05CrH130				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
808085-001 Chromium, Hexavalent	ug/L	05/28/2013 12:14	1.00	0.00820	0.20	ND
808085-002 Chromium, Hexavalent	ug/L	05/28/2013 12:25	1.00	0.00820	0.20	ND
808085-003 Chromium, Hexavalent	ug/L	05/28/2013 12:35	1.00	0.00820	0.20	ND
808085-004 Chromium, Hexavalent	ug/L	05/28/2013 12:46	1.00	0.00820	0.20	ND
808085-005 Chromium, Hexavalent	ug/L	05/28/2013 12:56	1.00	0.00820	0.20	ND
808085-006 Chromium, Hexavalent	ug/L	05/28/2013 13:58	1.00	0.00820	0.20	ND
808085-007 Chromium, Hexavalent	ug/L	05/28/2013 14:09	1.00	0.00820	0.20	ND
808085-008 Chromium, Hexavalent	ug/L	05/28/2013 14:19	1.00	0.00820	0.20	ND
808085-009 Chromium, Hexavalent	ug/L	05/28/2013 14:30	1.00	0.00820	0.20	ND
808085-010 Chromium, Hexavalent	ug/L	05/28/2013 14:40	1.00	0.00820	0.20	ND
808085-011 Chromium, Hexavalent	ug/L	05/28/2013 14:50	1.00	0.00820	0.20	ND
808085-012 Chromium, Hexavalent	ug/L	05/28/2013 15:01	1.00	0.00820	0.20	ND
808085-013 Chromium, Hexavalent	ug/L	05/28/2013 15:50	1.00	0.00820	0.20	ND
808085-014 Chromium, Hexavalent	ug/L	05/28/2013 16:01	1.00	0.00820	0.20	ND

Method Blank

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

Duplicate

Lab ID = 808085-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0448	0.0441	1.57	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.205	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.94	5.00	98.8	90 - 110

Matrix Spike

Lab ID = 808085-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.04(1.00)	100	90 - 110

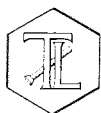
Matrix Spike

Lab ID = 808085-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.04(1.00)	102	90 - 110

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



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Metals by EPA 6020A, Dissolved		Batch 052313A-ICPMS-1				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
808085-001 Arsenic	ug/L	05/23/2013 14:48	2.00	0.200	0.50	2.6
Chromium	ug/L	05/23/2013 14:48	2.00	0.184	1.0	ND
Manganese	ug/L	05/23/2013 14:48	2.00	0.172	0.50	0.88
Molybdenum	ug/L	05/23/2013 14:48	2.00	0.414	2.0	4.0
Selenium	ug/L	05/23/2013 14:48	2.00	0.160	5.0	ND
808085-002 Arsenic	ug/L	05/23/2013 15:17	2.00	0.200	0.50	2.5
Chromium	ug/L	05/23/2013 15:17	2.00	0.184	1.0	ND
Manganese	ug/L	05/23/2013 15:17	2.00	0.172	0.50	0.73
Molybdenum	ug/L	05/23/2013 15:17	2.00	0.414	2.0	4.0
Selenium	ug/L	05/23/2013 15:17	2.00	0.160	5.0	ND
808085-003 Arsenic	ug/L	05/23/2013 15:46	2.00	0.200	0.50	2.5
Chromium	ug/L	05/23/2013 15:46	2.00	0.184	1.0	ND
Manganese	ug/L	05/23/2013 15:46	2.00	0.172	0.50	0.74
Molybdenum	ug/L	05/23/2013 15:46	2.00	0.414	2.0	3.9
Selenium	ug/L	05/23/2013 15:46	2.00	0.160	5.0	ND
808085-004 Arsenic	ug/L	05/23/2013 15:53	2.00	0.200	0.50	2.4
Chromium	ug/L	05/23/2013 15:53	2.00	0.184	1.0	ND
Manganese	ug/L	05/23/2013 15:53	2.00	0.172	0.50	42.6
Molybdenum	ug/L	05/23/2013 15:53	2.00	0.414	2.0	4.2
Selenium	ug/L	05/23/2013 15:53	2.00	0.160	5.0	ND
808085-005 Arsenic	ug/L	05/23/2013 16:00	2.00	0.200	0.50	2.6
Chromium	ug/L	05/23/2013 16:00	2.00	0.184	1.0	ND
Manganese	ug/L	05/23/2013 16:00	2.00	0.172	0.50	44.1
Molybdenum	ug/L	05/23/2013 16:00	2.00	0.414	2.0	4.2
Selenium	ug/L	05/23/2013 16:00	2.00	0.160	5.0	ND
808085-008 Arsenic	ug/L	05/23/2013 16:07	2.00	0.200	0.50	2.6
Chromium	ug/L	05/23/2013 16:07	2.00	0.184	1.0	ND
Manganese	ug/L	05/23/2013 16:07	2.00	0.172	0.50	1.2
Molybdenum	ug/L	05/23/2013 16:07	2.00	0.414	2.0	4.0
Selenium	ug/L	05/23/2013 16:07	2.00	0.160	5.0	ND
808085-009 Arsenic	ug/L	05/23/2013 16:14	2.00	0.200	0.50	2.4
Chromium	ug/L	05/23/2013 16:14	2.00	0.184	1.0	ND
Manganese	ug/L	05/23/2013 16:14	2.00	0.172	0.50	1.2
Molybdenum	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	05/23/2013 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

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

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Lab ID = 808085-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	2.61	2.60	0.269	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	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.195	0.200	97.4	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

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 Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	18.4	20.0	92.2	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.0	20.0	94.9	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	97.2	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.0	20.0	100	80 - 120
Selenium	ug/L	1.00	ND	0		

Interference Check Standard 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 Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.9	20.0	99.5	80 - 120

Interference Check Standard AB

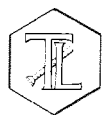
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0		

Serial Dilution
Lab ID = 808085-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	10.0	43.4	42.6	1.79	0 - 10


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Metals by EPA 6010B, Dissolved		Batch 052313B				
Parameter	Unit	Analyzed	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
808085-005 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

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate
Lab ID = 808085-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	56.0	50.0	112	85 - 115

Matrix Spike
Lab ID = 808085-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	51.3	50.0(50.0)	103	75 - 125

Matrix Spike Duplicate
Lab ID = 808085-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	53.6	50.0(50.0)	107	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5140	5000	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5220	5000	104	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Printed 6/5/2013

pH by SM 4500-H B

Batch 05PH13Q

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
808085-003 pH	pH	05/22/2013 10:20	1.00	0.0250	4.00	8.09	J
808085-014 pH	pH	05/22/2013 10:25	1.00	0.0250	4.00	8.10	J

Method Blank

Parameter	Unit	DF	Result
pH	pH	1.00	ND

Duplicate

Lab ID = 808086-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.24	8.23	0.121	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.01	7.00	100	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.02	7.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.02	7.00	100	90 - 110



Client: E2 Consulting Engineers, Inc.

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Project Number: 423575.MP.02.RM

Printed 6/5/2013

pH by SM 4500-H B		Batch 05PH13R					
Parameter	Unit	Analyzed	DF	MDL	RL	Result	
808085-001 pH	pH	05/22/2013 14:44	1.00	0.0250	4.00	8.28	J
808085-002 pH	pH	05/22/2013 14:37	1.00	0.0250	4.00	8.28	J
808085-004 pH	pH	05/22/2013 14:35	1.00	0.0250	4.00	7.60	J
808085-005 pH	pH	05/22/2013 14:42	1.00	0.0250	4.00	8.29	J
808085-008 pH	pH	05/22/2013 14:32	1.00	0.0250	4.00	8.23	J
808085-009 pH	pH	05/22/2013 14:40	1.00	0.0250	4.00	7.63	J
808085-010 pH	pH	05/22/2013 14:20	1.00	0.0250	4.00	8.21	J
808085-011 pH	pH	05/22/2013 13:30	1.00	0.0250	4.00	8.25	J
808085-012 pH	pH	05/22/2013 13:33	1.00	0.0250	4.00	8.29	J
808085-013 pH	pH	05/22/2013 13:25	1.00	0.0250	4.00	8.24	J

Method Blank

Parameter	Unit	DF	Result
pH	pH	1.00	ND

Duplicate

Lab ID = 808085-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.28	8.28	0	0 - 20

Duplicate

Lab ID = 808085-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.22	8.21	0.122	0 - 20

Lab Control Sample

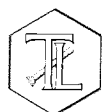
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	6.98	7.00	99.7	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.05	7.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.03	7.00	100	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

Total Suspended Solids by SM 2540 D		Batch 05TSS13M				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
808085-001 Total Suspended Solids	mg/L	05/24/2013	1.00	0.349	10.0	ND
808085-002 Total Suspended Solids	mg/L	05/24/2013	1.00	0.349	10.0	ND
808085-003 Total Suspended Solids	mg/L	05/24/2013	1.00	0.349	10.0	ND
808085-004 Total Suspended Solids	mg/L	05/24/2013	1.00	0.349	10.0	28.8
808085-005 Total Suspended Solids	mg/L	05/24/2013	1.00	0.349	10.0	23.2
808085-008 Total Suspended Solids	mg/L	05/24/2013	1.00	0.349	10.0	ND
808085-009 Total Suspended Solids	mg/L	05/24/2013	1.00	0.349	10.0	ND
808085-010 Total Suspended Solids	mg/L	05/24/2013	1.00	0.349	10.0	ND
808085-011 Total Suspended Solids	mg/L	05/24/2013	1.00	0.349	10.0	ND
808085-012 Total Suspended Solids	mg/L	05/24/2013	1.00	0.349	10.0	ND
808085-013 Total Suspended Solids	mg/L	05/24/2013	1.00	0.349	10.0	ND
808085-014 Total Suspended Solids	mg/L	05/24/2013	1.00	0.349	10.0	ND

Method Blank

Parameter	Unit	DF	Result
Total Suspended Solids	mg/L	1.00	ND

Duplicate

Lab ID = 808085-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Suspended Solids	mg/L	1.00	ND	0	0	0 - 10

Lab Control Sample


Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	99.0	100	99.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	103	100	103	90 - 110

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.


for Mona Nassimi
Manager, Analytical Services



TRUESDAIL LABORATORIES INC.

Total Suspended Solids by SM 2540 D

Calculations

Batch: 05TSS13M

Date Analyzed: 05/24/13

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
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	1.4315	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
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:

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

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 I.D.	Measured Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	99	100	99.0%	90-110%	Yes
LCS2	103	100	103.0%	90-110%	Yes

LCS Recovery

$$P = \left(\frac{LC}{LT} \right) \times 100$$

$$\% \text{ Difference} = \frac{|A \text{ or } B - C|}{C} \times 100$$

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

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

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

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

C = Average weight in (g).

GAUTAM

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature



Alkalinity by SM 2320B

Calculations

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 CaCO ₃	Titrant Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO ₃	RL, ppm	Total Alkalinity Reported Value	HCO ₃ Conc. as CaCO ₃ (ppm)	CO ₃ Alkalinity as CaCO ₃ (ppm)	OH Alkalinity as CaCO ₃ (ppm)	Low Alkalinity as CaCO ₃ (<20ppm)
BLANK	7.04	50	0.02		0.0	0.00		0.0	5	ND	ND	ND	ND	
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	
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	ND	
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:

T or P =

$$\left(\frac{A \times N \times 50000}{\text{mL sample}} \right)$$

Where:

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

A = mL standard acid used

N = normality of standard acid

Low Alkalinity: = $\frac{(2 \times B - C) \times N \times 50000}{\text{mL sample}}$
 as mg/L CaCO₃

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)

Blank Summary

Reporting Limit, RL	Measured Value, ppm	Accept Limit	QC Within Control?
5 ppm	0	<5	Yes

Laboratory Control Sample (LCS/LCSD) Summary

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

Sample Matrix Spike (MS/MSD) Summary

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	119	1	100	100	232	219.00	113%	75-125	Yes			
		1	100	100								

Duplicate Determination Difference Summary

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

Melissa S

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

CH2MHILL

CHAIN OF CUSTODY RECORD

808085

5/21/2013 3:12:17 PM

Page 1 OF 3

Project Name PG&E Topock				Container:	3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	<p>Rec'd 5/21/13 808085</p> <p>ALERT !! Level III QC</p>	Number of Containers	COMMENTS
Location Topock				Preservatives:	(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C			
Project Manager Jay Piper				Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA			
Sample Manager Shawn Duffy				Holding Time:	28	28	180	180	180	14	14	14	14			
Project Number 423575.MP.02.RM					Cr6 (E218.6 - river) Field Filtered	Field QC Cr6 (E218.6 - river)	Metals (6010B) Total Fe	Metals (SW6010B/SW6020A)dis) Field Filtered As,In,Fe,Se,Mo	Metals (6020A) Field Filtered Chromium	Specific Conductance (E120.1)	Alkalinity (SI4230B)	PH (SI4500HB)	TSS (SI42540)			
Task Order																
Project 2013-RMP-191																
Turnaround Time 10 Days																
Shipping Date: 5/14/2013																
COC Number: TLI-RMP191																
DATE	TIME	MATRIX														
C-BNS-D-191	5/20/2013	11:43	Water	X		X	X	X	X	X	X	X		9		
C-I-3-D-191	5/20/2013	10:10	Water	X		X	X	X	X	X	X	X		9		
C-I-3-S-191	5/20/2013	10:25	Water	X		X	X	X	X	X	X	X		9		
C-MAR-D-191	5/20/2013	12:51	Water	X		X	X	X	X	X	X	X		9		
C-MAR-S-191	5/20/2013	13:05	Water	X		X	X	X	X	X	X	X		9		
C-MW-80-191	5/20/2013	10:35	Water		X									1		
C-MW-81-191	5/20/2013	11:35	Water		X									1		
C-R22A-D-191	5/20/2013	11:03	Water	X		X	X	X	X	X	X	X		9		
C-R22A-S-191	5/20/2013	11:21	Water	X		X	X	X	X	X	X	X		9		
C-R27-D-191	5/20/2013	12:13	Water	X		X	X	X	X	X	X	X		9		
C-R27-S-191	5/20/2013	12:29	Water	X		X	X	X	X	X	X	X		9		
C-TAZ-D-191	5/20/2013	9:30	Water	X		X	X	X	X	X	X	X		9		
C-TAZ-S-191	5/20/2013	9:45	Water	X		X	X	X	X	X	X	X		9		
R63-191	5/20/2013	10:45	Water	X		X	X	X	X	X	X	X		9		

For Sample Conditions
See Form Attached

Signatures

Date/Time

Shipping Details

Approved by

Sampled by

Relinquished by

Received by

Relinquished by

Received by

5-21-13

1700

5-21-13

17:00

5-21-13

23:00

5/21/13

23:00

Method of Shipment: FedEx

On Ice: yes / no

Airbill No:

Lab Name: Truesdail Laboratories, Inc.

Lab Phone: (714) 730-6239

ATTN:

Sample Custody

Special Instructions:

May 22-23, 2013

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
5/15/13	807949-18	9.5	N/A	N/A	N/A	NE
	-19					
	-20					
	-21					
	-22					
	-23					
	-24					
	-25					
5/15/13	807947	7.0	2 mL / 100 mL	9.5	7:45 am	TM
05/15/13	807948 -1	8.0	0.3 mL / 25 mL	9.5	7:15 am	TM
	-2	9.7	N/A	N/A	N/A	
	-3	8.0	0.5 mL / 25 mL	9.5	7:15 am	
	-4	9.5	N/A	N/A	N/A	
	-5	7.0	2 mL / 100 mL	9.5 mL	7:20 am	
	-6				7:25	
	-7				7:25	
	-8				7:30	
	-9				7:30	
	-10				7:30	
	-11				7:35	
	-12				7:35	
5/22/13	808083	6.0	2 mL / 100 mL	9.5	10:15	TM
5/22/13	808084 -1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
5/22/13	808085 -1	9.5	N/A	N/A	N/A	TM
	-2					

NE 5/29/13

05/29/13

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
05/22/13	808085 - 3	9.5	N/A	N/A	N/A	TDM
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
05/22/13	808086 - 1	9.5	N/A	N/A	N/A	TDM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
	-17					
05/23/13	808111 - 1	7.0	0.5 mL / 25 mL	9.5	16:00	TDM
	-2					

N 5/29/13

14/ 5/29/13

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
808085(1-5,8-14)	<1	<2	5/22/13	ES	yes			
808086(2-5,8-17)	↓	↓	↓	↓	↓			
808061(10-12)	<1	>2	5/22/13	ES	NO	3:30		
808075(1-3)	↓	↓	↓	↓	↓	↓		
808077(1-2,5-6)	↓	↓	↓	↓	↓	↓		
808098	↓	↓	↓	↓	yes			
808093	SOLID	SAMPLE	5/22/13	ES	TLC			
808107(1-3,5-7)	<1	<2	5-23-13	BE	yes			
808099-1,-6	>1	<2	5/23/13	BE	yes			
808116(1-2)	<1	>2	"	BE	NO	13:00		
808161(1-2)	↓	↓	5-29-13	BE	NO	10:30		
808179	↓	↓	5-30-13	↓	yes	2:30		
808158(1-4)	>1	<2	5/30/13	BE	yes			
808113(1,6)	↓	↓	↓	↓	↓			
808115	↓	↓	↓	↓	↓			
808111(1-3)	↓	↓	↓	↓	↓			
808109	<1	↓	↓	↓	↓			
808156	↓	↓	↓	↓	↓			
808157	↓	↓	↓	↓	↓			
808175	>1	<2	5-30-13	BE	yes			
808176(10-12)	<1	>2	↓	↓	NO	10:30		
808186	>1	<2	↓	BE	yes			
808188(1-3)	<1	>2	↓	BE	NO	14:30		
808195	<1	>2	6/7/13	ES	yes			
808196	↓	↓	↓	↓	↓			
808203	↓	↓	↓	↓	↓			
808215	>1	<2	6/4/13	ES	yes			
216	↓	↓	↓	↓	↓			
217	↓	↓	↓	↓	↓			
808225(17,24)	<1	>2	6/4/13	ES	NO			
808266(1-2)	<1	>2	6-5-13	BE	yes	8:30		after L.F
808267(1-2)	↓	↓	↓	↓	↓	↓		after L.F
808269	↓	<2	↓	↓	↓	BE		
808271(1-3)	↓	↓	↓	↓	↓			T9 D
808268	<1	<2	6-5-13	BE	yes			
808270	↓	↓	↓	↓	↓			
808272(1-8)	↓	↓	↓	↓	↓			plant

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: E2

Lab # 80805

Date Delivered: 05/21/13 Time: 23:00 By: ☐ Mail ☒ 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? ☐ Yes ☐ No ☒ 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? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 4.5°C ☒ Yes ☐ 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 ☒ N/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 ☐ No ☐ N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: ☒ Truesdail ☐ Client ☒ Yes ☐ No ☐ N/A
12. Were samples pH checked? pH = See C.O.C. ☒ Yes ☐ 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 ☒ Std ☒ Yes ☐ No ☐ N/A
15. Sample Matrix: ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water
☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Ludg

ALERT !!
Level III QC

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 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.


for Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer



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			



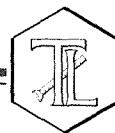
Event 2013-RMP-191 Cr (VI) by EPA 218.6, Surfacewater Samples

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			

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Established 1931

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

Attention: Shawn Duffy

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(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Laboratory No.: 808086

Date Received: May 21, 2013

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

Analytical Results Summary

Lab Sample ID	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	pH	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	pH	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	pH	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

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.



Lab Sample ID	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	pH	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 CaCO ₃)	131	mg/L	5.00
808086-009	C-NR1-S-191	SM2320B	NONE	5/21/2013	10:55	Alkalinity, Carbonate (As CaCO ₃)	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	pH	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 CaCO ₃)	127	mg/L	5.00
808086-010	C-NR3-D-191	SM2320B	NONE	5/21/2013	11:17	Alkalinity, Carbonate (As CaCO ₃)	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	pH	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



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample 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 CaCO ₃)	129	mg/L	5.00
808086-011	C-NR3-S-191	SM2320B	NONE	5/21/2013	11:30	Alkalinity, Carbonate (As CaCO ₃)	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	pH	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 CaCO ₃)	127	mg/L	5.00
808086-012	C-NR4-D-191	SM2320B	NONE	5/21/2013	11:53	Alkalinity, Carbonate (As CaCO ₃)	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	pH	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



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample 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	pH	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	pH	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	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	pH	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	pH	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.

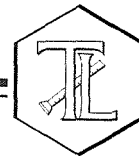
Result above or equal to 0.01ppm will have three (3) significant figures.

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

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TRUESDAIL LABORATORIES, INC.

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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.02.RM

P.O. Number: 423575.MP.02.RM

Release Number:

Laboratory No. 808086

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Printed 6/5/2013

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

Field ID	Lab ID	Collected	Matrix
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
R-19-191	808086-014	05/21/2013 09:16	Water
R-28-191	808086-015	05/21/2013 08:56	Water
RMP-AB2-191	808086-016	05/21/2013 12:16	Water
RRB-191	808086-017	05/21/2013 09:28	Water

Alkalinity by SM 2320B

Batch 05ALK131

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808086-004 Alkalinity as CaCO ₃	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 CaCO ₃	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 CaCO ₃	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

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TRUESDAIL LABORATORIES, INC.

Report Continued

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

808086-009 Alkalinity as CaCO ₃	mg/L	05/30/2013	1.00	1.68	5.00	131
Bicarbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	131
Carbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	ND
808086-010 Alkalinity as CaCO ₃	mg/L	05/30/2013	1.00	1.68	5.00	127
Bicarbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	127
Carbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	ND
808086-011 Alkalinity as CaCO ₃	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
808086-012 Alkalinity as CaCO ₃	mg/L	05/30/2013	1.00	1.68	5.00	127
Bicarbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	127
Carbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	ND
808086-013 Alkalinity as CaCO ₃	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
808086-014 Alkalinity as CaCO ₃	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
808086-015 Alkalinity as CaCO ₃	mg/L	05/30/2013	1.00	1.68	5.00	127
Bicarbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	127
Carbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	ND
808086-017 Alkalinity as CaCO ₃	mg/L	05/30/2013	1.00	1.68	5.00	114
Bicarbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	114
Carbonate (Calculated)	mg/L	05/30/2013	1.00	1.68	5.00	ND

Method Blank

Parameter	Unit	DF	Result
Alkalinity as CaCO ₃	mg/L	1.00	ND

Duplicate

Lab ID = 808086-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	125	129	3.15	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	101	100	101	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	100	100	100	90 - 110

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Report Continued

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

Matrix Spike

Lab ID = 808086-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	227	229(100)	98.0	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	Analyzed	DF	MDL	RL	Result
808086-002 Specific Conductivity	umhos/cm	05/31/2013	1.00	0.116	2.00	867
808086-003 Specific Conductivity	umhos/cm	05/31/2013	1.00	0.116	2.00	853
808086-004 Specific Conductivity	umhos/cm	05/31/2013	1.00	0.116	2.00	836
808086-005 Specific Conductivity	umhos/cm	05/31/2013	1.00	0.116	2.00	834
808086-008 Specific Conductivity	umhos/cm	05/31/2013	1.00	0.116	2.00	834
808086-009 Specific Conductivity	umhos/cm	05/31/2013	1.00	0.116	2.00	827
808086-010 Specific Conductivity	umhos/cm	05/31/2013	1.00	0.116	2.00	826
808086-011 Specific Conductivity	umhos/cm	05/31/2013	1.00	0.116	2.00	835
808086-012 Specific Conductivity	umhos/cm	05/31/2013	1.00	0.116	2.00	836
808086-013 Specific Conductivity	umhos/cm	05/31/2013	1.00	0.116	2.00	835
808086-014 Specific Conductivity	umhos/cm	05/31/2013	1.00	0.116	2.00	835
808086-015 Specific Conductivity	umhos/cm	05/31/2013	1.00	0.116	2.00	836
808086-017 Specific Conductivity	umhos/cm	05/31/2013	1.00	0.116	2.00	844

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 808086-013

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	836	835	0.120	0 - 10

Duplicate

Lab ID = 808086-017

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	843	844	0.118	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	690	706	97.7	90 - 110

Lab Control Sample Duplicate

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	698	706	98.9	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

Metals by EPA 6010B, Total		Batch 052813A-Th2				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
808086-004 Iron	ug/L	05/28/2013 13:23	1.00	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	1.00	9.50	20.0	26.1
808086-009 Iron	ug/L	05/28/2013 14:25	1.00	9.50	20.0	22.5
808086-010 Iron	ug/L	05/28/2013 14:31	1.00	9.50	20.0	ND
808086-011 Iron	ug/L	05/28/2013 14:37	1.00	9.50	20.0	ND
808086-012 Iron	ug/L	05/28/2013 14:43	1.00	9.50	20.0	ND
808086-013 Iron	ug/L	05/28/2013 14:49	1.00	9.50	20.0	ND
808086-014 Iron	ug/L	05/28/2013 14:56	1.00	9.50	20.0	20.2
808086-015 Iron	ug/L	05/28/2013 15:02	1.00	9.50	20.0	ND
808086-017 Iron	ug/L	05/28/2013 15:08	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	Acceptance Range
Iron	ug/L	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2130	2000	106	85 - 115

Matrix Spike

Lab ID = 808086-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	1980	2000(2000)	98.8	75 - 125

Matrix Spike Duplicate

Lab ID = 808086-004

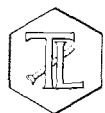
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	1980	2000(2000)	99.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5040	5000	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance 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	Analyzed	DF	MDL	RL	Result
808086-001 Chromium, Hexavalent	ug/L	05/23/2013 13:51	1.00	0.00920	0.20	ND
808086-002 Chromium, Hexavalent	ug/L	05/23/2013 14:01	1.00	0.00920	0.20	ND
808086-003 Chromium, Hexavalent	ug/L	05/23/2013 14:12	1.00	0.00920	0.20	ND
808086-004 Chromium, Hexavalent	ug/L	05/23/2013 14:22	1.00	0.00920	0.20	ND
808086-005 Chromium, Hexavalent	ug/L	05/23/2013 14:33	1.00	0.00920	0.20	ND
808086-008 Chromium, Hexavalent	ug/L	05/23/2013 15:04	1.00	0.00920	0.20	ND
808086-009 Chromium, Hexavalent	ug/L	05/23/2013 15:35	1.00	0.00920	0.20	ND
808086-010 Chromium, Hexavalent	ug/L	05/23/2013 15:46	1.00	0.00920	0.20	ND
808086-011 Chromium, Hexavalent	ug/L	05/23/2013 15:56	1.00	0.00920	0.20	ND
808086-012 Chromium, Hexavalent	ug/L	05/23/2013 16:06	1.00	0.00920	0.20	ND
808086-013 Chromium, Hexavalent	ug/L	05/23/2013 16:17	1.00	0.00920	0.20	ND
808086-014 Chromium, Hexavalent	ug/L	05/23/2013 16:27	1.00	0.00920	0.20	ND
808086-015 Chromium, Hexavalent	ug/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

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

Duplicate

Lab ID = 808086-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0374	0.0362	3.26	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.204	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance 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	Acceptance 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	Acceptance Range
Chromium, Hexavalent	ug/L	250	9920	10000(5000)	98.3	90 - 110



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



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Matrix Spike

Lab ID = 808086-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.04(1.00)	101	90 - 110

Matrix Spike

Lab ID = 808086-016

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.01(1.00)	102	90 - 110

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.93	5.00	98.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.3	10.0	103	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.3	10.0	103	95 - 105



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Chrome VI by EPA 218.6

Batch 05CrH13N

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808086-006 Chromium, Hexavalent	ug/L	05/24/2013 10:46	1.00	0.00920	0.20	ND
808086-007 Chromium, Hexavalent	ug/L	05/24/2013 10:56	1.00	0.00920	0.20	ND
808086-017 Chromium, Hexavalent	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	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0383	0.0342	11.3	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.207	0.200	104	70 - 130

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	Recovery	Acceptance 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/Added	Recovery	Acceptance 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/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.97	5.00(5.00)	99.4	90 - 110

Matrix Spike

Lab ID = 808084-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance 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/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.965	1.00(1.00)	96.5	90 - 110

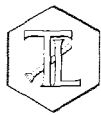
Matrix Spike

Lab ID = 808084-003

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

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Metals by EPA 6020A, Dissolved		Batch 052913A-ICPMS-1				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
808086-002 Chromium	ug/L	05/29/2013 11:59	2.00	0.184	1.0	ND
808086-004 Arsenic	ug/L	05/29/2013 09:28	2.00	0.200	0.50	2.5
Chromium	ug/L	05/29/2013 09:28	2.00	0.184	1.0	ND
Manganese	ug/L	05/29/2013 09:28	2.00	0.172	0.50	0.68
Molybdenum	ug/L	05/29/2013 09:28	2.00	0.414	2.0	4.2
Selenium	ug/L	05/29/2013 09:28	2.00	0.160	5.0	ND
808086-005 Arsenic	ug/L	05/29/2013 10:19	2.00	0.200	0.50	2.4
Chromium	ug/L	05/29/2013 10:19	2.00	0.184	1.0	ND
Manganese	ug/L	05/29/2013 10:19	2.00	0.172	0.50	0.74
Molybdenum	ug/L	05/29/2013 10:19	2.00	0.414	2.0	4.1
Selenium	ug/L	05/29/2013 10:19	2.00	0.160	5.0	ND
808086-008 Arsenic	ug/L	05/29/2013 10:26	2.00	0.200	0.50	2.4
Chromium	ug/L	05/29/2013 10:26	2.00	0.184	1.0	ND
Manganese	ug/L	05/29/2013 10:26	2.00	0.172	0.50	0.64
Molybdenum	ug/L	05/29/2013 10:26	2.00	0.414	2.0	4.2
Selenium	ug/L	05/29/2013 10:26	2.00	0.160	5.0	ND
808086-009 Arsenic	ug/L	05/29/2013 10:33	2.00	0.200	0.50	2.5
Chromium	ug/L	05/29/2013 10:33	2.00	0.184	1.0	ND
Manganese	ug/L	05/29/2013 10:33	2.00	0.172	0.50	0.76
Molybdenum	ug/L	05/29/2013 10:33	2.00	0.414	2.0	4.4
Selenium	ug/L	05/29/2013 10:33	2.00	0.160	5.0	ND
808086-010 Arsenic	ug/L	05/29/2013 10:40	2.00	0.200	0.50	2.6
Chromium	ug/L	05/29/2013 10:40	2.00	0.184	1.0	ND
Manganese	ug/L	05/29/2013 10:40	2.00	0.172	0.50	0.70
Molybdenum	ug/L	05/29/2013 10:40	2.00	0.414	2.0	4.2
Selenium	ug/L	05/29/2013 10:40	2.00	0.160	5.0	ND
808086-011 Arsenic	ug/L	05/29/2013 10:47	2.00	0.200	0.50	2.4
Chromium	ug/L	05/29/2013 10:47	2.00	0.184	1.0	ND
Manganese	ug/L	05/29/2013 10:47	2.00	0.172	0.50	0.80
Molybdenum	ug/L	05/29/2013 10:47	2.00	0.414	2.0	4.0
Selenium	ug/L	05/29/2013 10:47	2.00	0.160	5.0	ND
808086-012 Arsenic	ug/L	05/29/2013 11:23	2.00	0.200	0.50	2.4
Chromium	ug/L	05/29/2013 11:23	2.00	0.184	1.0	ND
Manganese	ug/L	05/29/2013 11:23	2.00	0.172	0.50	0.67



TRUESDAIL LABORATORIES, INC.

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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

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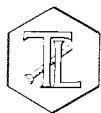
Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Chromium	ug/L	1.00	ND
Selenium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Duplicate

Lab ID = 808086-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance 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	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

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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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

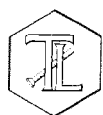
Matrix Spike Duplicate

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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Metals by EPA 6020A, Dissolved		Batch 053013A-ICPMS-1				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
808086-003 Chromium	ug/L	05/30/2013 14:50	2.00	0.184	1.0	ND
Method Blank						
Parameter	Unit	DF	Result			
Chromium	ug/L	1.00	ND			
Duplicate					Lab ID = 808086-003	
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Low Level Calibration Verification						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.188	0.200	94.2	70 - 130
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	45.0	50.0	89.9	85 - 115
Matrix Spike					Lab ID = 808086-003	
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	47.0	50.0(50.0)	94.0	75 - 125
Matrix Spike Duplicate					Lab ID = 808086-003	
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	45.3	50.0(50.0)	90.6	75 - 125
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.1	20.0	101	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	99.0	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.6	90 - 110
Interference Check Standard A						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		

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

Metals by EPA 6010B, Dissolved		Batch 052313A-Th2				
Parameter	Unit	Analyzed	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	05/23/2013 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

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 808086-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	56.7	50.0	113	85 - 115

Matrix Spike

Lab ID = 808086-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	52.9	50.0(50.0)	106	75 - 125

Matrix Spike Duplicate

Lab ID = 808086-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	53.6	50.0(50.0)	107	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5070	5000	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5210	5000	104	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

pH by SM 4500-H B		Batch 05PH13Q				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
808086-008 pH	pH	05/22/2013 10:30	1.00	0.0250	4.00	8.27 J
808086-009 pH	pH	05/22/2013 10:35	1.00	0.0250	4.00	8.27 J
808086-010 pH	pH	05/22/2013 10:37	1.00	0.0250	4.00	8.28 J
808086-011 pH	pH	05/22/2013 11:10	1.00	0.0250	4.00	8.23 J
808086-012 pH	pH	05/22/2013 11:07	1.00	0.0250	4.00	8.20 J
808086-013 pH	pH	05/22/2013 11:05	1.00	0.0250	4.00	8.09 J

Method Blank

Parameter	Unit	DF	Result
pH	pH	1.00	ND

Duplicate

Lab ID = 808086-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.24	8.23	0.121	0 - 20

Lab Control Sample

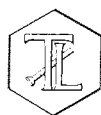
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.01	7.00	100	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.02	7.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.02	7.00	100	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

pH by SM 4500-H B

Batch 05PH13R

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
808086-002 pH	pH	05/22/2013 14:30	1.00	0.0250	4.00	7.42	J
808086-003 pH	pH	05/22/2013 14:28	1.00	0.0250	4.00	7.50	J
808086-004 pH	pH	05/22/2013 13:38	1.00	0.0250	4.00	8.26	J
808086-005 pH	pH	05/22/2013 13:35	1.00	0.0250	4.00	8.27	J
808086-014 pH	pH	05/22/2013 13:40	1.00	0.0250	4.00	8.30	J
808086-015 pH	pH	05/22/2013 13:20	1.00	0.0250	4.00	8.23	J
808086-017 pH	pH	05/22/2013 13:22	1.00	0.0250	4.00	8.19	J

Method Blank

Parameter	Unit	DF	Result
pH	pH	1.00	ND

Duplicate

Lab ID = 808085-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.28	8.28	0	0 - 20

Duplicate

Lab ID = 808085-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.22	8.21	0.122	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	6.98	7.00	99.7	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.05	7.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.03	7.00	100	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

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

Total Suspended Solids by SM 2540 D		Batch 05TSS13N				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
808086-004 Total Suspended Solids	mg/L	05/28/2013	1.00	0.349	10.0	ND
808086-005 Total Suspended Solids	mg/L	05/28/2013	1.00	0.349	10.0	ND
808086-008 Total Suspended Solids	mg/L	05/28/2013	1.00	0.349	10.0	ND
808086-009 Total Suspended Solids	mg/L	05/28/2013	1.00	0.349	10.0	ND
808086-010 Total Suspended Solids	mg/L	05/28/2013	1.00	0.349	10.0	ND
808086-011 Total Suspended Solids	mg/L	05/28/2013	1.00	0.349	10.0	ND
808086-012 Total Suspended Solids	mg/L	05/28/2013	1.00	0.349	10.0	ND
808086-013 Total Suspended Solids	mg/L	05/28/2013	1.00	0.349	10.0	ND
808086-014 Total Suspended Solids	mg/L	05/28/2013	1.00	0.349	10.0	ND
808086-015 Total Suspended Solids	mg/L	05/28/2013	1.00	0.349	10.0	ND
808086-017 Total Suspended Solids	mg/L	05/28/2013	1.00	0.349	10.0	ND

Method Blank

Parameter	Unit	DF	Result
Total Suspended Solids	mg/L	1.00	ND

Duplicate

Lab ID = 808086-017

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Suspended Solids	mg/L	1.00	ND	0	0	0 - 10

Lab Control Sample


Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	97.0	100	97.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	96.0	100	96.0	90 - 110

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services



TRUESDAIL LABORATORIES INC.

Total Suspended Solids by SM 2540 D

Calculations

Batch: 05TSS13N

Date Analyzed: 05/28/13

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	0.8	10.0	ND
F66	808086-8	250	1.4335	1.4337	1.4337	0.0000	No	0.0002	0.8	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	0.8	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	0.8	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
F53	LCS-1	100	1.4283	1.4380	1.438	0.0000	No	0.0097	97.0	25.0	97.0
F54	LCS-2	100	1.4330	1.4426	1.4426	0.0000	No	0.0096	96.0	25.0	96.0

Calculation as follows:

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

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 I.D.	Measured 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

LCS Recovery

$$P = \left(\frac{LC}{LT} \right) \times 100$$

$$\% \text{ Difference} = \frac{|A \text{ or } B - C|}{C} \times 100$$

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

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

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

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

C = Average weight in (g).

Gautam S.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature



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

Calculations as follows:

T or P =

$$\left(\frac{A \times N \times 50000}{\text{mL sample}} \right)$$

Where:

T = Total Alkalinity, mg CaCO₃/L

P = Phenolphthalein Alkalinity, mg CaCO₃/L

A = mL standard acid used

N = normality of standard acid

Low Alkalinity: =
$$\frac{(2 \times B - C) \times N \times 50000}{\text{mL sample}}$$

as mg/L CaCO₃

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)

Blank Summary

Reporting Limit, RL	Measured Value, ppm	Accept Limit	QC Within Control?
5 ppm	0	<5	Yes

Laboratory Control Sample (LCS/LCSD) Summary

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

Duplicate Determination Difference Summary

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

Sample Matrix Spike (MS/MSD) Summary

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			
		1	100	100								

Melissa S

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

Project Name PG&E Topock				Container:	3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	Rec'd 05/21/13 S 808086	ALERT !! Level III QC	Number of Containers	COMMENTS
Location Topock				Preservatives:	(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C				
Project Manager Jay Piper				Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA				
Sample Manager Shawn Duffy				Holding Time:	28	28	180	180	180	14	14	14	14				
Project Number 423575.MP.02.RM																	
Task Order																	
Project 2013-RMP-191																	
Turnaround Time 10 Days																	
Shipping Date: 5/14/2013																	
COC Number: TLI-RMP191																	
DATE	TIME	Matrix															
RMP-AB1-191	5/20/2013	13:15	Water		X											1	
SW1-191	5/20/2013	7:45	Water	X					X	X		X				5	
SW2-191	5/20/2013	8:00	Water	X					X	X		X				5	DM=2J
C-CON-D-191	5/21/2013	9:57	Water	X		X	X	X	X	X	X	X	X			9	6020A
C-CON-S-191	5/21/2013	10:13	Water	X		X	X	X	X	X	X	X	X			9	6010B
C-MW-82-191	5/21/2013	8:40	Water		X											1	
C-MW-83-191	5/21/2013	9:47	Water		X											1	
C-NR1-D-191	5/21/2013	10:42	Water	X		X	X	X	X	X	X	X	X			9	
C-NR1-S-191	5/21/2013	10:55	Water	X		X	X	X	X	X	X	X	X			9	
C-NR3-D-191	5/21/2013	11:17	Water	X		X	X	X	X	X	X	X	X			9	
C-NR3-S-191	5/21/2013	11:30	Water	X		X	X	X	X	X	X	X	X			9	DM=2J
C-NR4-D-191	5/21/2013	11:53	Water	X		X	X	X	X	X	X	X	X			9	6020A
C-NR4-S-191	5/21/2013	12:08	Water	X		X	X	X	X	X	X	X	X			9	6010B
R-19-191	5/21/2013	9:16	Water	X		X	X	X	X	X	X	X	X			9	

Approved by _____
 Sampled by _____
 Relinquished by _____
 Received by _____
 Relinquished by _____
 Received by _____

Signatures
 Rafael Davila
 Rafael Davila
 Linda TLI

Date/Time
 5-21-13 17:00
 5-21-13 17:00
 5-21-13 23:00
 5/21/13 23:00

Shipping Details
 Method of Shipment: FedEx
 On Ice: yes / no
 Airbill No:
 Lab Name: Truesdail Laboratories, Inc.
 Lab Phone: (714) 730-6239

ATTN:
 Sample Custody

Special Instructions:
 May 22-23, 2013

Report Copy to
 Shawn Duffy
 (530) 229-3303

For Sample Conditions
See Form Attached

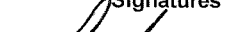
CH2MHILL

CHAIN OF CUSTODY RECORD

5/21/2013 3:12:18 PM

Page 3 OF 3

Project Name PG&E Topock				Container:	3X250 ml Poly	250 ml Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	<div style="border: 2px solid black; padding: 10px; text-align: center;"> ALERT !! Level III QC </div>	Number of Containers	COMMENTS
Location Topock				Preservatives:	(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C			
Project Manager Jay Piper				Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA			
Sample Manager Shawn Duffy				Holding Time:	28	28	180	180	180	14	14	14	14			
Project Number 423575.MP.02.RM					Cr6 (E218.6 - river) Field Filtered	Field QC Cr6 (E218.6 -river)	Metals (6010B) Total Fe	Metals (6020A) Field Filtered Chromium	Metals (SW6010B/SW6020A dis) Field Filtered As, Mn, Fe, Se, Mo	Specific Conductance (E120.1)	Alkalinity (SM2320B)	PH (SM4500HB)	TSS (SM2540)			
Task Order																
Project 2013-RMP-191																
Turnaround Time 10 Days																
Shipping Date: 5/14/2013																
COC Number: TLI-RMP191																
DATE	TIME	Matrix														
R-28-191	5/21/2013	8:56	Water	X		X	X	X	X	X	X	X		9	PM-2	
RMP-AB2-191	5/21/2013	12:16	Water		X									1	6020A 6010B	
RRB-191	5/21/2013	9:28	Water	X		X	X	X	X	X	X	X		9	PM-2	
TOTAL NUMBER OF CONTAINERS														223	6020A 6010B	

Approved by	Signatures	Date/Time	Shipping Details	Special Instructions:
Sampled by		5-21-13	Method of Shipment: FedEx	May 22-23, 2013
Relinquished by		1700	On Ice: yes / no	Sample Custody
Received by	Rafael Davila	5-21-13 17:00	Airbill No:	Report Copy to
Relinquished by	Rafael Davila	5-21-13 23:00	Lab Name: Truesdail Laboratories, Inc.	Shawn Duffy
Received by	Linda	5/21/13 23:00	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
05/22/13	808085-3	9.5	N/A	N/A	N/A	TM
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
05/22/13	808086-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
	-17					

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH-Adjusted Time	Date/Time of 2nd pH check	Comments
808085(1-5 & 14)	<1	<2	5/22/13	ES	yes			
808086(2-5, 6-7)	↓	↓	↓	↓	↓			
808061(10-12)	<1	>2	5/22/13	ES	NO	3:30		
808075(1-3)	↓	↓	↓	↓	↓	↓		
808077(1-2, C-6)	↓	↓	↓	↓	↓	↓		
808098	↓	↓	↓	↓	yes			
808093	SOLID	SAMPLE	5/22/13	ES	TTL			
808107(1-3) & 24	<1	<2	5-23-13	BE	xes			
808099-1, -6	>1	<2	5/23/13	DE	yes			
808116(1-2)	<1	>2	"	BE	NO	13:00		
808161(1-2)	↓	↓	5-29-13	BE-	NO	10:30		
808179	↓	↓	5-30-13	↓	yes	2:30		
808158(1-4)	>1	<2	5/30/13.	DE	yes			
808113(1,6)	↓	↓	↓	↓	↓			
808115	↓	↓	↓	↓	↓			
808111(1-3)	↓	↓	↓	↓	↓			
808109	<1	↓	↓	↓	↓			
808156	↓	↓	↓	↓	↓			
808157	↓	↓	↓	↓	↓			
808175	>1	<2	5-30-13	BE	xes			
808176(10-12)	<1	>2	↓	↓	NO	10:30		
808186	>1	<2	↓	DE	yes			
808188(1-3)	<1	>2	↓	BE	NO	14:30		
808195	<1	>2	6/3/13	ES	yes			
808196	↓	↓	↓	↓	↓			
808207	↓	↓	↓	↓	↓			
808215	>1	<2	6/4/13	ES	yes			
216	↓	↓	↓	↓	↓			
217	↓	↓	↓	↓	↓			
808225(17,24)	<1	>2	6/4/13	ES	NO			
808268(1-2)	<1	>2	6-5-13	BE	xes	8:30		after L.F
808267(1-2)	↓	↓	↓	↓	↓	↓ BE		after L.F
808269	↓	<2	↓	↓	↓			Tg D
808271(1-3)	↓	↓	↓	↓	↓			
808268	<1	<2	6-5-13	BE	xes			
808270	↓	↓	↓	↓	↓			
808272(1-8)	↓	↓	↓	↓	↓			Plant

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: E2

Lab # 808086

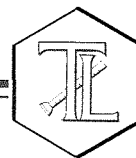
Date Delivered: 05/21/13 Time: 23:00 By: ☐ Mail ☒ Field Service ☐ Client

1. Was a Chain of Custody received and signed? ☒ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☐ No ☒ 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? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 4.5°C ☒ Yes ☐ 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 ☒ N/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 ☐ No ☐ N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: ☒ Truesdail ☐ Client ☒ Yes ☐ No ☐ N/A
12. Were samples pH checked? pH = See C.O.C. ☒ Yes ☐ 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 ☒ Std ☒ Yes ☐ No ☐ N/A
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water
☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Linda

ALERT !!
Level III QC

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



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.

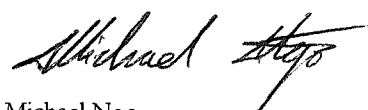
Samples for pH analysis by SM 4500-H B were received past the method specified holding time. Mr. Duffy approved the analysis of the samples.

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.

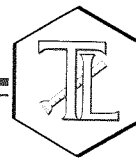
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



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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

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

Laboratory No.: 808266

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	pH	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
EPA 200.8	Metals by ICP/MS	Bitu Emami
EPA 218.6	Hexavalent Chromium	Tom Martinez
SM 3500-CrB	Hexavalent Chromium	Jenny Tankunakorn

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

Laboratory No.: 808266

Date Received: June 4, 2013

Project Name: PG&E Topock Project

Project No.: 456827.01.DM

P.O. No.: 456827.01.DM

Analytical Results Summary

Lab Sample ID	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	pH	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	pH	4.00

ND: Non Detected (below reporting limit)

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

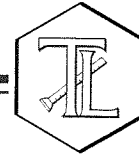
Results below 0.01 will have two (2) significant figures.

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.

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www.truesdail.com

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:

Laboratory No. 808266

Page 1 of 8

Printed 6/17/2013

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	Water
TW-03D-207	808266-002	06/04/2013 12:30	Water

Specific Conductivity - EPA 120.1

Batch 06EC13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808266-001 Specific Conductivity	umhos/cm	06/05/2013	1.00	0.606	2.00	4350
808266-002 Specific Conductivity	umhos/cm	06/05/2013	1.00	0.606	2.00	7630

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 808267-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7000	7010	0.143	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	692	706	98.0	90 - 110

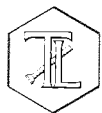
MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	680	706	96.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	945	998	94.7	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

Page 2 of 8

Project Number: 456827.01.DM

Printed 6/17/2013

Chrome VI by EPA 218.6

Batch 06CrH13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808266-001 Chromium, Hexavalent	ug/L	06/05/2013 08:56	1.00	0.00920	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	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	2.33	2.35	0.812	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.204	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance 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/Added	Recovery	Acceptance 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/Added	Recovery	Acceptance 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/Added	Recovery	Acceptance 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/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1430	1420(750)	101	90 - 110

Matrix Spike

Lab ID = 808268-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance 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/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.28	7.35(5.00)	98.6	90 - 110


Client: E2 Consulting Engineers, Inc.
Project Name: PG&E Topock Project
Page 4 of 8
Project Number: 456827.01.DM
Printed 6/17/2013

Chromium, Hexavalent by SM 3500-Cr B		Batch 06CrH13A				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
808266-002 Chromium, Hexavalent	ug/L	06/10/2013 12:38	25.0	110	250	846

Method Blank

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

Duplicate
Lab ID = 808266-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	875	846	3.36	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	97.2	100	97.2	90 - 110

Matrix Spike
Lab ID = 808266-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
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 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	59.7	60.0	99.5	90 - 110

pH by SM 4500-H B		Batch 06PH13C				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
808266-001 pH	pH	06/05/2013 08:47	1.00	0.0784	4.00	7.47 J
808266-002 pH	pH	06/05/2013 08:50	1.00	0.0784	4.00	7.22 J

Duplicate
Lab ID = 808266-002

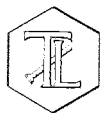
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.23	7.22	0.138	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.03	7.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.05	7.00	101	90 - 110

Client: **E2 Consulting Engineers, Inc.**

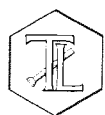
Project Name: PG&E Topock Project

Page 5 of 8

Project Number: 456827.01.DM

Printed 6/17/2013

Total Dissolved Solids by SM 2540 C			Batch 06TDS13B			
Parameter	Unit	Analyzed	DF	MDL	RL	Result
808266-001 Total Dissolved Solids	mg/L	06/07/2013	1.00	1.76	125	2650
808266-002 Total Dissolved Solids	mg/L	06/07/2013	1.00	1.76	250	5030
Method Blank						
Parameter	Unit	DF	Result			
Total Dissolved Solids	mg/L	1.00	ND			
Duplicate					Lab ID = 808301-002	
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	2450	2410	1.56	0 - 10
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	495	500	99.0	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 6 of 8

Project Number: 456827.01.DM

Printed 6/17/2013

Metals by EPA 200.8, Dissolved

Batch 060613A

Parameter	Unit	Analyzed	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	10.0	0.920	2.0	847

Method Blank

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	RPD	Acceptance 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	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.252	0.200	126	70 - 130
Uranium	ug/L	1.00	0.202	0.200	101	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	50.8	50.0	102	85 - 115
Uranium	ug/L	2.00	50.9	50.0	102	85 - 115

Matrix Spike

Lab ID = 808268-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	53.9	53.8(50.0)	100	75 - 125
Uranium	ug/L	2.00	91.8	85.4(50.0)	113	75 - 125

Matrix Spike Duplicate

Lab ID = 808268-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	59.6	53.8(50.0)	112	75 - 125
Uranium	ug/L	2.00	81.8	85.4(50.0)	92.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.4	20.0	92.1	90 - 110
Uranium	ug/L	1.00	19.4	20.0	97.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.4	20.0	102	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 8 of 8

Project Number: 456827.01.DM

Printed 6/17/2013

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Uranium	ug/L	1.00	ND	0		
Serial Dilution						Lab ID = 808267-001
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	677	666	1.70	0 - 10
Serial Dilution						Lab ID = 808268-001
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Uranium	ug/L	10.0	33.4	35.4	5.72	0 - 10

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services

TDS/EC CHECK

Date Analyzed: 6/7/13

[illegible]

Rec'd 06/04/13
S 808266



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 10 Days
DATE 06/04/13 PAGE 1 OF 1

COMPANY CH2M HILL /E2				<div style="writing-mode: vertical-rl; transform: rotate(180deg);"> Dissolved Cr (200.7) Lab filtered Cr(VI) (3500-Cr B) pH (150.0) EC (120.1) TDS (160.1) Cr(VI) (218.6) </div>												<div style="writing-mode: vertical-rl; transform: rotate(180deg);"> NUMBER OF CONTAINERS </div>				COMMENTS			
PROJECT NAME PG&E Topock IM3Plant-EW																							
PHONE 530-229-3303 FAX 530-339-3303																							
ADDRESS 155 Grand Ave Ste 1000 Oakland, CA 94612																							
P.O. NUMBER 456827.01.DM																							
SAMPLERS (SIGNATURE) <i>Chris L</i>																							
SAMPLE I.D.	DATE	TIME	DESCRIPTION																				
PE-01-207	06/04/13	12:30	Ground water	X		X	X	X									4	} pH = 7 200.7					
TW-03D-207	06/04/13	12:30	Ground water	X	X	X	X										4						
ALERT !! Level III QC																							
																8 TOTAL NUMBER OF CONTAINERS							

CHAIN OF CUSTODY SIGNATURE RECORD				
Signature (Relinquished) <i>Chris L</i>	Printed Name CHRIS LENT	Company/Agency CH2M HILL	Date/Time 6-4-13	
Signature (Received) <i>Leo Brady</i>	Printed Name Leo Brady	Company/Agency TLI	Date/Time 6-4-13 1600	
Signature (Relinquished) <i>Leo Brady</i>	Printed Name Leo Brady	Company/Agency TLI	Date/Time 6-4-13 2100	
Signature (Received) <i>Shabunina</i>	Printed Name Linda	Company/Agency TLI	Date/Time 6/4/13 21:00	
Signature (Relinquished)	Printed Name	Company/Agency	Date/Time	
Signature (Received)	Printed Name	Company/Agency	Date/Time	

SAMPLE CONDITIONS	
RECEIVED	COOL <input checked="" type="checkbox"/> WARM <input type="checkbox"/> 4.1 °C
CUSTODY SEALED	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
SPECIAL REQUIREMENTS:	

For Sample Conditions
See Form Attached

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

[illegible]

Turbidity/pH Check

[illegible]

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: E 2

Lab # SP266

Date Delivered: 06/04/13 Time: 2:00 By: ☐ Mail ☒ 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? ☐ Yes ☐ No ☒ 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? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 4.1 °C ☒ Yes ☐ 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 ☒ N/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 ☐ No ☐ N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: ☐ Truesdail ☐ Client ☐ Yes ☐ No ☒ N/A
12. Were samples pH checked? pH = see c. v. p. ☒ Yes ☐ 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 ☒ Std ☐ Yes ☐ No ☐ N/A
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☒ Ground Water ☐ Waste Water
☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☐ Other _____
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Linda

ALERT!!
Level III QC



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

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TLI Laboratory Data Package
For Laboratory Number: 808568

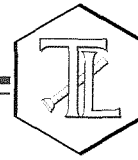
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Section 1.0

Case Narrative

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 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.


for 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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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

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

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

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:

Laboratory No. 808568

Page 1 of 4

Printed 6/28/2013

Samples Received on 6/18/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-66BR-270-192	808568-001	06/18/2013 10:56	Water

Chrome VI by EPA 218.6

Batch 06CrH13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808568-001 Chromium, Hexavalent	ug/L	06/24/2013 12:04	5.00	0.0460	1.0	ND

Method Blank

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

Duplicate

Lab ID = 808567-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.188	0.190	1.06	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.201	0.200	100	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.10	5.00	102	90 - 110

Matrix Spike

Lab ID = 808567-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.20	1.19(1.00)	101	90 - 110

Matrix Spike

Lab ID = 808568-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.07	5.00(5.00)	101	90 - 110

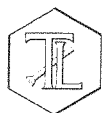
Matrix Spike

Lab ID = 808568-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.00(1.00)	104	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.

007



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 2 of 4

Project Number: 423575.MP.07.TS

Printed 6/28/2013

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.14	5.00	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101	95 - 105



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 3 of 4

Project Number: 423575.MP.07.TS

Printed 6/28/2013

Metals by EPA 6020A, Dissolved

Batch 061913A-ICPMS-1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808568-001 Chromium	ug/L	06/19/2013 14:10	2.00	0.184	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	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.150	0.200	74.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	47.9	50.0	95.8	85 - 115

Matrix Spike

Lab ID = 808568-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	48.9	50.0(50.0)	97.9	75 - 125

Matrix Spike Duplicate

Lab ID = 808568-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	47.1	50.0(50.0)	94.3	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.7	20.0	98.6	90 - 110

MRCVS - Primary

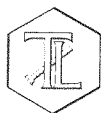
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.2	20.0	96.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.2	20.0	96.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.4	90 - 110

*Report Continued***Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 4 of 4****Project Number: 423575.MP.07.TS****Printed 6/28/2013****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 Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.4	20.0	91.8	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.3	20.0	96.6	80 - 120

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.
for - Mona Nassimi

Manager, Analytical Services

Section 4.0

Wet Chem Analysis/ Raw Data, Standard, Quality Control and Chain of Custody Records

		Result	Unit	DF	RL	Analyzed Date + Time			
808567-001	Chromium, Hexavalent	0.190	ug/L	1.00	0.200	6/24/2013 11:22:00 AM			
808568-001	Chromium, Hexavalent	ND	ug/L	1.00	0.200	6/24/2013 11:53:00 AM			
	Chromium, Hexavalent	ND	ug/L	5.00	1.00	6/24/2013 12:04:00 PM			
Method Blank									
		Result	Unit	DF	Added	Lower	Upper	Recovery	RPD
	Chromium, Hexavalent	ND	ug/L	1.00	0				
Duplicate 808567-001									
		Result	Unit	DF	Added	Lower	Upper	Recovery	RPD
	Chromium, Hexavalent	0.1880	ug/L	1.00	0	0	20		1.06
Low Level Calibration Verification									
		Result	Unit	DF	Added	Lower	Upper	Recovery	RPD
	Chromium, Hexavalent	0.2008	ug/L	1.00	0.200	70	130	100	
Lab Control Sample									
		Result	Unit	DF	Added	Lower	Upper	Recovery	RPD
	Chromium, Hexavalent	5.0953	ug/L	1.00	5.00	90	110	102	
Matrix Spike 808567-001									
		Result	Unit	DF	Added	Lower	Upper	Recovery	RPD
	Chromium, Hexavalent	1.2042	ug/L	1.00	1.00	90	110	101	
Matrix Spike 808568-001									
		Result	Unit	DF	Added	Lower	Upper	Recovery	RPD
	Chromium, Hexavalent	5.0739	ug/L	5.00	5.00	90	110	101	
	Chromium, Hexavalent	1.0447	ug/L	1.00	1.00	90	110	104	
MRCCS - Secondary									
		Result	Unit	DF	Added	Lower	Upper	Recovery	RPD
	Chromium, Hexavalent	5.1387	ug/L	1.00	5.00	90	110	103	
MRCVS - Primary									
		Result	Unit	DF	Added	Lower	Upper	Recovery	RPD
	Chromium, Hexavalent	10.0963	ug/L	1.00	10.0	95	105	101	
	Chromium, Hexavalent	10.0708	ug/L	1.00	10.0	95	105	101	



06/25/13

Analyzed: 6/19/2013

Page 1 of 1

		Result	Unit	DF	RL	Analyzed Date + Time		
808568-001 Chromium		ND	ug/L	2.00	1.00	6/19/2013 2:10:00 PM		
Method Blank								
Chromium	Result	Unit	DF	Added	Lower	Upper	Recovery	RPD
	ND	ug/L	1.00	0				
Duplicate 808568-001								
Chromium	Result	Unit	DF	Added	Lower	Upper	Recovery	RPD
	ND	ug/L	2.00	0	0	20		0
Low Level Calibration Verification								
Chromium	Result	Unit	DF	Added	Lower	Upper	Recovery	RPD
	0.1497	ug/L	1.00	0.200	70	130	74.8	
Lab Control Sample								
Chromium	Result	Unit	DF	Added	Lower	Upper	Recovery	RPD
	47.88	ug/L	2.00	50.0	85	115	95.8	
Matrix Spike 808568-001								
Chromium	Result	Unit	DF	Added	Lower	Upper	Recovery	RPD
	48.93	ug/L	2.00	50.0	75	125	97.9	
Matrix Spike Duplicate 808568-001								
Chromium	Result	Unit	DF	Added	Lower	Upper	Recovery	RPD
	47.13	ug/L	2.00	50.0	75	125	94.3	3.75
MRCCS - Secondary								
Chromium	Result	Unit	DF	Added	Lower	Upper	Recovery	RPD
	19.71	ug/L	1.00	20.0	90	110	98.6	
MRCVS - Primary								
Chromium	Result	Unit	DF	Added	Lower	Upper	Recovery	RPD
	19.25	ug/L	1.00	20.0	90	110	96.2	
Chromium	19.23	ug/L	1.00	20.0	90	110	96.2	
Chromium	19.87	ug/L	1.00	20.0	90	110	99.4	
Interference Check Standard A								
Chromium	Result	Unit	DF	Added	Lower	Upper	Recovery	RPD
	ND	ug/L	1.00	0				
Chromium	ND	ug/L	1.00	0				
Interference Check Standard AB								
Chromium	Result	Unit	DF	Added	Lower	Upper	Recovery	RPD
	18.35	ug/L	1.00	20.0	80	120	91.8	
Chromium	19.31	ug/L	1.00	20.0	80	120	96.6	

S. C.
6/28/13

CH2MHILL

CHAIN OF CUSTODY RECORD

808568

6/18/2013 10:37:42 AM

Page 1 OF 1

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.07.TS Task Order Project 2013-GMP-192-Q2 Turnaround Time 10 Days Shipping Date: 4/11/2013 COC Number: TLI-192-Q2				Container: 250 ml Poly Preservatives: (NH4)2S O4/NH4O H, 4°C Filtered: Field Holding Time: 28 C/6 (E218.6) Field Filtered Metals (6020A) Field Filtered Chromium		500 ml Poly HNO3, 4°C Field 180		<div style="border: 2px solid black; padding: 10px; text-align: center;"> ALERT !! Level III QC </div>		Number of Containers	COMMENTS
DATE	TIME	Matrix									
MW-66BR-270-192	6/18/2013	10:58	Water	X	X			2	pH~2		
TOTAL NUMBER OF CONTAINERS								2	6020A		

For Sample Conditions
See Form Attached

Approved by Sampled by Relinquished by Received by Relinquished by Received by		Signatures  Date/Time 1430 6-18-13 6/18/13 14:38 6/18/13 21:30	Shipping Details Method of Shipment: FedEx On Ice: yes / no Airbill No: Lab Name: Truesdail Laboratories, Inc. Lab Phone: (714) 730-6239	ATTN: Sample Custody	Special Instructions: April 15 to May 9, 2013 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
5/23/13	80811-3	7.0	0.5 mL / 25 mL	9.5	16:00	TM
5/30/13	808179	7.0	2 mL / 100 mL	9.5	7:30	HAN
6/5/13	808266-1	7.0	2 mL / 100 mL	9.5	9:30	NE
↓	↓ -2	↓	↓	↓	↓	NE
↓	808267-1	7.0	2 mL / 100 mL	9.5	9:30	NE
↓	↓ -2	↓	↓	↓	↓	NE
↓	808268	9.5	N/A	N/A	N/A	NE
↓	808270	9.5	N/A	N/A	N/A	NE
↓	808271-1	↓	↓	↓	↓	NE
↓	↓ -2	↓	↓	↓	↓	NE
↓	↓ -3	↓	↓	↓	↓	NE
6/6/13	808301-1	9.5	N/A	N/A	N/A	NE
↓	↓ -2	↓	↓	↓	↓	NE
6/9/13	808272-1	7.0	2 mL / 100 mL	9.5	12:00	TM
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
6/12/13	808407	7.0	2 mL / 100 mL	9.5	8:30	NE
6/19/13	808567	7.0	2 mL / 100 mL	9.5	8:00	NE
↓	808568	9.5	N/A	N/A	N/A	NE
6/20/13	808590-1	7.0	2 mL / 100 mL	9.5	8:40	TM
↓	↓ -2	↓	↓	↓	8:40	↓
↓	↓ -3	↓	↓	↓	8:45	↓
↓	↓ -4	↓	↓	↓	8:45	↓
↓	↓	↓	↓	↓	↓	↓
↓	↓	↓	↓	↓	↓	↓
↓	↓	↓	↓	↓	↓	↓

06/25/13

TM
6/24/13

[illegible]

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.



TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2

Lab # 808568

Date Delivered: 06/18/13 Time: 2:30 By: ☐ Mail ☒ 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? ☐ Yes ☐ No ☒ 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? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 3.7 °C ☒ Yes ☐ 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 ☒ N/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 ☐ No ☐ N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: ☒ Truesdail ☐ Client ☒ Yes ☐ No ☐ N/A
12. Were samples pH checked? pH = See C.O.C ☒ Yes ☐ 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 ☒ Std ☒ Yes ☐ No ☐ N/A
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water
☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water

16. Comments: _____

17. Sample Check-In completed by Truesdail Log-In/Receiving: L. Straburina



CH2MHILL

Applied Sciences Laboratory

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:

Kathy McKinley

Laboratory Project Manager

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 Sample ID	Client Sample ID	Date/Time Collected	Date 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 Name: CH2M HILL/LAB/CVO

ASL SDG#: M1714

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.

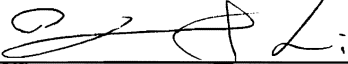
F. Analytical Exception(s):

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.

Prepared by: 

Date: 5/1/2013

Reviewed by: Kathy McKinley

Date: 5/1/13

1A-WC

MW-122-192

Date Received: 04/23/13

[illegible]

Field Sample ID:

Date Received: 04/23/13

1A-WC

MW-30-030-192

Date Received: 04/23/13

[illegible]

1A-WC

MW-124-192

Date Received: 04/23/13

[illegible]

1A-WC

MW-28-025-192

Date Received: 04/23/13

1A-WC

MW-28-090-192

Date Received: 04/23/13

[illegible]

1A-WC

MW-29-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M171410

Date Received: 04/23/13

[illegible]

1A-WC

MW-44-125-192

Date Received: 04/23/13

[illegible]

1A-WC

WB3-0426

Lab Name: CH2M HILL/LAB/CVO







Lab Sample ID: WB3-0426

Date Received: / /

[illegible]

Concentration Units: MG/L[illegible]

Comments:

Approved by	Signatures	Date/Time	Shipping Details	Special Instructions:
Sampled by		4-16-13	Method of Shipment: courier	April 15 to May 9, 2013
Relinquished by		1655	On Ice: <input checked="" type="radio"/> yes no 2.4 121	
Received by		4-16-13 1655	Airbill No:	
Relinquished by		4/14/13 1921	Lab Name: CH2M HILL Applied Sciences Lab	Report Copy to
Received by		4/23/13 1650	Lab Phone: (541) 752-4271	Shawn Duffy (530) 229-3303
RELINQUISHED			Carmen Bell	4/23/13 1200

Project Name PG&E Topock				Container:	250 ml Poly	m1714		
Location Topock				Preservatives:	H2SO4, pH<2, 4°C			
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								
Turnaround Time 10 Days								
Shipping Date: 4/18/2013								
COC Number: 6								
DATE TIME Matrix								
MW-125-192	4/18/2013	6:25	Water	X			1	7
MW-28-025-192	4/18/2013	8:24	Water	X			1	8
MW-28-090-192	4/18/2013	9:15	Water	X			1	9
MW-29-192	4/18/2013	10:39	Water	X			1	10
MW-44-125-192	4/18/2013	16:10	Water	X			1	11
TOTAL NUMBER OF CONTAINERS							5	

Signatures		Date/Time	Shipping Details		ATTN:	Special Instructions:
Approved by		4-18-13	Method of Shipment:	courier		April 15 to May 9, 2013
Sampled by		1645	On Ice:	yes no 2.4 IR1		
Relinquished by		4-18-13 1645	Airbill No:		Sample Custody	
Received by			Lab Name:	CH2M HILL Applied Sciences Lab	and	Report Copy to
Relinquished by		4-18-13 1840	Lab Phone:	(541) 752-4271	Kathy McKinley	Shawn Duffy
Received by		4-22-13 1650				(530) 229-3303
Relinquished by				Carman Bell	4/23/13	1200



Batch Number: 11714
Client/Project: Тороск

Date received: 4-23-13

Checked by: OR

Checked by: _____

VERIFICATION 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: <u>Ice</u> Blue Ice <u>Bubble wrap</u>			
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)?		✓	
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			✓
Was there ice in the cooler? Enter temp. If >6°C contact client/SRER 1.6 °C		✓	

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	✓		

[illegible]



CH2MHILL

Applied Sciences Laboratory

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:

Kathy McKinley

Laboratory Project Manager

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 Sample ID	Client Sample ID	Date/Time Collected	Date 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.

1A
INORGANICS ANALYSIS DATA SHEET

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

Preparation: Dissolved

Concentration Units: ug/L

[illegible]

Comments: _____

1A
INORGANICS ANALYSIS DATA SHEET

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

Preparation: Dissolved

Concentration Units: ug/L

[illegible]

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

Preparation: Dissolved

Concentration Units: ug/L

[illegible]

Comments: _____

1A
INORGANICS ANALYSIS DATA SHEET

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

Preparation: Dissolved

Concentration Units: ug/L

[illegible]

Comments: _____

1A
INORGANICS ANALYSIS DATA SHEET

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

Preparation: Dissolved

Concentration Units: ug/L

[illegible]

Comments: _____

1A
INORGANICS ANALYSIS DATA SHEET

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

Preparation: Dissolved

Concentration Units: ug/L

[illegible]

Comments: _____

1A

WB1-0703

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-0703

Date Received: / /

Concentration Units: ug/L

[illegible]

Comments: _____

Concentration Units: ug/L

MW-90-195-192MSD

[illegible]

Result values >MDL in the native sample are used in the MS/MSD recovery calculation.

Lab Name: CH2M HILL ASL

Solid LCS ID:

Comments:



CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

**CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS**

Lab Name: CH2M HILL/LAB/CVO

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.

Field Sample ID:

Date Received: 04/30/2013

1A-WC

MW-240-192MS

Date Received: 04/30/2013

[illegible]

Field Sample ID:

Date Received: 04/30/2013

1A-WC

MW-54-140-192

Field Sample ID:

Date Received: 04/30/2013

[illegible]

1A-WC

MW-90-195-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M176505

Date Received: 04/30/2013

[illegible]

Field Sample ID:

Date Received: 04/30/2013

1A-WC

WB1-0626

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB1-0626

Date Received: / /

[illegible]

Concentration Units: ug/L

[illegible]

Comments:

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: E120.1

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):

Samples were filtered upon arrival to extend holding time to 28 days.

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: 5-13-13

Reviewed by: Kathy McKinley

Date: 5/14/13

MW-54-085-192

Date Received: 04/30/13

[illegible]

Field Sample ID:

MW-54-140-192

SDG No. : M1765

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M176503

Date Received: 04/30/13

[illegible]

1A-WC

MW-54-195-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M176504

Date Received: 04/30/13

[illegible]

MW-90-195-192

Date Received: 04/30/13

WB1-0430

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB1-0430

Date Received: / /

[illegible]

Concentration Units: umhos/cm

[illegible]

Comments:

CH2MHILL

CHAIN OF CUSTODY RECORD

4/25/2013 4:02:19 PM

Page 1 OF 1

4.9°C m1765

Project Name PG&E Topock				Container:	2x250 ml Poly (NH4)2S O4/NH4O H, 4°C	500 ml Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	1 Liter Poly 4°C		Number of Containers	COMMENTS
Location Topock				Preservatives:							
Project Manager Jay Piper				Filtered:	Field	Field	Field	NA			
Sample Manager Shawn Duffy				Holding Time:	28	180	180	14			
Project Number 423575.MP.07.TS					Cr6 (E218.6R) Field Filtered	Metals (SW6010B/SW6020A) Field Filtered As,Mn	Metals (6020A) Field Filtered Chromium	Specific Conductance (E120.1)			
Task Order											
Project 2013-GMP-192-AZ											
Turnaround Time 12 Days											
Shipping Date: 4/30/2013											
COC Number: 1											
DATE	TIME	MATRIX									
MW-240-192	4/25/2013	14:30	Water	X	12	1 Shorech.				1	11 BEL
MW-54-085-192	4/25/2013	11:52	Water	X		X	X	X		4	2
MW-54-140-192	4/25/2013	13:00	Water	X		X	X	X		4	3
MW-54-195-192	4/25/2013	10:37	Water	X		X	X	X		4	4
MW-90-195-192	4/25/2013	10:38	Water	X		X	X	X		4	5
TOTAL NUMBER OF CONTAINERS										18	17 BEL

Approved by _____
 Sampled by _____
 Relinquished by _____
 Received by _____
 Relinquished by _____
 Received by _____
 RELINQUISHED: _____

Signatures
 Date/Time
 4-25-13
 1607
 4/25/13 1607
 4/30/13 10:23 am
 4/29/13 1050

Shipping Details
 Method of Shipment: courier
 On Ice: yes / no
 Airbill No:
 Lab Name: CH2M HILL Applied Sciences Lab
 Lab Phone: (541) 752-4271

ATTN:
 Sample Custody
 and
 Kathy McKinley

Special Instructions:
 April 15 to May 9, 2013
 Report Copy to
 Shawn Duffy
 (530) 229-3303



CH2MHILL

Applied Sciences Laboratory

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:

Kathy McKinley

Laboratory Project Manager

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.

ASL Report #: M1765

Sample Receipt Comments

We certify that the test results meet all standard ASL requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date 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.

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.

Prepared by: _____

Date: _____

Reviewed by: _____

Date: _____

1A-WC

MW-21-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M176507

Date Received: 04/30/2013

[illegible]

1A-WC

MW-44-115-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M176509

Date Received: 04/30/2013

[illegible]

1A-WC

MW-46-175-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M176510

Date Received: 04/30/2013

[illegible]

1A-WC

MW-63-065-192

Date Received: 04/30/2013

[illegible]

1A-WC

MW-70-105-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M176512

Date Received: 04/30/2013

[illegible]

1A-WC

MW-72-080-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M176513

Date Received: 04/30/2013

[illegible]

1A-WC

MW-33-040-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M176514

Date Received: 04/30/2013

[illegible]

1A-WC

MW-33-090-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M176515

Date Received: 04/30/2013

[illegible]

1A-WC

MW-33-150-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M176516

Date Received: 04/30/2013

[illegible]

1A-WC

MW-33-210-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M176517

Date Received: 04/30/2013

1A-WC

MW-35-060-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M176518

Date Received: 04/30/2013

[illegible]

1A-WC

MW-57-185-192

Date Received: 04/30/2013

[illegible]

1A-WC

WB1-0508

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB1-0508

Date Received: / /

[illegible]

1A-WC

WB3-0508

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB3-0508

Date Received: / /

Concentration Units: mg/L[illegible]

Comments:

CH2MHILL

CHAIN OF CUSTODY RECORD

4/25/2013 4:05:47 PM

Page 1 OF 1

490C M1765

Project Name PG&E Topock				Container:	250 ml Poly			
Location Topock				Preservatives:	H2SO4, pH<2, 4°C			
Project Manager Jay Piper				Filtered:	NA			
Sample Manager Shawn Duffy				Holding Time:	28			
Project Number 423575.MP.07.TS						Nitrate/Nitrite (SM4500NO3) Nitrate		
Task Order								
Project 2013-GMP-192-Q2								
Turnaround Time 10 Days								
Shipping Date: 4/25/2013								
COC Number: 11								
DATE	TIME	Matrix					Number of Containers	COMMENTS
MW-21-192	4/24/2013	9:55	Water	X			1	7
MW-36-100-192	4/24/2013	15:20	Water	X			1	8
MW-44-115-192	4/24/2013	13:50	Water	X			1	9
MW-46-175-192	4/24/2013	11:08	Water	X			1	10
MW-63-065-192	4/25/2013	9:40	Water	X			1	11
MW-70-105-192	4/25/2013	11:45	Water	X			1	12
MW-72-080-192	4/25/2013	13:29	Water	X			1	13
TOTAL NUMBER OF CONTAINERS							7	

Approved by
Sampled by
Relinquished by
Received by
Relinquished by
Received by

Signatures

Date/Time

Shipping Details

Method of Shipment: courier

On Ice: yes / no

Airbill No:

Lab Name: CH2M HILL Applied Sciences Lab

Lab Phone: (541) 752-4271

ATTN:

Sample Custody

and

Kathy McKinley

Special Instructions:

April 15 to May 9, 2013

Report Copy to

Shawn Duffy
(530) 229-3303

RELINQUISHED:

4.9°C mikes

CH2MHILL

CHAIN OF CUSTODY RECORD

4/23/2013 4:13:23 PM

Page 1 OF 1

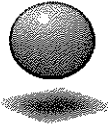
Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.07.TS Task Order Project 2013-GMP-192-Q2 Turnaround Time 10 Days Shipping Date: 4/23/2013 COC Number: 8				Containers: 250 ml Poly Preservatives: H2SO4, pH<2, 4°C Filtered: NA Holding Time: 28	Nitrate/Nitrite (SM4500NO3) Nitrate		Number of Containers	COMMENTS
DATE	TIME	MATRIX						
MW-33-040-192	4/22/2013	11:07	Water	X			1	14
MW-33-090-192	4/22/2013	13:37	Water	X			1	15
MW-33-150-192	4/22/2013	15:03	Water	X			1	16
MW-33-210-192	4/23/2013	9:24	Water	X			1	17
MW-35-060-192	4/23/2013	14:15	Water	X			1	18
MW-57-185-192	4/23/2013	15:26	Water	X			1	19
TOTAL NUMBER OF CONTAINERS							6	

Approved by _____
 Sampled by _____
 Relinquished by _____
 Received by _____
 Relinquished by _____
 Received by _____
 Relinquished by _____

Date/Time
 4-23-13
 1615
 4/23/13 1615
 4/23/13 1832
 4/30/13 1025
 4/24/13 1050

Shipping Details
 Method of Shipment: courier
 On Ice: ☒ yes / no 3.6 121
 Airbill No:
 Lab Name: CH2M HILL Applied Sciences Lab
 Lab Phone: (541) 752-4271

Special Instructions:
 April 15 to May 9, 2013
 ATTN:
 Sample Custody
 and
 Kathy McKinley
 Report Copy to
 Shawn Duffy
 (530) 229-3303



CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Exception Report

Sample Batch Number: M1765 Client/Project PGE Toxack

The following exceptions were noted:

Comments (write number of exception description and the impacted sample numbers)

1. No custody seal as required by project

2. No chain-of-custody provided

3. Analysis, description, date of collection not provided

4. Samples broken or leaking on receipt.

5. Temperature of samples inappropriate for analysis requested

6. Container inappropriate for analysis requested

7. Inadequate sample volume.

8. Preservation inappropriate for analysis requested

9. Samples received out of holding time for analysis requested

10. Discrepancies between COC form and container labels.

11. Other.

*NO₃/NO₂ method on COC
SM 4500 ABL will report
using E383-2*

ACTION TAKEN:

Originator: *[Signature]*

Date: 5/2/13

Client was notified on:
(Date/Time)

Client Contact:

Client Services:



Batch Number: M1765
Client/Project: Topock

Date received: 4/30/13
Checked by: cm
Checked by: _____

VERIFICATION 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: (Ice) Blue Ice (Bubble wrap)			
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)?		✓	
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			✓
Was there ice in the cooler? Enter temp. If >6°C contact client/SRER 4.9 °C		✓	

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	4-30-13 OK	✓	
Dissolved/Soluble metals filtered in the field?	✓	✓	
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		✓

[illegible]



CH2MHILL

Applied Sciences Laboratory

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:

Kathy McKinley

Laboratory Project Manager

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 Sample ID	Client Sample ID	Date/Time Collected	Date 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.

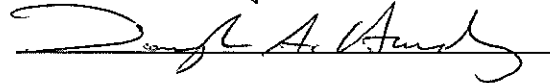
Prepared by:



Date:

5/21/2013

Reviewed by:



Date:

5/22/13

1A-WC

MW-72BR-200-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M181401

Date Received: 05/07/2013

[illegible]

1A-WC

MW-37D-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M181402

Date Received: 05/07/2013

[illegible]

1A-WC

MW-71-035-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M181403

Date Received: 05/07/2013

[illegible]

1A-WC

MW-40D-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M181404

Date Received: 05/07/13

[illegible]

1A-WC

MW-65-160-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M181405

Date Received: 05/07/2013

[illegible]

1A-WC

MW-127-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M181407

Date Received: 05/07/2013

[illegible]

1A-WC

MW-61-110-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M181408

Date Received: 05/07/2013

[illegible]

1A-WC

MW-65-225-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M181409

Date Received: 05/07/2013

[illegible]

1A-WC

MW-66-165-192

Date Received: 05/07/2013

[illegible]

1A-WC

MW-74-240-192

Date Received: 05/07/2013

[illegible]

1A-WC

WB2-0508

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB2-0508

Date Received: / /

[illegible]

1A-WC

WB3-0508

Date Received: / /

[illegible]

1A-WC

WB2-0516

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB2-0516

Date Received: / /

[illegible]

Concentration Units: mg/L

[illegible]

Comments:

Concentration Units: mg/L[illegible]

Comments:

Concentration Units: mg/L

[illegible]

Comments:

SSC

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.07.TS Task Order Project 2013-GMP-192-Q2 Turnaround Time 10 Days Shipping Date: 4/30/2013 COC Number: 13				Container: 250 ml Poly Preservatives: H2SO4, pH<2, 4°C Filtered: NA Holding Time: 28	Nitrate/Nitrite (SM4500NO3) Nitrate	171814	Number of Containers	COMMENTS	
DATE	TIME	Matrix							
MW-72BR-200-192	4/29/2013 14:09	Water							
MW-37D-192	4/30/2013 13:57	Water							
MW-71-035-192	4/30/2013 7:32	Water							
TOTAL NUMBER OF CONTAINERS							3		

Approved by
 Sampled by
 Relinquished by
 Received by
 Relinquished by
 Received by
 Relinquished by
 Received by
 Relinquished by
 Received by

Signatures

Date/Time
 4-30-13
 1605

Shipping Details

Method of Shipment: courier

On Ice: ☒ yes ☐ no 4.6 ICE 1 R-1

Airbill No:

Lab Name: CH2M HILL Applied Sciences Lab

Lab Phone: (541) 752-4271

ATTN:

Sample Custody

and

Kathy McKinley

Special Instructions:

April 15 to May 9, 2013

Report Copy to

Shawn Duffy
 (530) 229-3303

4-30-13 1605

4-30-13 1805

5-6-13 0927

Run En 5/7/13 Int. S

S.50C

CH2MHILL

CHAIN OF CUSTODY RECORD

5/2/2013 4:05:45 PM

Page 1 OF 1

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.07.TS Task Order Project 2013-GMP-192-Q2 Turnaround Time 10 Days Shipping Date: 5/2/2013 COC Number: 15				Container: 250 ml Poly Preservatives: H2SO4, pH<2, 4°C Filtered: NA Holding Time: 28 Nitrate/Nitrite (SM4500NO3) Nitrate	m1814		Number of Containers	COMMENTS
DATE	TIME	Matrix						
MW-40D-192	5/1/2013	15:20	Water	X		1	4	
MW-65-160-192	5/1/2013	13:52	Water	X		1	5	
MW-73-080-192	5/1/2013	10:22	Water	X		1	6	
MW-127-192	5/2/2013	16:25	Water	X		1	7	
MW-61-110-192	5/2/2013	15:06	Water	X		1	8	
MW-65-225-192	5/2/2013	13:16	Water	X		1	9	
MW-66-165-192	5/2/2013	11:14	Water	X		1	10	
MW-74-240-192	5/2/2013	8:21	Water	X		1	11	
TOTAL NUMBER OF CONTAINERS						8		

Approved by
 Sampled by
 Relinquished by
 Received by
 Relinquished by
 Received by
 Relinquished by
 Received by

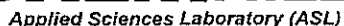
Date/Time
 5-2-13
 1610
 5-2-13 1610
 5/2/13 1824
 5-6-13 0927

Shipping Details
 Method of Shipment: courier
 On Ice: ☒ yes / no
 Airbill No:
 Lab Name: CH2M HILL Applied Sciences Lab
 Lab Phone: (541) 752-4271

ATTN:
 Sample Custody
 and
 Kathy McKinley

Special Instructions:
 April 15 to May 9, 2013
 Report Copy to
 Shawn Duffy
 (530) 229-3303

Ram En 5/13/13 10:25



Checked by: RG

receipt verification
Doc Control ID: ASL593-0413



CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Exception Report

Sample Batch Number: M1814

Client/Project Topock

The following exceptions were noted:

Comments (write number of exception description and the impacted sample numbers)

1. No custody seal as required by project

2. No chain-of-custody provided

3. Analysis, description, date of collection not provided

4. Samples broken or leaking on receipt.

5. Temperature of samples inappropriate for analysis requested

6. Container inappropriate for analysis requested

7. Inadequate sample volume.

8. Preservation inappropriate for analysis requested

9. Samples received out of holding time for analysis requested

10. Discrepancies between COC form and container labels.

11. Other.

COC requested method SM4500
will report E353.2.

ACTION TAKEN:

Originator: Carman Bell

Date: 5/7/13

Client was notified on:
(Date/Time)

Client Contact:

Client Services:



CH2MHILL

Applied Sciences Laboratory

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:

Kathy McKinley

Laboratory Project Manager

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 Sample ID	Client Sample ID	Date/Time Collected	Date 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 Name: CH2M HILL/LAB/CVO

ASL SDG#: M1860

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.

Prepared by: _____

Date: _____

Reviewed by: _____

Date: _____

1A-WC

MW-62-110-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M186001

Date Received: 05/14/13

[illegible]

1A-WC

MW-62-190-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M186002

Date Received: 05/14/13

[illegible]

1A-WC

MW-68-240-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M186003

Date Received: 05/14/13

[illegible]

1A-WC

MW-68BR-280-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M186004

Date Received: 05/14/13

[illegible]

1A-WC

MW-12-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M186005

Date Received: 05/14/13

[illegible]

1A-WC

MW-128-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M186006

Date Received: 05/14/13

[illegible]

1A-WC

MW-20-070-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M186007

Date Received: 05/14/13

[illegible]

MW-20-100-192

Date Received: 05/14/13

[illegible]

1A-WC

MW-67-185-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M186009

Date Received: 05/14/13

[illegible]

1A-WC

MW-67-225-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M186010

Date Received: 05/14/13

1A-WC

MW-67-260-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M186011

Date Received: 05/14/13

[illegible]

1A-WC

MW-60-125-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M186012

Date Received: 05/14/13

[illegible]

1A-WC

MW-69-195-192

Date Received: 05/14/13

[illegible]

1A-WC

MW-26-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M186014

Date Received: 05/14/13

[illegible]

1A-WC

MW-60BR-245-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M186015

Date Received: 05/14/13

[illegible]

1A-WC

MW-70BR-225-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M186016

Date Received: 05/14/13

[illegible]

1A-WC

WB3-0522

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB3-0522

Date Received: / /

[illegible]

1A-WC

WB4-0522

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB4-0522

Date Received: / /

[illegible]

1A-WC

WB5-0522

Date Received: / /

[illegible]

Concentration Units: mg/L[illegible]

Comments:

Concentration Units: mg/L

[illegible]

* Values outside of QC limits

Comments:

Concentration Units: mg/L

[illegible]

Comments:

WATER GENERAL CHEMISTRY MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

Concentration Units: mg/L

MW-62-190-192MSD

[illegible]

Result values >MDL in the native sample are used in the MS/MSD recovery calculation.

7.7°C M1860

CH2MHILL

CHAIN OF CUSTODY RECORD

5/7/2013 3:37:15 PM

Page 1 OF 1

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.07.TS Task Order Project 2013-GMP-192-Q2 Turnaround Time 10 Days Shipping Date: 5/7/2013 COC Number: 18				Container: 250 ml Poly Preservatives: H2SO4, pH<2, 4°C Filtered: NA Holding Time: 28 Nitrate/Nitrite (SM4500NO3) Nitrate	Number of Containers COMMENTS
DATE	TIME	MATRIX			
MW-60-125-192	5/6/2013	11:30	Water X		
MW-69-195-192	5/6/2013	14:50	Water X		
MW-26-192	5/7/2013	10:57	Water X		
MW-60BR-245-192	5/7/2013	8:38	Water X		
MW-70BR-225-192	5/7/2013	13:55	Water X		
TOTAL NUMBER OF CONTAINERS				5	

Approved by Sampled by Relinquished by Received by Relinquished by Received by	Signatures Date/Time 1610 5-7-13 5/7/13 1610 5/7/13 1806	Shipping Details Method of Shipment: courier On Ice: <input checked="" type="checkbox"/> / no 3.4 1P2 Airbill No: Lab Name: CH2M HILL Applied Sciences Lab Lab Phone: (541) 752-4271	ATTN: Sample Custody and Kathy McKinley	Special Instructions: April 15 to May 9, 2013 Report Copy to Shawn Duffy (530) 229-3303
---	---	---	--	---

RELINQUISHED: 05/13/13 0957 Run for 543413 206 5/14/13 11:00am



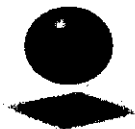
Batch Number: M1860
Client/Project: Topock

Date received: 5/14/13
Checked by: RE
Checked by: CB

VERIFICATION 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: <u>Ice</u> Blue Ice Bubble wrap		✓	
Temp OK? (<6C) Therm ID <u>TH173</u> Exp. <u>6/13</u> <u>7.7</u> °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)?		✓	
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	✓		

[illegible]



CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Exception Report

Sample Batch Number: M1860 Client/Project Topock

The following exceptions were noted:

Comments (write number of exception description and the impacted sample numbers)

1. No custody seal as required by project

2. No chain-of-custody provided

3. Analysis, description, date of collection not provided

4. Samples broken or leaking on receipt.

5. Temperature of samples inappropriate for analysis requested

6. Container inappropriate for analysis requested

7. Inadequate sample volume.

8. Preservation inappropriate for analysis requested

9. Samples received out of holding time for analysis requested

10. Discrepancies between COC form and container labels.

11. Other.

Samples received at 7.7°C
COC requests Nitrate/Nitrite sm4500
will report E3S2.2.

ACTION TAKEN:

Originator: Carmen Bell

Date: 5/14/13

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



CH2MHILL

Applied Sciences Laboratory

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:

Kathy McKinley

Laboratory Project Manager

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 Sample ID	Client Sample ID	Date/Time Collected	Date 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 Name: CH2M HILL/LAB/CVO

ASL SDG#: M1914

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.

Prepared by: _____

Date: _____

Reviewed by: _____

Date: _____

1A-WC

MW-51-192

Date Received: 05/21/13

1A-WC

MW-59-100-192

Date Received: 05/21/13

1A-WC

MW-66-230-192

Date Received: 05/21/13

1A-WC

MW-68-180-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M191404

Date Received: 05/21/13

[illegible]

Field Sample ID:

Date Received: 05/21/13

1A-WC

MW-20-130-192

Date Received: 05/21/13

[illegible]

1A-WC

TW-01-192

Date Received: 05/21/13

[illegible]

Field Sample ID:

SDG No.: M1914

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB4-0522

Date Received: / /

YL130529-13:55-M1914-W

Concentration Units: mg/L[illegible]

Comments:

Tracking # 80266847 7010

m1914

CH2MHILL

CHAIN OF CUSTODY RECORD

5/14/2013 3:26:41 PM

Page 1 OF 1

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.07.TS Task Order Project 2013-GMP-192-Q2 Turnaround Time 10 Days Shipping Date: 5/14/2013 COC Number: 23				Container: 250 ml Poly Preservatives: H2SO4, pH<2, 4°C Filtered: NA Holding Time: 28	Nitrate/Nitrite (SM4500NO3) Nitrate		Number of Containers	COMMENTS
DATE	TIME	Matrix						
MW-51-192	5/13/2013	15:05	Water	X		1	1	
MW-59-100-192	5/13/2013	12:52	Water	X		1	2	
MW-66-230-192	5/13/2013	9:05	Water	X		1	3	
MW-68-180-192	5/13/2013	10:56	Water	X		1	4	
MW-10-192	5/14/2013	11:11	Water	X		1	5	
MW-20-130-192	5/14/2013	8:20	Water	X		1	6	
TW-01-192	5/14/2013	13:52	Water	X		1	7	
TOTAL NUMBER OF CONTAINERS						7		

2.3°C

Signatures Approved by _____ Sampled by _____ Relinquished by _____ Received by _____ Relinquished by _____ Received by _____		Date/Time 5-14-13 1635 14 MAY 13 1635 14 MAY 13 1900	Shipping Details Method of Shipment: courier On Ice: yes / no 3.0 / R1 Airbill No: Lab Name: CH2M HILL Applied Sciences Lab Lab Phone: (541) 752-4271	ATTN: Sample Custody and Kathy McKinley	Special Instructions: April 15 to May 9, 2013 Report Copy to Shawn Duffy (530) 229-3303
---	--	--	--	--	---

RELINQUISHED

20 MAY 13 0944

Return to 5/21/13 10:10



CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Exception Report

Sample Batch Number: mi914 Client/Project To pack

The following exceptions were noted:

Comments (write number of exception description and the impacted sample numbers)

1. No custody seal as required by project

2. No chain-of-custody provided

3. Analysis, description, date of collection not provided

4. Samples broken or leaking on receipt.

5. Temperature of samples inappropriate for analysis requested

6. Container inappropriate for analysis requested

7. Inadequate sample volume.

8. Preservation inappropriate for analysis requested

9. Samples received out of holding time for analysis requested

10. Discrepancies between COC form and container labels.

11. Other.

No₂/No₃ by SM4500 requested.
ASL will report by E 353.2

ACTION TAKEN:

Originator: Carmen Allen

Date: 9-21-13.

Client was notified on:
(Date/Time)

Client Contact:

Client Services:



CH2MHILL

Applied Sciences Laboratory

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:

Kathy McKinley

Laboratory Project Manager

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.

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-56D-192

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

[illegible]

Comments: _____

1A
INORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-56M-192

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

[illegible]

Comments: _____

1A

MW-56S-192

Lab Name: CH2M HILL ASL

Lab Sample ID: M191503

Date Received: 05/21/13

Concentration Units: ug/L

[illegible]

Comments: _____

1A
INORGANICS ANALYSIS DATA SHEET

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

[illegible]

Comments: _____

Lab Name: CH2M HILL ASL

Solid LCS ID:

Comments:



**CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS**

Lab Name: CH2M HILL/LAB/CVO

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):

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.

1A-WC

MW-56D-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M191501

Date Received: 05/21/2013

[illegible]

1A-WC

MW-56D-192MS

Date Received: 05/21/2013

[illegible]

1A-WC

MW-56M-192

Date Received: 05/21/2013

[illegible]

1A-WC

MW-56M-192MS

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M191502MS

Date Received: 05/21/2013

[illegible]

1A-WC

MW-56S-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M191503

Date Received: 05/21/2013

[illegible]

1A-WC

MW-56S-192MS

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M191503MS

05/21/2013

[illegible]

1A-WC

WB1-0625

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB1-0625

Date Received: / /

[illegible]

1A-WC

WB1-0626

Date Received: / /

[illegible]

Concentration Units: ug/L

[illegible]

Comments:

Concentration Units: ug/L[illegible]

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

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.

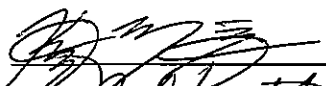
F. Analytical Exception(s):

None.

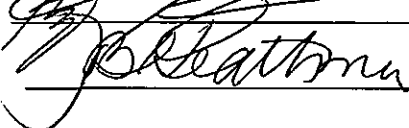
IV. Documentation Exception(s):

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.

Prepared by: 

Date: 5-29-13

Reviewed by: 

Date: 6-3-13

1A-WC

MW-56D-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M191501

Date Received: 05/21/13

[illegible]

1A-WC

MW-56M-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M191502

[illegible]

1A-WC

MW-56S-192

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M191503

Date Received: 05/21/13

[illegible]

1A-WC

WB1-0528

Date Received: / /

[illegible]

Concentration Units: umhos/cm[illegible]

Comments:

mials

CH2MHILL

CHAIN OF CUSTODY RECORD

5/15/2013 11:38:28 AM

Page 1 OF 1

Project Name PG&E Topock				Container:	2x250 ml Poly	500 ml Poly	1 Liter Poly		Number of Containers	COMMENTS
Location Topock				Preservatives:	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	4°C			
Project Manager Jay Piper				Filtered:	Field	Field	NA			
Sample Manager Shawn Duffy				Holding Time:	28	180	14			
Project Number 423575.MP.07.TS										
Task Order										
Project 2013-GMP-192-AZ										
Turnaround Time 12 Days										
Shipping Date: 5/16/2013										
COC Number: 2										
DATE	TIME	MATRIX								
MW-56D-192	5/15/2013	10:01	Water	X ²	X ¹	X ¹			4	8 1
MW-56M-192	5/15/2013	8:55	Water	X ²	X ¹	X ¹			4	9 2
MW-56S-192	5/15/2013	8:39	Water	X ²	X ¹	X ¹			4	16 3
TOTAL NUMBER OF CONTAINERS									12	

2.30C

Signatures		Date/Time	Shipping Details		ATTN: Sample Custody and Kathy McKinley	Special Instructions:
Approved by		5-16-13	Method of Shipment: courier			April 15 to May 9, 2013
Sampled by		1545	On Ice: <input checked="" type="radio"/> yes / no <input type="radio"/> 42121			
Relinquished by		16MAY13 1545	Airbill No:			
Received by		16MAY13 1549	Lab Name: CH2M HILL Applied Sciences Lab			Report Copy to
Relinquished by			Lab Phone: (541) 752-4271			Shawn Duffy
Received by						(530) 229-3303

RELINQUISHED: 20MAY13 0944 Ryan San 5/21/13 1m10



CH2MHILL

Applied Sciences Laboratory

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:

Kathy McKinley

Laboratory Project Manager

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.

ASL Report #: M1941

Sample Receipt Comments

We certify that the test results meet all standard ASL requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date 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 Name: CH2M HILL/LAB/CVO

ASL SDG#: M1941

Project: PGE Topock

Project #: 423575.MP.02.RM

I. Method(s):

Analysis: E353.2

II. 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.

Prepared by: _____

Date: _____

Reviewed by: _____

Date: _____

1A-WC

C-BNS-D-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M194101

[illegible]

1A-WC

C-I-3-S-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M194103

Date Received: 05/28/13

[illegible]

1A-WC

C-I-3-S-191MSD

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M194103MSD

Date Received: 05/28/13

[illegible]

1A-WC

C-MAR-S-191

Date Received: 05/28/13

[illegible]

1A-WC

C-R22A-D-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M194106

Date Received: 05/28/13

[illegible]

1A-WC

C-R22A-S-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M194107

Date Received: 05/28/13

[illegible]

1A-WC

C-R27-D-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M194108

[illegible]

1A-WC

C-R27-S-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M194109

Date Received: 05/28/13

[illegible]

1A-WC

C-TAZ-D-191

Date Received: 05/28/13

[illegible]

1A-WC

C-TAZ-S-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M194111

Date Received: 05/28/13

[illegible]

1A-WC

R63-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M194112

Date Received: 05/28/13

[illegible]

1A-WC

C-CON-D-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M194113

Date Received: 05/28/13

[illegible]

1A-WC

C-CON-D-191MS

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M194113MS

Date Received: 05/28/13

[illegible]

1A-WC

C-CON-D-191MSD

Date Received: 05/28/13

1A-WC

C-CON-S-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M194114

Date Received: 05/28/13

[illegible]

1A-WC

C-NR1-D-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M194115

Date Received: 05/28/13

[illegible]

1A-WC

C-NR1-S-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M194116

Date Received: 05/28/13

[illegible]

1A-WC

C-NR3-D-191

Date Received: 05/28/13

[illegible]

1A-WC

C-NR4-D-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M194119

Date Received: 05/28/13

[illegible]

1A-WC

C-NR4-S-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M194120

Date Received: 05/28/13

[illegible]

1A-WC

R-19-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M194121

Date Received: 05/28/13

[illegible]

1A-WC

R-28-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M194122

Date Received: 05/28/13

[illegible]

1A-WC

RRB-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M194123

Date Received: 05/28/13

[illegible]

Field Sample ID:

Date Received: 05/28/13

1A-WC

RRB-191MSD

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M194123MSD

Date Received: 05/28/13

[illegible]

1A-WC

WB2-0603

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB2-0603

Date Received: / / [illegible]

1A-WC

WB3-0603

Date Received: / /

[illegible]

C-CON-D-191MSD

[illegible]

Result values >MDL in the native sample are used in the MS/MSD recovery calculation.

Concentration Units: mg/L

C-I-3-S-191MSD

[illegible]

Result values >MDL in the native sample are used in the MS/MSD recovery calculation.

Concentration Units: mg/L

RRB-191MSD

[illegible]

Result values >MDL in the native sample are used in the MS/MSD recovery calculation.

Concentration Units: mg/L

[illegible]

Comments:

Concentration Units: mg/L[illegible]

Comments:

main

CH2MHILL

CHAIN OF CUSTODY RECORD

5/21/2013 3:12:50 PM

Page 1 OF 2

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.02.RM Task Order Project 2013-RMP-191 Turnaround Time 10 Days Shipping Date: 5/14/2013 COC Number: CHMC-RMP191				Container: 125 ml Poly Preservatives: H2SO4, pH<2, 4°C Filtered: NA Holding Time: 28 Nitrate/Nitrite (SM4500NO3) Nitrate	Number of Containers	COMMENTS
DATE	TIME	Matrix				
C-BNS-D-191	5/20/2013	11:43	Water	X	1	1
C-I-3-D-191	5/20/2013	10:10	Water	X	1	2
C-I-3-S-191	5/20/2013	10:25	Water	X	1	3
C-MAR-D-191	5/20/2013	12:51	Water	X	1	4
C-MAR-S-191	5/20/2013	13:05	Water	X	1	5
C-R22A-D-191	5/20/2013	11:03	Water	X	1	6
C-R22A-S-191	5/20/2013	11:21	Water	X	1	7
C-R27-D-191	5/20/2013	12:13	Water	X	1	8
C-R27-S-191	5/20/2013	12:29	Water	X	1	9
C-TAZ-D-191	5/20/2013	9:30	Water	X	1	10
C-TAZ-S-191	5/20/2013	9:45	Water	X	1	11
R63-191	5/20/2013	10:45	Water	X	1	12
C-CON-D-191	5/21/2013	9:57	Water	X	1	13
C-CON-S-191	5/21/2013	10:13	Water	X	1	14

Approved by _____
 Sampled by _____
 Relinquished by _____
 Received by _____
 Relinquished by _____
 Received by _____

Signatures
 Date/Time
 5-23-13 1100
 5-25-13 1015

Shipping Details
 Method of Shipment: FedEx
 On Ice: ☒ yes / ☐ no
 Airbill No: *Temp on arrival to lab = 1.8°C*
 Lab Name: CH2M HILL Applied Sciences Lab
 Lab Phone: (541) 752-4271

ATTN:
 Sample Custody
 and
 Kathy McKinley

Special Instructions:
 May 22-23, 2013
 Report Copy to
 Shawn Duffy
 (530) 229-3303

mail

CH2MHILL

CHAIN OF CUSTODY RECORD

5/21/2013 3:12:51 PM

Page 2 OF 2

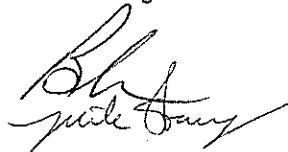
Project Name PG&E Topock				Container:	125 ml Poly
Location Topock				Preservatives:	H2SO4, pH<2, 4°C
Project Manager Jay Piper				Filtered:	NA
Sample Manager Shawn Duffy				Holding Time:	28
Project Number 423575.MP.02.RM				Nitrate/Nitrite (Si/4500NO3) Nitrate	
Task Order					
Project 2013-RMP-191					
Turnaround Time 10 Days					
Shipping Date: 5/14/2013					
COC Number: CHMC-RMP191					
DATE TIME Matrix					
C-NR1-D-191	5/21/2013	10:42	Water	X	
C-NR1-S-191	5/21/2013	10:55	Water	X	
C-NR3-D-191	5/21/2013	11:17	Water	X	
C-NR3-S-191	5/21/2013	11:30	Water	X	
C-NR4-D-191	5/21/2013	11:53	Water	X	
C-NR4-S-191	5/21/2013	12:08	Water	X	
R-19-191	5/21/2013	9:16	Water	X	
R-28-191	5/21/2013	8:56	Water	X	
RRB-191	5/21/2013	9:28	Water	X	
TOTAL NUMBER OF CONTAINERS					23

					Number of Containers	COMMENTS
					1	15
					1	16
					1	17
					1	18
					1	19
					1	20
					1	21
					1	22
					1	23

Signatures

Date/Time

Approved by
Sampled by
Relinquished by
Received by
Relinquished by
Received by



5-23-13
1100
5-25-13
1015

Shipping Details

Method of Shipment: FedEx

On Ice: ☒ yes ☐ no

Airbill No:

Lab Name: CH2M HILL Applied Sciences Lab

Lab Phone: (541) 752-4271

ATTN:

Sample Custody

and

Kathy McKinley

Special Instructions:

May 22-23, 2013

Report Copy to

Shawn Duffy
(530) 229-3303

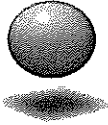


SDG ID: MI9411 Date Received: 5-28-13
Client/Project: TOPSCK Checked By: AB
Packing Material: Ice Blue Ice Box Bubble Wrap HD (circle all that apply) Checked By: _____
Shipping ID: _____ -- or -- On File COC HD USPS (circle one)

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Were custody seals intact and on the outside of the cooler?		✓	
Radiological Screening for DoD	✓		
Temp OK? (<6C) Therm ID <u>TH173</u> Exp. <u>6/13</u> <u>1.8°C</u>		✓	
Was a Chain of Custody (CoC) Provided?		✓	
Was the CoC correctly filled out (If No, document in the SRER)		✓	
Did sample labels agree with COC? No, document in 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 enough sample volume provided for analysis? No, document in SRER		✓	
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 met criteria on receipt? If "No", preserve and document below or on SRER		✓	
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

[illegible]



CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Exception Report

Sample Batch Number: m1941 Client/Project TOPOCK

The following exceptions were noted:

Comments (write number of exception description and the impacted sample numbers)

1. No custody seal as required by project

2. No chain-of-custody provided

3. Analysis, description, date of collection not provided

4. Samples broken or leaking on receipt.

5. Temperature of samples inappropriate for analysis requested

6. Container inappropriate for analysis requested

7. Inadequate sample volume.

8. Preservation inappropriate for analysis requested

9. Samples received out of holding time for analysis requested

10. Discrepancies between COC form and container labels.

11. Other.

Nitrate/Nitrite requested sm4800
ASL will report E353.2

ACTION TAKEN:

Originator: Carmen Bell

Date: 5/28/13

Client was notified on:
(Date/Time)

Client Contact:

Client Services:

May 01, 2013

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

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

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Advanced Technology
Laboratories, Inc.

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: N010025

CASE NARRATIVE

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
Lab Order: N010025
Contract No: 2013-GMP-192-

Work Order Sample Summary

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



Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 01-May-13

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
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130417A	QC Batch: R88472	PrepDate:	Analyst: LCC			
Specific Conductance	13000	0.10	0.10	umhos/cm	1	4/17/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

**Advanced Technology
Laboratories, Inc.**

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 01-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 01-May-13

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
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130417A	QC Batch: R88472	PrepDate:	Analyst: LCC			
Specific Conductance	1000	0.10	0.10	umhos/cm	1	4/17/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 01-May-13

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
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130417A	QC Batch: R88472	PrepDate:	Analyst: LCC			
Specific Conductance	1100	0.10	0.10	umhos/cm	1	4/17/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 01-May-13

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
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130417A	QC Batch: R88472	PrepDate:	Analyst: LCC
Specific Conductance	13000	0.10	0.10
		umhos/cm	1
			4/17/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 01-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 01-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 01-May-13

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
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130417A	QC Batch: R88472	PrepDate:	Analyst: LCC			
Specific Conductance	7800	0.10	0.10	umhos/cm	1	4/17/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

**Advanced Technology
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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 01-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 01-May-13

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
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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 detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

**Advanced Technology
Laboratories, Inc.**

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Advanced Technology Laboratories, Inc.

Date: 01-May-13

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

CLIENT: CH2M HILL
Work Order: N010025
Project: PG&E Topock, 423575.MP.07.TS

Sample ID: LCS-R88472		SampType: LCS		TestCode: 120.1_WPGE		Units: umhos/cm		Prep Date:		RunNo: 88472	
Client ID: LCSW		Batch ID: R88472		TestNo: EPA 120.1				Analysis Date: 4/17/2013		SeqNo: 1557916	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance		10580.000	0.10	9992	0	106	85	115			
Sample ID: N010025-003B-DUP		SampType: DUP		TestCode: 120.1_WPGE		Units: umhos/cm		Prep Date:		RunNo: 88472	
Client ID: ZZZZZZ		Batch ID: R88472		TestNo: EPA 120.1				Analysis Date: 4/17/2013		SeqNo: 1557920	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance		1010.000	0.10					1008	0.198	10	
Sample ID: N010025-006B MS		SampType: MS		TestCode: 120.1_WPGE		Units: umhos/cm		Prep Date:		RunNo: 88472	
Client ID: ZZZZZZ		Batch ID: R88472		TestNo: EPA 120.1				Analysis Date: 4/17/2013		SeqNo: 1557924	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance		20400.000	0.20	9992	9000	114	75	125			
Sample ID: N010025-006B MSD		SampType: MSD		TestCode: 120.1_WPGE		Units: umhos/cm		Prep Date:		RunNo: 88472	
Client ID: ZZZZZZ		Batch ID: R88472		TestNo: EPA 120.1				Analysis Date: 4/17/2013		SeqNo: 1557925	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance		20500.000	0.20	9992	9000	115	75	125	20400	0.489	10

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 01-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**Advanced Technology
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 01-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

**Advanced Technology
Laboratories, Inc.**

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 01-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**Advanced Technology
Laboratories, Inc.**

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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL

Work Order: N010025

Project: PG&E Topock, 423575.MP.07.TS

TestCode: 300_W_FPGE

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

Sample ID: LCS-R88491_F	SampType: LCS	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 88491						
Client ID: LCSW	Batch ID: R88491	TestNo: EPA 300.0		Analysis Date: 4/17/2013	SeqNo: 1559094						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: N010025-004BDUP	SampType: DUP	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: 1559100						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

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

Sample ID: N010025-004BMSD	SampType: MSD	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: 1559102						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL RESULTS

Print Date: 01-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130429A	QC Batch: 42741	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	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS

Print Date: 01-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130429A	QC Batch: 42741	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS

Print Date: 01-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130429A	QC Batch: 42741	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS

Print Date: 01-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130429A	QC Batch: 42741	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS

Print Date: 01-May-13

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
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DISSOLVED METALS BY ICP-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 12:15 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	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS

Print Date: 01-May-13

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
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DISSOLVED METALS BY ICP-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
Selenium	ND 0.084	0.50	µg/L 1 4/29/2013 12:46 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 01-May-13

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
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DISSOLVED METALS BY ICP-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 12:52 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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 01-May-13

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
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DISSOLVED METALS BY ICP-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
Manganese	4.5 0.16 0.50	µg/L	1 4/29/2013 12:57 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 01-May-13

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
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DISSOLVED METALS BY ICP-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 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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 01-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.

Date: 01-May-13

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL

Work Order: N010025

Project: PG&E Topock, 423575.MP.07.TS

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		
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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
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Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
Work Order: N010025
Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6020_DIS

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: 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	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: 1565757						
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	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: 1565759						
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	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: 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	
Selenium	9.922	2.5	10.00	0	99.2	75	125	10.25	3.28	20	





Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.07.TS Task Order Project 2013-GMP-192-Q2 Turnaround Time 10 Days Shipping Date: 4/16/2013 COC Number: 2				Container: 500 ml Poly 500 ml Poly 500 ml Poly 500 ml Poly 1 Liter Poly 1 Liter Poly		Preservatives: HNO3, 4°C HNO3, 4°C HNO3, 4°C HNO3, 4°C 4°C 4°C		Filtered: Field Field Field Field NA NA		Holding Time: 180 180 180 180 14 14		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	COMMENTS
DATE TIME Matrix														
MW-121-192	4/15/2013	7:10	Water	X			X	X	X					
MW-122-192	4/15/2013	17:15	Water			X		X						
MW-27-020-192	4/15/2013	11:20	Water	X			X	X						
MW-27-060-192	4/15/2013	12:41	Water	X			X	X	X					
MW-27-085-192	4/15/2013	13:52	Water	X			X	X	X					
MW-30-030-192	4/15/2013	15:27	Water			X		X						
MW-124-192	4/16/2013	6:50	Water	X			X	X						
MW-34-080-192	4/16/2013	10:06	Water	X	X			X						
MW-34-100-192	4/16/2013	13:27	Water	X			X	X						
MW-42-055-192	4/16/2013	15:28	Water	X				X						
TOTAL NUMBER OF CONTAINERS											20			

Signatures Approved by  Sampled by  Relinquished by  Received by 		Date/Time 4-16-13 1655 4-16-13 1655 4/16/10 1921		Shipping Details Method of Shipment: courier On Ice: <input checked="" type="checkbox"/> / no Airbill No: CE 2.4 121 Lab Name: ADVANCED TECHNOLOGY LABORATO Lab Phone: (702) 307-2659		ATTN: Sample Custody and Marlon		Special Instructions: April 15 to May 9, 2013 Report Copy to Shawn Duffy (530) 229-3303	
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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 or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 4/16/2013

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 ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

- | | | | |
|---|---|-----------------------------|---|
| 1. Shipping container/cooler in good condition? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 16. Were there Non-Conformance issues at login? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| Was Client notified? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |

Comments:

Checklist Completed B

MBC

4/12/13

Reviewed By:

[Signature]

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:

$$\text{Fluoride, mg/L} = A * DF$$

where:

A = mg/L, IC calculated concentration

DF = dilution factor

For ⁴ ~~N010025-001~~^{mg/L} **B**, concentration in mg/L are calculated as follows:

$$\begin{aligned} \text{Fluoride, mg/L} &= 0.594 * 1 \\ &= 0.594 \end{aligned}$$

Reporting ⁴ ~~N010025-001~~^{mg/L} **B** results in two significant figures,

$$\text{Fluoride, mg/L} = 0.59$$

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:

$$\text{Arsenic, ug/L} = A * DF * PF$$

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:

$$\text{Arsenic, ug/L} = 1.35212 * 1 * (25/25)$$

$$= 1.35212$$

Reporting results in two significant figures,

$$\text{Arsenic, ug/L} = 1.4$$

NS for
5/1/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N010025
 Test Method: EPA 6020
 Analysis Date: 04/29/13

Dilution Test Summary

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 5X	Selenium	µg/L	0	NA	0		10
N010046-001A-DT 5X	Molybdenum	µg/L	13.72252297	PASSED	14.99696558	8.50%	10

Note: NA - Not applicable

436
5/1/13

CLIENT: CH2M HILL
 Work Order: N010025
 Project: PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

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: 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	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 Val	%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 Val	%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:

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 03, 2013

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.:2676
NV Cert. No.:NV-009222007A

Workorder No.: N010046

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

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**Advanced Technology
Laboratories, Inc.**

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: N010046

CASE NARRATIVE

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
Lab Order: N010046
Contract No: 2013-GMP-192-

Work Order Sample Summary

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



Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 03-May-13

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
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130422D	QC Batch: R88527	PrepDate:	Analyst: LCC			
Specific Conductance	15000	0.10	0.10	umhos/cm	1	4/22/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

**Advanced Technology
Laboratories, Inc.**

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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 03-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 03-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 03-May-13

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
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130422D	QC Batch: R88527	PrepDate:	Analyst: LCC			
Specific Conductance	1400	0.10	0.10	umhos/cm	1	4/22/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 03-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 03-May-13

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
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130422D	QC Batch: R88527	PrepDate:	Analyst: LCC			
Specific Conductance	9700	0.10	0.10	umhos/cm	1	4/22/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 03-May-13

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
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130422D	QC Batch: R88527	PrepDate:	Analyst: LCC			
Specific Conductance	1000	0.10	0.10	umhos/cm	1	4/22/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 03-May-13

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
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130422D	QC Batch: R88527	PrepDate:	Analyst: LCC			
Specific Conductance	7400	0.10	0.10	umhos/cm	1	4/22/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 03-May-13

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
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130422D	QC Batch: R88527	PrepDate:	Analyst: LCC
Specific Conductance	2100	0.10	0.10
		umhos/cm	1
			4/22/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 03-May-13

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
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130422D	QC Batch: R88527	PrepDate:	Analyst: LCC			
Specific Conductance	9400	0.10	0.10	umhos/cm	1	4/22/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

**Advanced Technology
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
 Work Order: N010046
 Project: PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT**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
Specific Conductance	10260.000	0.10	9992	0	103	85	115				

Qualifiers:

B Analyte detected in the associated Method Blank
 ND Not Detected at the Reporting Limit
 DO Surrogate Diluted Out

E Value above quantitation range
 R RPD outside accepted recovery limits
 Calculations are based on raw values

H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference



Advanced Technology
 Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 03-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



Advanced Technology
Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 03-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

**Advanced Technology
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3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
 Work Order: N010046
 Project: PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT**TestCode: 300_W_FPGE**

Sample ID: MB-R88668_F	SampType: MBLK	TestCode: 300_W_FPGE Units: mg/L				Prep Date:				RunNo: 88668		
Client ID: 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: LCS-R88668_F	SampType: LCS	TestCode: 300_W_FPGE Units: mg/L				Prep Date:				RunNo: 88668		
Client ID: LCSW	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: N010046-008BDUP	SampType: DUP	TestCode: 300_W_FPGE Units: mg/L				Prep Date:				RunNo: 88668		
Client ID: 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: N010046-009BMS	SampType: MS	TestCode: 300_W_FPGE Units: mg/L				Prep Date:				RunNo: 88668		
Client ID: 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: N010046-009BMSD	SampType: MSD	TestCode: 300_W_FPGE Units: mg/L				Prep Date:				RunNo: 88668		
Client ID: 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	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL RESULTS

Print Date: 03-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130429A	QC Batch: 42741	PrepDate: 4/21/2013	Analyst: CEI
Arsenic	26	0.035	0.10
Manganese	1300	4.0	12

µg/L	1	4/29/2013 01:53 PM
µg/L	25	4/29/2013 03:55 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 03-May-13

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
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DISSOLVED METALS BY ICP-MS**EPA 3010A****EPA 6020**

RunID: ICP7_130429A	QC Batch: 42741	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: 03-May-13

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
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DISSOLVED METALS BY ICP-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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 03-May-13

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
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DISSOLVED METALS BY ICP-MS**EPA 3010A****EPA 6020**

RunID: ICP7_130429A	QC Batch: 42741	PrepDate: 4/21/2013	Analyst: CEI			
Arsenic	19	0.035	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: 03-May-13

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
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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	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS

Print Date: 03-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130429A	QC Batch: 42741	PrepDate: 4/21/2013	Analyst: CEI
Arsenic	3.3	0.035	0.10
Manganese	480	0.80	2.5
Molybdenum	130	0.37	2.5
Selenium	ND	0.084	0.50

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS

Print Date: 03-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130429A	QC Batch: 42741	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	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 03-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130429A	QC Batch: 42741	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 03-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130429A	QC Batch: 42741	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS

Print Date: 03-May-13

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
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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 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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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CLIENT: CH2M HILL
 Work Order: N010046
 Project: PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT

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	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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CLIENT: CH2M HILL
Work Order: N010046
Project: PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

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: 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				
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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: 1565757						
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	
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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: 1565759						
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				
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Selenium	10.253	2.5	10.00	0	103	75	125				
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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: 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	
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Selenium	9.922	2.5	10.00	0	99.2	75	125	10.25	3.28	20	
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Qualifiers:






B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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Project Name PG&E Topock		Container:		500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly			Number of Containers	COMMENTS
Location Topock		Preservatives:		HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C				
Project Manager Jay Piper		Filtered:		Field	Field	Field	NA	NA				
Sample Manager Shawn Duffy		Holding Time:		180	180	180	14	14				
Project Number 423575.MP.07.TS				Arsenic (6020A) Field Filtered	Metals (6020A) Field Filtered Mo, Se, Mn	Metals (6020A) Field Filtered	Specific Conductance (E120.1)	Anions (E300.0) Fluoride				
Task Order		DATE	TIME	Matrix								
Project 2013-GMP-192-Q2		MW-123-192	4/17/2013	6:25	Water	X	X		X		1010042-1	2
Turnaround Time 10 Days		MW-32-035-192	4/17/2013	11:05	Water	X	X		X		-2	2
Shipping Date: 4/18/2013		MW-42-065-192	4/17/2013	9:04	Water	X	X		X		-3	2
COC Number: 5		MW-43-025-192	4/17/2013	12:59	Water	X	X		X		-4	2
		MW-43-090-192	4/17/2013	13:47	Water	X	X		X		-5	2
		MW-125-192	4/18/2013	6:25	Water	X		X	X		-6	2
		MW-28-025-192	4/18/2013	8:24	Water	X		X	X		-7	2
		MW-28-090-192	4/18/2013	9:15	Water	X		X	X	X	-8	2
		MW-29-192	4/18/2013	10:39	Water	X		X	X	X	-9	2
		MW-44-125-192	4/18/2013	16:10	Water	X		X	X		-10	2
TOTAL NUMBER OF CONTAINERS											20	

Signatures		Date/Time	Shipping Details		ATTN: Sample Custody and Marlon	Special Instructions: April 15 to May 9, 2013 Report Copy to Shawn Duffy (530) 229-3303
Approved by		4-18-13	Method of Shipment: courier			
Sampled by		1645	On Ice: <input checked="" type="radio"/> yes / no 2.4 121			
Relinquished by		4-18-13 1645	Airbill No:			
Received by		4-18-13 1848	Lab Name: ADVANCED TECHNOLOGY LABORATO			
Relinquished by			Lab Phone: (702) 307-2659			

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 or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 4/18/2013

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

Sample Receipt Checklist

- | | | | |
|---|---|-----------------------------|---|
| 1. Shipping container/cooler in good condition? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH < 2 for Metals | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 16. Were there Non-Conformance issues at login? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| Was Client notified? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |

Comments:

Checklist Completed B

MBC

MSC 4/18/13

Reviewed By:

[Signature]

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:

$$\text{Fluoride, mg/L} = A * DF$$

where:

A = mg/L, IC calculated concentration

DF = dilution factor

For **N010046-008B**, concentration in mg/L are calculated as follows:

$$\begin{aligned}\text{Fluoride, mg/L} &= 0.625 * 5 \\ &= 3.125\end{aligned}$$

Reporting **N010046-008B** results in two significant figures,

$$\text{Fluoride, mg/L} = 3.1$$

1.313

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:

$$\text{Arsenic, ug/L} = A * DF * PF$$

where:

A = ug/L, calculated concentration

DF = dilution factor

PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample **N010046-002A**, the concentration in ug/L is calculated as follows:

$$\begin{aligned} \text{Arsenic, ug/L} &= 26.699 * 1 * (25/25) \\ &= 26.699 \end{aligned}$$

Reporting results in two significant figures,

$$\text{Arsenic, ug/L} = 27$$

MS for
5/3/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N010025 246 252/13
 Test Method: EPA 6020
 Analysis Date: 04/29/13

Dilution Test Summary

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 5X	Selenium	µg/L	0	NA	0		10
N010046-001A-DT 5X	Molybdenum	µg/L	13.72252297	PASSED	14.99696558	8.50%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
 Work Order: N010046
 Project: PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

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: 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	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 Val	%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 Val	%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:

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
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303

FAX: (530) 339-3303

CA-ELAP No.: 2676

NV Cert. No.: NV-009222007A

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

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Advanced Technology
Laboratories, Inc.

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: N010097

CASE NARRATIVE

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.



CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.07.TS
Lab Order: N010097
Contract No: 2013-GMP-192-

Work Order Sample Summary

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



Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 09-May-13

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
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130424J	QC Batch: R88615	PrepDate:	Analyst: LCC
Specific Conductance	7000	0.10	0.10
		umhos/cm	1
			4/24/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



Advanced Technology
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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 09-May-13

CLIENT: CH2M HILL
Lab Order: N010097
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010097-002

Client Sample ID: MW-33-090-192
Collection Date: 4/22/2013 1:37:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130424J	QC Batch: R88615			PrepDate:		Analyst: LCC
Specific Conductance	11000	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



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 09-May-13

CLIENT: CH2M HILL
Lab Order: N010097
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010097-003

Client Sample ID: MW-33-150-192
Collection Date: 4/22/2013 3:03:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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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 E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 09-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 09-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 09-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 09-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 09-May-13

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
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130424J	QC Batch: R88615	PrepDate:	Analyst: LCC
Specific Conductance	7000	0.10	0.10
		umhos/cm	1
			4/24/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 09-May-13

CLIENT: CH2M HILL
Lab Order: N010097
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010097-009

Client Sample ID: MW-35-135-192
Collection Date: 4/23/2013 3:24:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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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



**Advanced Technology
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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 09-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

**Advanced Technology
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 09-May-13

CLIENT: CH2M HILL
Lab Order: N010097
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010097-011

Client Sample ID: MW-57-185-192
Collection Date: 4/23/2013 3:26:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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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 E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



**Advanced Technology
Laboratories, Inc.**

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Advanced Technology Laboratories, Inc.

Date: 09-May-13

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL

Work Order: N010097

Project: PG&E Topock, 423575.MP.07.TS

TestCode: 120.1_WPGE

Sample ID: LCS-R88615	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88615						
Client ID: LCSW	Batch ID: R88615	TestNo: EPA 120.1		Analysis Date: 4/24/2013	SeqNo: 1564343						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: N010097-008BMS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88615						
Client ID: ZZZZZZ	Batch ID: R88615	TestNo: EPA 120.1		Analysis Date: 4/24/2013	SeqNo: 1564352						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: N010097-008BMSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88615						
Client ID: ZZZZZZ	Batch ID: R88615	TestNo: EPA 120.1		Analysis Date: 4/24/2013	SeqNo: 1564353						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: N010097-010ADUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88615						
Client ID: ZZZZZZ	Batch ID: R88615	TestNo: EPA 120.1		Analysis Date: 4/24/2013	SeqNo: 1564356						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
Work Order: N010097
Project: PG&E Topock, 423575.MP.07.TS

TestCode: 120.1_WPGE

Sample ID: LCS-R88616	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88616						
Client ID: LCSW	Batch ID: R88616	TestNo: EPA 120.1		Analysis Date: 4/24/2013	SeqNo: 1564357						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: N010122-002B-DUP		SampType: DUP	TestCode: 120.1_WPGE		Units: umhos/cm	Prep Date:		RunNo: 88616			
Client ID: ZZZZZZ		Batch ID: R88616	TestNo: EPA 120.1		Analysis Date: 4/24/2013		SeqNo: 1564361				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: N010122-003B MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88616						
Client ID: ZZZZZZ	Batch ID: R88616	TestNo: EPA 120.1		Analysis Date: 4/24/2013	SeqNo: 1564369						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: N010122-003B MSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88616						
Client ID: ZZZZZZ	Batch ID: R88616	TestNo: EPA 120.1		Analysis Date: 4/24/2013	SeqNo: 1564371						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference



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ANALYTICAL RESULTS

Print Date: 09-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS

Print Date: 09-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 09-May-13

CLIENT: CH2M HILL
Lab Order: N010097
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010097-003

Client Sample ID: MW-33-150-192
Collection Date: 4/22/2013 3:03:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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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 E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 09-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL

Work Order: N010097

Project: PG&E Topock, 423575.MP.07.TS

TestCode: 300_W_FPGE

Sample ID: MB-R88704_F	SampType: MBLK	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 88704						
Client ID: PBW	Batch ID: R88704	TestNo: EPA 300.0		Analysis Date: 4/24/2013	SeqNo: 1567863						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: LCS-R88704_F	SampType: LCS	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 88704						
Client ID: LCSW	Batch ID: R88704	TestNo: EPA 300.0		Analysis Date: 4/24/2013	SeqNo: 1567864						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: N010097-001BDUP	SampType: DUP	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 88704						
Client ID: ZZZZZZ	Batch ID: R88704	TestNo: EPA 300.0		Analysis Date: 4/24/2013	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	SampType: MS	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 88704						
Client ID: ZZZZZZ	Batch ID: R88704	TestNo: EPA 300.0		Analysis Date: 4/24/2013	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	SampType: MSD	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 88704						
Client ID: ZZZZZZ	Batch ID: R88704	TestNo: EPA 300.0		Analysis Date: 4/24/2013	SeqNo: 1567875						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	16.870	2.5	12.50	4.610	98.1	80	120	16.96	0.503	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL RESULTS

Print Date: 09-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130502A	QC Batch: 42852	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS

Print Date: 09-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130502A	QC Batch: 42852	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS

Print Date: 09-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130502A	QC Batch: 42852	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	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS

Print Date: 09-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130502A	QC Batch: 42852	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 09-May-13

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
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DISSOLVED METALS BY ICP-MS**EPA 3010A****EPA 6020**

RunID: ICP7_130504C	QC Batch: 42852	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: 09-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 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	ND 0.16 0.50	µg/L	1 5/2/2013 12:14 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS

Print Date: 09-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130504C	QC Batch: 42852	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS

Print Date: 09-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130502A	QC Batch: 42852	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS

Print Date: 09-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130504C	QC Batch: 42852	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Date: 09-May-13

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL

Work Order: N010097

Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6020_DIS

Sample ID: MB-42852	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/30/2013	RunNo: 88736
Client ID: PBW	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/2/2013	SeqNo: 1569544
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

Sample ID: LCS-42852	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/30/2013	RunNo: 88736
Client ID: LCSW	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/2/2013	SeqNo: 1569545
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Arsenic 10.171 0.10 10.00 0 102 85 115

Manganese 91.829 0.50 100.0 0 91.8 85 115

Molybdenum 9.104 0.50 10.00 0 91.0 85 115

Sample ID: N010097-001A-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/30/2013	RunNo: 88736
Client ID: ZZZZZZ	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/2/2013	SeqNo: 1569571
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Arsenic 24.787 0.10 10.00 14.55 102 75 125

Manganese 57.918 0.50 100.0 0 57.9 75 125 S

Sample ID: N010097-001A-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/30/2013	RunNo: 88736
Client ID: ZZZZZZ	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/2/2013	SeqNo: 1569572
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Arsenic 24.980 0.10 10.00 14.55 104 75 125 24.79 0.776 20

Manganese 57.170 0.50 100.0 0 57.2 75 125 57.92 1.30 20 S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
Work Order: N010097
Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6020_DIS

Sample ID: MB-42852	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/30/2013	RunNo: 88739						
Client ID: PBW	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/4/2013	SeqNo: 1569655						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID: LCS-42852	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/30/2013	RunNo: 88739						
Client ID: LCSW	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/4/2013	SeqNo: 1569656						
Analyte	Result	PQL	SPK value	SPK Ref Val	%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		SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/30/2013	RunNo: 88739					
Client ID: ZZZZZZ		Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/4/2013	SeqNo: 1569660					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	155.786	2.5	10.00	146.0	97.4	75	125				
Selenium	10.241	2.5	10.00	0	102	75	125				

Sample ID: N010097-001A-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/30/2013	RunNo: 88739						
Client ID: ZZZZZZ	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/4/2013	SeqNo: 1569661						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%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	

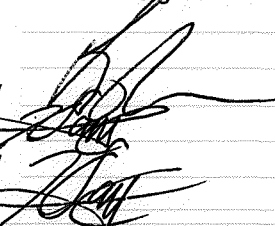
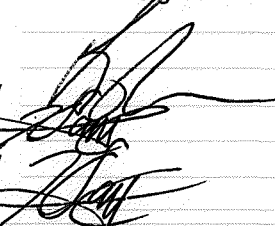
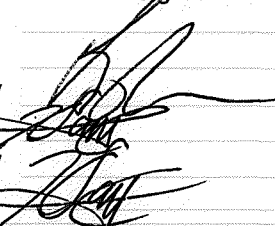
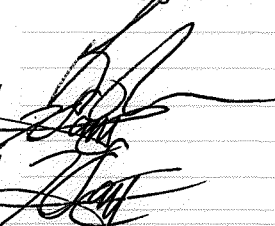
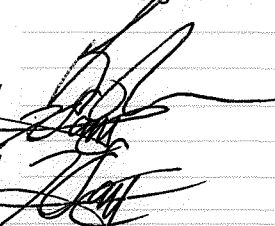
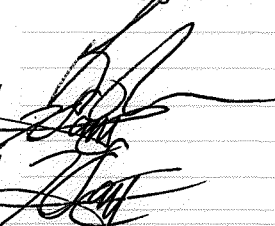
Qualifiers:

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



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Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.07.TS Task Order Project 2013-GMP-192-Q2 Turnaround Time 10 Days Shipping Date: 4/23/2013 COC Number: 7				Container: 500 ml Poly 500 ml Poly 500 ml Poly 1 Liter Poly 1 Liter Poly 1 Liter Poly			Preservatives: HNO3, 4°C HNO3, 4°C HNO3, 4°C 4°C 4°C 4°C			Filtered: Field Field Field NA NA NA			Holding Time: 180 180 180 14 14 30			Arsenic (6020A) Field Filtered Metals (6020A) Field Filtered Mo, Se, Mn Metals (6020A) Field Filtered Specific Conductance (E120.1) Anions (E300.0) Fluoride Extra (*)			Number of Containers	COMMENTS
DATE	TIME	Matrix																		
MW-33-040-192	4/22/2013	11:07	Water	X		X	X	X								2				
MW-33-090-192	4/22/2013	13:37	Water	X		X	X	X								2				
MW-33-150-192	4/22/2013	15:03	Water	X		X	X	X								2				
MW-44-070-192	4/22/2013	9:33	Water	X	X		X									2				
MW-23-060-192	4/23/2013	11:13	Water	X	X		X		X							3				
MW-23-080-192	4/23/2013	13:08	Water	X	X		X		X							3				
MW-33-210-192	4/23/2013	9:24	Water	X		X	X	X								2				
MW-35-060-192	4/23/2013	14:15	Water	X		X	X									2				
MW-35-135-192	4/23/2013	15:24	Water				X									1				
MW-41D-192	4/23/2013	11:52	Water				X									1				
MW-57-185-192	4/23/2013	15:26	Water	X		X	X		X							3				
TOTAL NUMBER OF CONTAINERS															23					

Signatures Approved by  Sampled by  Relinquished by  Received by  Relinquished by  Received by 		Date/Time 4-23-13 1615 4/23/13 1615 4/23/13 1832		Shipping Details Method of Shipment: courier On Ice: <input checked="" type="checkbox"/> yes / no 3.6 IR1 Airbill No: Lab Name: ADVANCED TECHNOLOGY LABORATO Lab Phone: (702) 307-2659		ATTN: Sample Custody and Marlon		Special Instructions: April 15 to May 9, 2013 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 or further instruction, please contact our Project Coordinator 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 ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

- | | | | |
|---|---|-----------------------------|---|
| 1. Shipping container/cooler in good condition? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 16. Were there Non-Conformance issues at login? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| Was Client notified? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |

Comments:

Checklist Completed B

MBC

4/24/13

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:

$$\text{Fluoride, mg/L} = A * DF$$

where:

A = mg/L, IC calculated concentration

DF = dilution factor

For **N010097-001B**, concentration in mg/L are calculated as follows:

$$\begin{aligned}\text{Fluoride, mg/L} &= 1.026 * 10 \\ &= 10.26\end{aligned}$$

Reporting **N010097-001B** results in two significant figures,

$$\text{Fluoride, mg/L} = 10$$

ns/8/13

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:

$$\text{Arsenic, ug/L} = A * DF * PF$$

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:

$$\text{Arsenic, ug/L} = 14.5534499809815 * 1 * (25/25)$$

$$= 14.5534499809815$$

Reporting results in two significant figures,

$$\text{Arsenic, ug/L} = 15$$

NS for
5/9/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N010097
Test Method: EPA 6020
Analysis Date: 05/02/13

Dilution Test Summary

Matrix: Water
Batch No.: 42852

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
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

Work Order No.: N010097
Test Method: EPA 6020
Analysis Date: 05/04/13

Dilution Test Summary

Matrix: Water
Batch No.: 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

CLIENT: CH2M HILL
Work Order: N010097
Project: PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT**TestCode: 6020_DIS**

Sample ID: N010097-001A-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:				RunNo: 88736			
Client ID: ZZZZZZ	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/2/2013				SeqNo: 1569570			
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	75	125				
Manganese	147.242	1.0	200.0	0	73.6	75	125				S

Sample ID: N010097-001A-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:				RunNo: 88739			
Client ID: ZZZZZZ	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/4/2013				SeqNo: 1569659			
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				

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 22, 2013

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

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.
Laboratory Director

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Advanced Technology
Laboratories, Inc.

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CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.07.TS
Lab Order: N010122

CASE NARRATIVE

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.

Date: 22-May-13

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.07.TS
Lab Order: N010122
Contract No: 2013-GMP-192-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N010122-001A	MW-126-192	Water	4/24/2013 8:57:00 AM	4/25/2013	5/22/2013
N010122-002A	MW-16-192	Water	4/24/2013 11:00:00 AM	4/25/2013	5/22/2013
N010122-002B	MW-16-192	Water	4/24/2013 11:00:00 AM	4/25/2013	5/22/2013
N010122-003A	MW-17-192	Water	4/24/2013 12:20:00 PM	4/25/2013	5/22/2013
N010122-003B	MW-17-192	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-36-100-192	Water	4/24/2013 3:20:00 PM	4/25/2013	5/22/2013
N010122-005B	MW-36-100-192	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-46-175-192	Water	4/24/2013 11:08:00 AM	4/25/2013	5/22/2013
N010122-007B	MW-46-175-192	Water	4/24/2013 11:08:00 AM	4/25/2013	5/22/2013
N010122-008A	MW-46-205-192	Water	4/24/2013 9:08:00 AM	4/25/2013	5/22/2013
N010122-009A	MW-47-055-192	Water	4/24/2013 3:13:00 PM	4/25/2013	5/22/2013
N010122-010A	MW-47-115-192	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-48-192	Water	4/25/2013 8:20:00 AM	4/25/2013	5/22/2013
N010122-013A	MW-62-065-192	Water	4/25/2013 3:10:00 PM	4/25/2013	5/22/2013
N010122-013B	MW-62-065-192	Water	4/25/2013 3:10:00 PM	4/25/2013	5/22/2013
N010122-014A	MW-63-065-192	Water	4/25/2013 9:40:00 AM	4/25/2013	5/22/2013
N010122-014B	MW-63-065-192	Water	4/25/2013 9:40:00 AM	4/25/2013	5/22/2013
N010122-014C	MW-63-065-192	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-72-080-192	Water	4/25/2013 1:29:00 PM	4/25/2013	5/22/2013
N010122-016B	MW-72-080-192	Water	4/25/2013 1:29:00 PM	4/25/2013	5/22/2013
N010122-016C	MW-72-080-192	Water	4/25/2013 1:29:00 PM	4/25/2013	5/22/2013



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Page 1 of 1
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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 22-May-13

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		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130424K	QC Batch: R88616	PrepDate:	Analyst: LCC
Specific Conductance	5700	0.10	0.10
		umhos/cm	1
			4/26/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



Advanced Technology
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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 22-May-13

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
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130424K	QC Batch: R88616	PrepDate:	Analyst: LCC			
Specific Conductance	1100	0.10	0.10	umhos/cm	1	4/26/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

**Advanced Technology
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 22-May-13

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	Units	DF	Date Analyzed
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

**Advanced Technology
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3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 22-May-13

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	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130424K	QC Batch: R88616	PrepDate:	Analyst: LCC			
Specific Conductance	11000	0.10	0.10	umhos/cm	1	4/26/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

**Advanced Technology
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 22-May-13

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
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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	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 22-May-13

CLIENT: CH2M HILL
Lab Order: N010122
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010122-006

Client Sample ID: MW-44-115-192
Collection Date: 4/24/2013 1:50:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130424K	QC Batch: R88616			PrepDate:		Analyst: LCC
Specific Conductance	13000	0.10	0.10	umhos/cm	1	4/26/2013

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 22-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 22-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 22-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 22-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 22-May-13

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		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130424L	QC Batch: R88619	PrepDate:	Analyst: LCC			
Specific Conductance	5800	0.10	0.10	umhos/cm	1	4/26/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 22-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 22-May-13

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
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130424L	QC Batch: R88619	PrepDate:	Analyst: LCC			
Specific Conductance	7300	0.10	0.10	umhos/cm	1	4/26/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 22-May-13

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
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130424L	QC Batch: R88619	PrepDate:	Analyst: LCC
Specific Conductance	8100	0.10	0.10
		umhos/cm	1
			4/26/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 22-May-13

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
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130424L	QC Batch: R88619	PrepDate:	Analyst: LCC
Specific Conductance	3800	0.10	0.10
		umhos/cm	1
			4/26/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 22-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

CLIENT: CH2M HILL
Work Order: N010122
Project: PG&E Topock, 423575.MP.07.TS

Sample ID: LCS-R88616	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88616						
Client ID: LCSW	Batch ID: R88616	TestNo: EPA 120.1		Analysis Date: 4/26/2013	SeqNo: 1564357						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1466.000	0.10	1412	0	104	85	115				
Sample ID: N010122-002B-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88616						
Client ID: ZZZZZZ	Batch ID: R88616	TestNo: EPA 120.1		Analysis Date: 4/26/2013	SeqNo: 1564361						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1128.000	0.10			0	0	10				
Sample ID: N010122-003B MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88616						
Client ID: ZZZZZZ	Batch ID: R88616	TestNo: EPA 120.1		Analysis Date: 4/26/2013	SeqNo: 1564369						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2994.000	0.20	1412	1462	108	75	125				
Sample ID: N010122-003B MSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88616						
Client ID: ZZZZZZ	Batch ID: R88616	TestNo: EPA 120.1		Analysis Date: 4/26/2013	SeqNo: 1564371						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	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	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
Work Order: N010122
Project: PG&E Topock, 423575.MP.07.TS

TestCode: 120.1_WPGE

Sample ID: LCS-R88619	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88619						
Client ID: LCSW	Batch ID: R88619	TestNo: EPA 120.1		Analysis Date: 4/26/2013	SeqNo: 1564397						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: N010122-014B-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88619						
Client ID: ZZZZZZ	Batch ID: R88619	TestNo: EPA 120.1		Analysis Date: 4/26/2013	SeqNo: 1564405						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	8143.000	0.10						8140	0.0368	10	

Sample ID: N010122-014B MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88619						
Client ID: ZZZZZZ	Batch ID: R88619	TestNo: EPA 120.1		Analysis Date: 4/26/2013	SeqNo: 1564407						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	20220.000	0.20	9992	8140	121	75	125				

Sample ID: N010122-014B	MSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88619					
Client ID: ZZZZZZ		Batch ID: R88619	TestNo: EPA 120.1		Analysis Date: 4/26/2013	SeqNo: 1564408					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	20200.000	0.20	9992	8140	121	75	125	20220	0.0990	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 22-May-13

CLIENT: CH2M HILL
 Lab Order: N010122
 Project: PG&E Topock, 423575.MP.07.TS
 Lab ID: N010122-002

Client Sample ID: MW-16-192
 Collection Date: 4/24/2013 11:00:00 AM
 Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_130503C

QC Batch: 42820

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: B Analyte detected in the associated Method Blank E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 22-May-13

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	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

	EPA 3010A		EPA 6010B			
RunID: ICP2_130503C	QC Batch: 42820		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:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL

Work Order: N010122

Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6010_WDPGEPPB

Sample ID: MB-42820	SampType: MBLK	TestCode: 6010_WDPGE	Units: ug/L	Prep Date: 4/26/2013	RunNo: 88732						
Client ID: PBW	Batch ID: 42820	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/3/2013	SeqNo: 1569318						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum	ND	50									
Barium	ND	3.0									
Boron	50.091	100									
Cadmium	ND	3.0									
Calcium	ND	500									
Cobalt	ND	3.0									
Copper	ND	5.0									
Iron	ND	20									
Lead	ND	10									
Magnesium	ND	100									
Nickel	ND	5.0									
Silver	ND	3.0									
Vanadium	ND	3.0									
Zinc	ND	10									

Sample ID: N010122-002A-MS	SampType: MS	TestCode: 6010_WDPGE	Units: ug/L	Prep Date: 4/26/2013	RunNo: 88732						
Client ID: ZZZZZZ	Batch ID: 42820	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/3/2013	SeqNo: 1569322						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum	8313.694	50	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	70.6	75	125				S
Calcium	29567.969	500	10000	21550	80.2	75	125				
Cobalt	9.629	3.0	10.00	0	96.3	75	125				
Copper	10.010	5.0	10.00	0	100	75	125				
Iron	88.921	20	100.0	0	88.9	75	125				
Lead	38.034	10	50.00	0	76.1	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
Work Order: N010122

Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6010_WDPGEPPB

Sample ID: N010122-002A-MS	SampType: MS	TestCode: 6010_WDPGE	Units: ug/L	Prep Date: 4/26/2013	RunNo: 88732						
Client ID: ZZZZZZ	Batch ID: 42820	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/3/2013	SeqNo: 1569322						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: N010122-002A-MSD	SampType: MSD	TestCode: 6010_WDPGE	Units: ug/L	Prep Date: 4/26/2013	RunNo: 88732						
Client ID: ZZZZZZ	Batch ID: 42820	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/3/2013	SeqNo: 1569323						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: LCS-42820	SampType: LCS	TestCode: 6010_WDPGE	Units: ug/L	Prep Date: 4/26/2013	RunNo: 88732						
Client ID: LCSW	Batch ID: 42820	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/3/2013	SeqNo: 1569328						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
Work Order: N010122
Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6010_WDPGEPPB

Sample ID: LCS-42820	SampType: LCS	TestCode: 6010_WDPGE Units: ug/L				Prep Date: 4/26/2013		RunNo: 88732			
Client ID: LCSW	Batch ID: 42820	TestNo: EPA 6010B EPA 3010A				Analysis Date: 5/3/2013		SeqNo: 1569328			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	46.956	3.0	50.00	0	93.9	85	115				
Boron	8723.170	100	10000	0	87.2	85	115				
Cadmium	9.978	3.0	10.00	0	99.8	85	115				
Calcium	8765.844	500	10000	0	87.7	85	115				
Cobalt	10.442	3.0	10.00	0	104	85	115				
Copper	9.934	5.0	10.00	0	99.3	85	115				
Iron	97.396	20	100.0	0	97.4	85	115				
Lead	43.071	10	50.00	0	86.1	85	115				
Magnesium	9239.410	100	10000	0	92.4	85	115				
Nickel	44.477	5.0	50.00	0	89.0	85	115				
Silver	45.925	3.0	50.00	0	91.8	85	115				
Vanadium	8.884	3.0	10.00	0	88.8	85	115				
Zinc	47.574	10	50.00	0	95.1	85	115				

Qualifiers:

B Analyte detected in the associated Method Blank
 ND Not Detected at the Reporting Limit
 DO Surrogate Diluted Out
 E Value above quantitation range
 R RPD outside accepted recovery limits
 Calculations are based on raw values
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference



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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
Work Order: N010122
Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6010_WDPGEPPB

Sample ID: MB-42923	Sample Type: MBLK	TestCode: 6010_WDPGE	Units: ug/L	Prep Date: 5/7/2013	RunNo: 88781						
Client ID: PBW	Batch ID: 42923	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/7/2013	SeqNo: 1571628						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: LCS-42923	Sample Type: LCS	TestCode: 6010_WDPGE	Units: ug/L	Prep Date: 5/7/2013	RunNo: 88781						
Client ID: LCSW	Batch ID: 42923	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/7/2013	SeqNo: 1571629						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: N010122-002A-MS	Sample Type: MS	TestCode: 6010_WDPGE	Units: ug/L	Prep Date: 5/7/2013	RunNo: 88781						
Client ID: ZZZZZZ	Batch ID: 42923	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/7/2013	SeqNo: 1571632						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: N010122-002A-MSD	Sample Type: MSD	TestCode: 6010_WDPGE	Units: ug/L	Prep Date: 5/7/2013	RunNo: 88781						
Client ID: ZZZZZZ	Batch ID: 42923	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/7/2013	SeqNo: 1571633						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B Analyte detected in the associated Method Blank
 ND Not Detected at the Reporting Limit
 DO Surrogate Diluted Out
 E Value above quantitation range
 R RPD outside accepted recovery limits
 Calculations are based on raw values
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference



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ANALYTICAL RESULTS

Print Date: 22-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130502A	QC Batch: 42852	PrepDate: 4/30/2013	Analyst: CEI
Antimony	ND 0.084	0.50	µg/L 1 5/2/2013 01:42 PM
Arsenic	9.7 0.035	0.10	µg/L 1 5/2/2013 01:42 PM
Manganese	ND 0.16	0.50	µg/L 1 5/2/2013 01:42 PM
Molybdenum	12 0.074	0.50	µg/L 1 5/2/2013 01:42 PM
Selenium	1.9 0.084	0.50	µg/L 1 5/21/2013 01:39 PM
Thallium	ND 0.075	0.50	µg/L 1 5/2/2013 01:42 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS

Print Date: 22-May-13

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	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130502A	QC Batch: 42852	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	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS

Print Date: 22-May-13

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	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130521A	QC Batch: 42852	PrepDate: 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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS

Print Date: 22-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130502A	QC Batch: 42852	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	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS

Print Date: 22-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130504C	QC Batch: 42852	PrepDate: 4/30/2013	Analyst: CEI
Arsenic	6.3	0.17	0.50
Manganese	ND	0.16	0.50
Molybdenum	73	0.37	2.5
Selenium	ND	0.42	2.5

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS

Print Date: 22-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130504C	QC Batch: 42852	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	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS

Print Date: 22-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130502A	QC Batch: 42852	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS

Print Date: 22-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130502A	QC Batch: 42852	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS

Print Date: 22-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130504C	QC Batch: 42852	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	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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Advanced Technology Laboratories, Inc.

Date: 22-May-13

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL

Work Order: N010122

Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6020_DIS

Sample ID: MB-42852	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/30/2013	RunNo: 88736
Client ID: PBW	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/2/2013	SeqNo: 1569544
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Antimony	ND	0.50			
Arsenic	ND	0.10			
Manganese	ND	0.50			
Molybdenum	ND	0.50			

Sample ID: LCS-42852	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/30/2013	RunNo: 88736
Client ID: LCSW	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/2/2013	SeqNo: 1569545
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Antimony	10.256	0.50	10.00	0	103	85	115		
Arsenic	10.171	0.10	10.00	0	102	85	115		
Manganese	91.829	0.50	100.0	0	91.8	85	115		
Molybdenum	9.104	0.50	10.00	0	91.0	85	115		

Sample ID: N010097-001A-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/30/2013	RunNo: 88736
Client ID: ZZZZZZ	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/2/2013	SeqNo: 1569571
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Antimony	11.199	0.50	10.00	0.6269	106	75	125		
Arsenic	24.787	0.10	10.00	14.55	102	75	125		
Manganese	57.918	0.50	100.0	0	57.9	75	125		S

Sample ID: N010097-001A-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/30/2013	RunNo: 88736
Client ID: ZZZZZZ	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/2/2013	SeqNo: 1569572
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit 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:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL

Work Order: N010122

Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6020_DIS

Sample ID: N010097-001A-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/30/2013	RunNo: 88736						
Client ID: ZZZZZZ	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/2/2013	SeqNo: 1569572						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%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	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/30/2013	RunNo: 88739						
Client ID: PBW	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/4/2013	SeqNo: 1569655						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID: LCS-42852	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/30/2013	RunNo: 88739						
Client ID: LCSW	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/4/2013	SeqNo: 1569656						
Analyte	Result	PQL	SPK value	SPK Ref Val	%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	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/30/2013	RunNo: 88739						
Client ID: ZZZZZZ	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/4/2013	SeqNo: 1569660						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	155.786	2.5	10.00	146.0	97.4	75	125				
Selenium	10.241	2.5	10.00	0	102	75	125				

Sample ID: N010097-001A-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/30/2013	RunNo: 88739						
Client ID: ZZZZZZ	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/4/2013	SeqNo: 1569661						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%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	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
Work Order: N010122
Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6020_DIS

Sample ID: MB-42852	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/30/2013	RunNo: 88736						
Client ID: PBW	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/2/2013	SeqNo: 1576653						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: LCS-42852	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/30/2013	RunNo: 88736						
Client ID: LCSW	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/2/2013	SeqNo: 1576654						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	10.578	0.50	10.00	0	106	85	115				

Sample ID: N010097-001A-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/30/2013	RunNo: 88736						
Client ID: ZZZZZZ	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/2/2013	SeqNo: 1576680						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	10.254	0.50	10.00	0	103	75	125				

Sample ID: N010097-001A-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 4/30/2013	RunNo: 88736						
Client ID: ZZZZZZ	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/2/2013	SeqNo: 1576681						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	10.299	0.50	10.00	0	103	75	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
 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



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 22-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**Advanced Technology
Laboratories, Inc.**

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 22-May-13

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	Units	DF	Date Analyzed
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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	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



**Advanced Technology
Laboratories, Inc.**

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Advanced Technology Laboratories, Inc.

Date: 22-May-13

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL

Work Order: N010122

Project: PG&E Topock, 423575.MP.07.TS

TestCode: 7470_W_DISSPGE


Sample ID: LCS-42979	SampType: LCS	TestCode: 7470_W_DIS	Units: µg/L	Prep Date: 5/14/2013	RunNo: 88874						
Client ID: LCSW	Batch ID: 42979	TestNo: EPA 7470A		Analysis Date: 5/15/2013	SeqNo: 1576009						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.492	0.20	5.000	0	110	85	115				
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	%RPD	RPDLimit	Qual
Mercury	ND	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						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.438	0.20	5.000	0	109	75	125				
Sample ID: N010122-002A-MSD	SampType: MSD	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: 1576016						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.532	0.20	5.000	0	111	75	125	5.438	1.72	20	

Qualifiers:

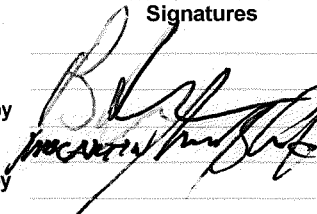
B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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Approved by _____ Sampled by _____ Relinquished by _____ Received by _____ Relinquished by _____ Received by _____	Signatures  Date/Time 4-25-13 1607 9/25/13 @ 1607	Shipping Details Method of Shipment: courier On Ice: <input checked="" type="checkbox"/> yes <input type="checkbox"/> no 2.1°C Airbill No: 1CE 1RTH Lab Name: ADVANCED TECHNOLOGY LABORATORY Lab Phone: (702) 307-2659	ATTN: Sample Custody and Marlon	Special Instructions: April 15 to May 9, 2013 Report Copy to Shawn Duffy (530) 229-3303
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Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.07.TS Task Order Project 2013-GMP-192-Q2 Turnaround Time 10 Days Shipping Date: 4/25/2013 COC Number: 10		Container: 500 ml Poly 500 ml Poly 500 ml Poly 500 ml Poly 1 Liter Poly 1 Liter Poly	Preservatives: HNO3, 4°C HNO3, 4°C HNO3, 4°C HNO3, 4°C	Filtered: Field Field Field Field	Holding Time: 180 180 180 180	NA NA	NA NA	Specific Conductance (E120.1) Extra (*)	Number of Containers	COMMENTS
DATE TIME Matrix	MW-70-105-192 4/25/2013 11:45 Water	X	X	X	X	X	X	NO10122-15	3	
MW-72-080-192 4/25/2013 13:29 Water	X	X	X	X	X	X	X	L - 16	3	
TOTAL NUMBER OF CONTAINERS									29	

Approved by Sampled by Relinquished by Received by Relinquished by Received by	Signatures  Date/Time 4-25-13 1607	Shipping Details Method of Shipment: courier On Ice: yes / no Airbill No: Lab Name: ADVANCED TECHNOLOGY LABORATO Lab Phone: (702) 307-2659	ATTN: Sample Custody and Marlon	Special Instructions: April 15 to May 9, 2013 Report Copy to Shawn Duffy (530) 229-3303
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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 or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 4/25/2013

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 ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

- | | | | |
|---|---|-----------------------------|---|
| 1. Shipping container/cooler in good condition? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 16. Were there Non-Conformance issues at login? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| Was Client notified? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |

Comments:

Checklist Completed B

MBC

4/26/13

Reviewed By:



Nancy Sibucão

From: Marlon B. Cartin [marlon@atl-labs.com]
Sent: Monday, May 13, 2013 4:03 PM
To: Nancy Sibucão
Cc: 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:

$$\text{Barium, ug/L} = A * DF * PF * CF$$

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 **N010122-002A**, the concentration in ug/L is calculated as follows:

$$\text{Barium, ug/L} = 0.02523562804 * 1 * (25/25) * 1000$$

$$= 25.23562804 \text{ ug/L}$$

Reporting results in two significant figures,

$$\text{Barium, ug/L} = 25 \text{ ug/L}$$

WS for
5/10/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N010122
 Test Method: EPA 6010
 Analysis Date: 05/03/13

Dilution Test Summary

Matrix: Water
 Batch No.: 42820

Instrument ID: ICP-02
 Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

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

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N010122
Test Method: EPA 6010
Analysis Date: 05/07/13

Dilution Test Summary

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

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	TestCode: 6010_WDPGE Units: ug/L				Prep Date:			RunNo: 88732		
Client ID: ZZZZZZ	Batch ID: 42820	TestNo: EPA 6010B		EPA 3010A		Analysis Date: 5/3/2013			SeqNo: 1569327		
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	TestCode: 6010_WDPGE	Units: ug/L	Prep Date:	RunNo: 88781						
Client ID: ZZZZZZ	Batch ID: 42923	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/7/2013	SeqNo: 1571635						
Analyte	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:

$$\text{Arsenic, ug/L} = A * DF * PF$$

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:

$$\begin{aligned}\text{Arsenic, ug/L} &= 9.71333328065282 * 1 * (25/25) \\ &= 9.71333328065282\end{aligned}$$

Reporting results in two significant figures,

$$\text{Arsenic, ug/L} = 9.7$$

us for
5/1-1/3

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N010122
Test Method: EPA 6020
Analysis Date: 05/02/13

Dilution Test Summary

Matrix: Water
Batch No.: 42852

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 ID	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

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N010122
Test Method: EPA 6020
Analysis Date: 05/04/13

Dilution Test Summary

Matrix: Water
Batch No.: 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

CLIENT: CH2M HILL
Work Order: N010122
Project: PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N010097-001A-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 88736						
Client ID: ZZZZZZ	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/2/2013	SeqNo: 1569570						
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	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 88739						
Client ID: ZZZZZZ	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/4/2013	SeqNo: 1569659						
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	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 88736						
Client ID: ZZZZZZ	Batch ID: 42852	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/2/2013	SeqNo: 1576679						
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:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			

Sample 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:

$$\text{Mercury, ug/L} = A * DF * PF * 0.5$$

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 conversion factor.

For Sample **N010122-002A** the concentration in ug/L is calculated as follows:

$$\begin{aligned}\text{Mercury, ug/L} &= 0.02 * 1 * (50/25) * 0.5 \\ &= 0.02 \text{ ug/L}\end{aligned}$$

Reporting results in two significant figures,

$$\text{Mercury, ug/L} = 0.020$$

$$\text{Mercury, ug/L} = \text{ND since result is LRL}$$

62 fm
5/20/13

July 18, 2013

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.:2676
NV Cert. No.:NV-009222007A

Workorder No.: N010222

RE: PG&E Topock, 423575.MP.07.TS

Attention: Shawn P. Duffy

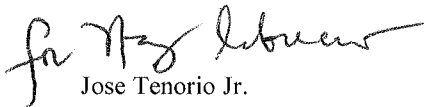
Enclosed are the results for sample(s) received on May 09, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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,



Jose Tenorio Jr.
Laboratory Director

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**Advanced Technology
Laboratories, Inc.**

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

CASE NARRATIVE

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.



Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 18-Jul-13

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
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DISSOLVED METALS BY ICP-MS**EPA 3010A****EPA 6020**

RunID: ICP7_130523A	QC Batch: 43045	PrepDate: 5/22/2013	Analyst: CEI
Copper	ND 0.14	1.0	µg/L 1 5/23/2013 02:38 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	

**Advanced Technology
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
 Work Order: N010222
 Project: PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT**TestCode: 6020_DIS**

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
Copper	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



Advanced Technology
Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

May 15, 2013

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303

FAX: (530) 339-3303

CA-ELAP No.: 2676

NV Cert. No.: NV-009222007A

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

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Advanced Technology
Laboratories, Inc.

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: N010137

CASE NARRATIVE

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
Lab Order: N010137
Contract No: 2013-GMP-192-

Work Order Sample Summary

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



Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 15-May-13

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
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130501B	QC Batch: R88673	PrepDate:	Analyst: LCC
Specific Conductance	16000	0.10	0.10
		umhos/cm	1
			5/1/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**Advanced Technology
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 15-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

**Advanced Technology
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 15-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

**Advanced Technology
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 15-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

**Advanced Technology
Laboratories, Inc.**

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Advanced Technology Laboratories, Inc.

Date: 15-May-13

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

CLIENT: CH2M HILL
Work Order: N010137
Project: PG&E Topock, 423575.MP.07.TS

Sample ID: LCS-R88673	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88673						
Client ID: LCSW	Batch ID: R88673	TestNo: EPA 120.1		Analysis Date: 5/1/2013	SeqNo: 1566703						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	10160.000	0.10	9992	0	102	85	115				
Sample ID: N010137-003B-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88673						
Client ID: ZZZZZZ	Batch ID: R88673	TestNo: EPA 120.1		Analysis Date: 5/1/2013	SeqNo: 1566712						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	8408.000	0.10			8410	0.0238				10	
Sample ID: N010137-003B MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88673						
Client ID: ZZZZZZ	Batch ID: R88673	TestNo: EPA 120.1		Analysis Date: 5/1/2013	SeqNo: 1566713						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	18620.000	0.20	9992	8410	102	75	125				
Sample ID: N010137-003B MSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88673						
Client ID: ZZZZZZ	Batch ID: R88673	TestNo: EPA 120.1		Analysis Date: 5/1/2013	SeqNo: 1566714						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	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	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 15-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130510B	QC Batch: 42887	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**Advanced Technology
Laboratories, Inc.**

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 15-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130510B	QC Batch: 42887	PrepDate: 5/3/2013	Analyst: CEI
Molybdenum	45 0.37	2.5	µg/L 5 5/10/2013 03:09 PM
Selenium	ND 0.42	2.5	µg/L 5 5/10/2013 03:09 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**Advanced Technology
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 15-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

**Advanced Technology
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 15-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130510B	QC Batch: 42887	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	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



**Advanced Technology
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: 15-May-13

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL

Work Order: N010137

Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6020_DIS

Sample ID: MB-42887	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/3/2013	RunNo: 88833
Client ID: PBW	Batch ID: 42887	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/10/2013	SeqNo: 1574105
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-42887	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/3/2013	RunNo: 88833
Client ID: LCSW	Batch ID: 42887	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/10/2013	SeqNo: 1574106
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Arsenic	10.093	0.10	10.00	0	101	85	115	
Manganese	101.739	0.50	100.0	0	102	85	115	
Molybdenum	10.355	0.50	10.00	0	104	85	115	
Selenium	8.917	0.50	10.00	0	89.2	85	115	

Sample ID: N010156-011A-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/3/2013	RunNo: 88833
Client ID: ZZZZZZ	Batch ID: 42887	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/10/2013	SeqNo: 1574138
Analyte	Result	PQL	SPK value	SPK Ref Val	%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	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/3/2013	RunNo: 88833
Client ID: ZZZZZZ	Batch ID: 42887	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/10/2013	SeqNo: 1574141
Analyte	Result	PQL	SPK value	SPK Ref Val	%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
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Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
 Work Order: N010137
 Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6020_DIS

Sample ID: N010156-011A-MSD		SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/3/2013	RunNo: 88833					
Client ID: ZZZZZZ	Batch ID: 42887		TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/10/2013	SeqNo: 1574141					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	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	

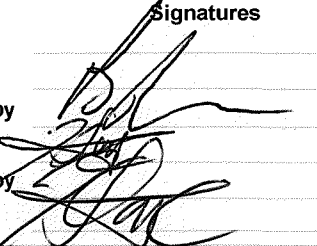

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.07.TS Task Order Project 2013-GMP-192-Q2 Turnaround Time 10 Days Shipping Date: 4/30/2013 COC Number: 12				Container: 500 ml Poly 500 ml Poly 500 ml Poly 1 Liter Poly 1 Liter Poly	Preservatives: HNO ₃ , 4°C HNO ₃ , 4°C HNO ₃ , 4°C 4°C 4°C	Filtered: Field Field Field NA NA	Holding Time: 180 180 180 14 30	Arsenic (6020A) Field Filtered Metals (6020A) Field Filtered Mo, Se Metals (6020A) Field Filtered Mo, Se, Mn Specific Conductance (E:120, 1) Extra (*)	Number of Containers COMMENTS		
DATE TIME Matrix											
MW-72BR-200-192	4/29/2013	14:09	Water	X		X	X	X	NO 10/37-1 -2 -3 -4	3	
MW-37D-192	4/30/2013	13:57	Water		X		X			2	
MW-58BR-10000-192	4/30/2013	11:53	Water	X			X	X		3	
MW-71-035-192	4/30/2013	7:32	Water	X		X	X			2	
TOTAL NUMBER OF CONTAINERS										10	

Approved by Sampled by Relinquished by Received by Relinquished by Received by	Signatures  	Date/Time 4-30-13 1605 4-30-13 1605 4-30-13 1805	Shipping Details Method of Shipment: courier On Ice: yes / no 4.6 ICE 121 Airbill No: Lab Name: ADVANCED TECHNOLOGY LABORATO Lab Phone: (702) 307-2659	ATTN: Sample Custody and Marion	Special Instructions: April 15 to May 9, 2013 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 or further instruction, please contact our Project Coordinator 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

Sample Receipt Checklist

- | | | | |
|---|---|-----------------------------|---|
| 1. Shipping container/cooler in good condition? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH < 2 for Metals | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 16. Were there Non-Conformance issues at login? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| Was Client notified? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |

Comments:

Checklist Completed B

MBC

MBC 5/1/13

Reviewed By:

[Signature]

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:

$$\text{Arsenic, ug/L} = A * DF * PF$$

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:

$$\begin{aligned} \text{Arsenic, ug/L} &= 14.2480525987205 * 1 * (25/25) \\ &= 14.2480525987205 \end{aligned}$$

Reporting results in two significant figures,

$$\text{Arsenic, ug/L} = 14$$

MS for
5/14/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N010137
Test Method: EPA 6020
Analysis Date: 05/10/13

Dilution Test Summary

Matrix: Water
Batch No.: 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

CLIENT: CH2M HILL
Work Order: N010137
Project: PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N010156-011A-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/3/2013	RunNo: 88833						
Client ID: ZZZZZZ	Batch ID: 42887	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/10/2013	SeqNo: 1574137						
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

CA-ELAP No.:2676
NV Cert. No.:NV-009222007A

Workorder No.: N010156

RE: PG&E Topock, 423575.MP.07.TS

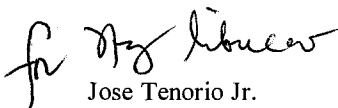
Attention: Shawn P. Duffy

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.

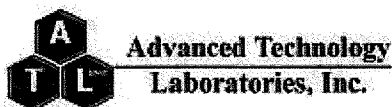
Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,



Jose Tenorio Jr.
Laboratory Director

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.



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CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.07.TS
Lab Order: N010156

CASE NARRATIVE

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.

Date: 17-May-13

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.07.TS
Lab Order: N010156
Contract No: 2013-GMP-192-

Work Order Sample Summary

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



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Page 1 of 1

Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 17-May-13

CLIENT: CH2M HILL
Lab Order: N010156
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010156-001

Client Sample ID: MW-40D-192
Collection Date: 5/1/2013 3:20:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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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 E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



**Advanced Technology
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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 17-May-13

CLIENT: CH2M HILL
Lab Order: N010156
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010156-002

Client Sample ID: MW-64BR-192
Collection Date: 5/1/2013 11:30:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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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 E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 17-May-13

CLIENT: CH2M HILL
Lab Order: N010156
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010156-003

Client Sample ID: MW-65-160-192
Collection Date: 5/1/2013 1:52:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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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
ND Not Detected at the Reporting Limit
Results are wet unless otherwise specified



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 17-May-13

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
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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 detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

**Advanced Technology
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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 17-May-13

CLIENT: CH2M HILL
Lab Order: N010156
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010156-005

Client Sample ID: MW-120-192
Collection Date: 5/2/2013 9:30:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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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 Analyte detected in the associated Method Blank E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 17-May-13

CLIENT: CH2M HILL
Lab Order: N010156
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010156-006

Client Sample ID: MW-127-192
Collection Date: 5/2/2013 4:25:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130503A	QC Batch: R88710	PrepDate:	Analyst: LCC
Specific Conductance	10000	0.10	0.10
		umhos/cm	1
			5/3/2013

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 17-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 17-May-13

CLIENT: CH2M HILL
Lab Order: N010156
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010156-008

Client Sample ID: MW-61-110-192
Collection Date: 5/2/2013 3:06:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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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 E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



Advanced Technology
Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 17-May-13

CLIENT: CH2M HILL
Lab Order: N010156
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010156-009

Client Sample ID: MW-65-225-192
Collection Date: 5/2/2013 1:16:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130503A	QC Batch: R88710	PrepDate:	Analyst: LCC
Specific Conductance	10000 0.10 0.10	umhos/cm	1 5/3/2013

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



Advanced Technology
Laboratories, Inc.

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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 17-May-13

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
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130503A	QC Batch: R88710	PrepDate:	Analyst: LCC			
Specific Conductance	4100	0.10	0.10	umhos/cm	1	5/3/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

**Advanced Technology
Laboratories, Inc.**

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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 17-May-13

CLIENT: CH2M HILL
Lab Order: N010156
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010156-011

Client Sample ID: MW-74-240-192
Collection Date: 5/2/2013 8:21:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: **WETCHEM_130503B** QC Batch: **R88711** PrepDate: Analyst: **LCC**
Specific Conductance 810 0.10 0.10 umhos/cm 1 5/3/2013

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



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Advanced Technology Laboratories, Inc.

Date: 17-May-13

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

CLIENT: CH2M HILL
Work Order: N010156
Project: PG&E Topock, 423575.MP.07.TS

Sample ID: LCS-R88710	SampType: LCS	TestCode: 120.1_WPGE		Units: umhos/cm	Prep Date:		RunNo: 88710				
Client ID: LCSW	Batch ID: R88710	TestNo: EPA 120.1			Analysis Date: 5/3/2013		SeqNo: 1568425				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1396.000	0.10	1412	0	98.9	85	115				
Sample ID: N010156-010B-DUP	SampType: DUP	TestCode: 120.1_WPGE		Units: umhos/cm	Prep Date:		RunNo: 88710				
Client ID: ZZZZZZ	Batch ID: R88710	TestNo: EPA 120.1			Analysis Date: 5/3/2013		SeqNo: 1568436				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	4140.000	0.10				4120	0.484			10	
Sample ID: N010156-005A MS	SampType: MS	TestCode: 120.1_WPGE		Units: umhos/cm	Prep Date:		RunNo: 88710				
Client ID: ZZZZZZ	Batch ID: R88710	TestNo: EPA 120.1			Analysis Date: 5/3/2013		SeqNo: 1568437				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	3376.000	0.20	1412	1949	101	75	125				
Sample ID: N010156-005A MSD	SampType: MSD	TestCode: 120.1_WPGE		Units: umhos/cm	Prep Date:		RunNo: 88710				
Client ID: ZZZZZZ	Batch ID: R88710	TestNo: EPA 120.1			Analysis Date: 5/3/2013		SeqNo: 1568438				
Analyte	Result	PQL	SPK value	SPK Ref Val	%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
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



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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
Work Order: N010156
Project: PG&E Topock, 423575.MP.07.TS

TestCode: 120.1_WPGE

Sample ID: LCS-R88711	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88711						
Client ID: LCSW	Batch ID: R88711	TestNo: EPA 120.1		Analysis Date: 5/3/2013	SeqNo: 1568441						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: N010156-011B-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88711						
Client ID: ZZZZZZ	Batch ID: R88711	TestNo: EPA 120.1		Analysis Date: 5/3/2013	SeqNo: 1568443						
Analyte	Result	PQL	SPK value	SPK Ref Val	%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	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88711						
Client ID: ZZZZZZ	Batch ID: R88711	TestNo: EPA 120.1		Analysis Date: 5/3/2013	SeqNo: 1568444						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	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	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88711						
Client ID: ZZZZZZ	Batch ID: R88711	TestNo: EPA 120.1		Analysis Date: 5/3/2013	SeqNo: 1568445						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2214.000	0.20	1412	807.0	99.6	75	125	2208	0.271		10

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL RESULTS

Print Date: 17-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130510B	QC Batch: 42887	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 17-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: 17-May-13

CLIENT: CH2M HILL
 Lab Order: N010156
 Project: PG&E Topock, 423575.MP.07.TS
 Lab ID: N010156-003

Client Sample ID: MW-65-160-192
 Collection Date: 5/1/2013 1:52:00 PM
 Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130510B

QC Batch: 42887

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 E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 17-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130510B	QC Batch: 42887	PrepDate: 5/3/2013	Analyst: CEI
Arsenic	1.6	0.035	0.10
Manganese	ND	0.16	0.50
Molybdenum	20	0.37	2.5
Selenium	4.8	0.084	0.50

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS

Print Date: 17-May-13

CLIENT: CH2M HILL
Lab Order: N010156
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010156-006

Client Sample ID: MW-127-192
Collection Date: 5/2/2013 4:25:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: **ICP7_130510B**

QC Batch: **42887**

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 E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 17-May-13

CLIENT: CH2M HILL
Lab Order: N010156
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010156-008

Client Sample ID: MW-61-110-192
Collection Date: 5/2/2013 3:06:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: **ICP7_130510B**

QC Batch: **42887**

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 E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 17-May-13

CLIENT: CH2M HILL
Lab Order: N010156
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010156-009

Client Sample ID: MW-65-225-192
Collection Date: 5/2/2013 1:16:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: **ICP7_130510B**

QC Batch: **42887**

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 E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 17-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130510B	QC Batch: 42887	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS

Print Date: 17-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130510B	QC Batch: 42887	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	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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Advanced Technology Laboratories, Inc.

Date: 17-May-13

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL

Work Order: N010156

Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6020_DIS

Sample ID: MB-42887	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/3/2013	RunNo: 88833
Client ID: PBW	Batch ID: 42887	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/10/2013	SeqNo: 1574105
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-42887	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/3/2013	RunNo: 88833
Client ID: LCSW	Batch ID: 42887	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/10/2013	SeqNo: 1574106
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Arsenic 10.093 0.10 10.00 0 101 85 115

Manganese 101.739 0.50 100.0 0 102 85 115

Molybdenum 10.355 0.50 10.00 0 104 85 115

Selenium 8.917 0.50 10.00 0 89.2 85 115

Sample ID: N010156-011A-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/3/2013	RunNo: 88833
Client ID: ZZZZZZ	Batch ID: 42887	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/10/2013	SeqNo: 1574138
Analyte	Result	PQL	SPK value	SPK Ref Val	%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

Selenium 10.720 0.50 10.00 1.831 88.9 75 125

Sample ID: N010156-011A-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/3/2013	RunNo: 88833
Client ID: ZZZZZZ	Batch ID: 42887	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/10/2013	SeqNo: 1574141
Analyte	Result	PQL	SPK value	SPK Ref Val	%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

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL QC SUMMARY REPORT

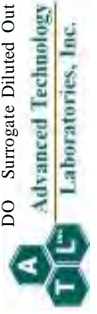
CLIENT: CH2M HILL
 Work Order: N010156
 Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6020_DIS

Sample ID: N010156-011A-MSD		SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/3/2013	RunNo: 88833					
Client ID: ZZZZZZ		Batch ID: 42887	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/10/2013	SeqNo: 1574141					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	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	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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Project Name PG&E Topock		Container:	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	Number of Containers	COMMENTS
Location Topock		Preservatives:	HNO3, 4°C	HNO3, 4°C	4°C	4°C		
Project Manager Jay Piper		Filtered:	Field	Field	NA	NA		
Sample Manager Shawn Duffy		Holding Time:	180	180	14	30		
Project Number 423575.MP.07.TS			Arsenic (6020A) Field Filtered	Metals (6020A) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Extra (*)		
Task Order								
Project 2013-GMP-192-Q2								
Turnaround Time 10 Days								
Shipping Date: 5/2/2013								
COC Number: 14								
DATE	TIME	MATRIX						
MW-40D-192	5/1/2013	15:20	Water	X	X	X		4010156-1
MW-64BR-192	5/1/2013	11:30	Water	X		X		-2
MW-65-160-192	5/1/2013	13:52	Water	X	X	X	X	-3
MW-73-080-192	5/1/2013	10:22	Water	X	X	X	X	-4
MW-120-192	5/2/2013	9:30	Water			X		-5
MW-127-192	5/2/2013	16:25	Water	X	X	X	X	-6
MW-19-192	5/2/2013	10:10	Water			X		-7
MW-61-110-192	5/2/2013	15:06	Water	X	X	X	X	-8
MW-65-225-192	5/2/2013	13:16	Water	X	X	X	X	-9
MW-66-165-192	5/2/2013	11:14	Water	X	X	X	X	-10
MW-74-240-192	5/2/2013	8:21	Water	X	X	X	X	-11
TOTAL NUMBER OF CONTAINERS							27	

Signatures		Date/Time	Shipping Details		ATTN:	Special Instructions:
Approved by		5-2-13	Method of Shipment: courier			April 15 to May 9, 2013
Sampled by		1610	On Ice: <input checked="" type="radio"/> yes <input type="radio"/> no 521R1			
Relinquished by			Airbill No:		Sample Custody	Report Copy to Shawn Duffy (530) 229-3303
Received by		5-2-13 1610	Lab Name: ADVANCED TECHNOLOGY LABORATORY		and	
Relinquished by		5/2/13 1826	Lab Phone: (702) 307-2659		Marlon	
Received by		5-2-13				

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 or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 5/2/2013

Workorder: N010156

Rep sample Temp (Deg C): 5.2

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

Sample Receipt Checklist

- | | | | |
|---|---|-----------------------------|---|
| 1. Shipping container/cooler in good condition? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 16. Were there Non-Conformance issues at login? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| Was Client notified? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |

Comments:

Checklist Completed B

MBC

MAC 5/2/13

Reviewed By:

[Signature]

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:

$$\text{Arsenic, ug/L} = A * DF * PF$$

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:

$$\text{Arsenic, ug/L} = 3.35232955414993 * 1 * (25/25)$$

$$= 3.35232955414993$$

Reporting results in two significant figures,

$$\text{Arsenic, ug/L} = 3.4$$

ms for
5/17/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N010156
Test Method: EPA 6020
Analysis Date: 05/10/13

Dilution Test Summary

Matrix: Water
Batch No.: 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

CLIENT: CH2M HILL
Work Order: N010156
Project: PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N010156-011A-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/3/2013	RunNo: 88833						
Client ID: ZZZZZZ	Batch ID: 42887	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/10/2013	SeqNo: 1574137						
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 22, 2013

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N010190

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.
Laboratory Director

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Advanced Technology
Laboratories, Inc.

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: N010190

CASE NARRATIVE

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
Lab Order: N010190
Contract No: 2013-GMP-192-

Work Order Sample Summary

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



Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 22-May-13

CLIENT: CH2M HILL
Lab Order: N010190
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010190-001

Client Sample ID: MW-57-070-192
Collection Date: 5/6/2013 1:39:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130508A	QC Batch: R88768			PrepDate:		Analyst: LCC
Specific Conductance	2100	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
ND Not Detected at the Reporting Limit
Results are wet unless otherwise specified



**Advanced Technology
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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 22-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 22-May-13

CLIENT: CH2M HILL
Lab Order: N010190
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010190-003

Client Sample ID: MW-69-195-192
Collection Date: 5/6/2013 2:50:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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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 E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS****Print Date:** 22-May-13

CLIENT: CH2M HILL
Lab Order: N010190
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010190-004

Client Sample ID: MW-24BR-192
Collection Date: 5/7/2013 9:32:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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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 E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 22-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 22-May-13

CLIENT: CH2M HILL
Lab Order: N010190
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010190-006

Client Sample ID: MW-31-060-192
Collection Date: 5/7/2013 3:36:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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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 E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 22-May-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-60BR-245-192
Lab Order:	N010190	Collection Date:	5/7/2013 8:38:00 AM
Project:	PG&E Topock, 423575.MP.07.TS	Matrix:	WATER
Lab ID:	N010190-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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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:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 22-May-13

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
Collection Date: 5/7/2013 1:55:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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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: B Analyte detected in the associated Method Blank E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



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Advanced Technology Laboratories, Inc.

Date: 22-May-13

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

CLIENT: CH2M HILL
Work Order: N010190
Project: PG&E Topock, 423575.MP.07.TS

Sample ID: LCS-R88768	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88768						
Client ID: LCSW	Batch ID: R88768	TestNo: EPA 120.1		Analysis Date: 5/8/2013	SeqNo: 1571223						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	10720.000	0.10	9992	0	107	85	115				
Sample ID: N010190-001A-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/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	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2100.000	0.10			2100	0	10				
Sample ID: N010190-002B MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88768						
Client ID: ZZZZZZ	Batch ID: R88768	TestNo: EPA 120.1		Analysis Date: 5/8/2013	SeqNo: 1571234						
Analyte	Result	PQL	SPK value	SPK Ref Val	%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	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88768						
Client ID: ZZZZZZ	Batch ID: R88768	TestNo: EPA 120.1		Analysis Date: 5/8/2013	SeqNo: 1571235						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	18560.000	0.20	9992	8630	99.4	75	125	18540	0.108	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 22-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130521A	QC Batch: 42974	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 22-May-13

CLIENT: CH2M HILL
Lab Order: N010190
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010190-003

Client Sample ID: MW-69-195-192
Collection Date: 5/6/2013 2:50:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: **ICP7_130521A**

QC Batch: **42974**

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 E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 22-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130521A	QC Batch: 42974	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	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 22-May-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-60BR-245-192
Lab Order:	N010190	Collection Date:	5/7/2013 8:38:00 AM
Project:	PG&E Topock, 423575.MP.07.TS	Matrix:	WATER
Lab ID:	N010190-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130521A	QC Batch: 42974	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	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 22-May-13

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
Collection Date: 5/7/2013 1:55:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

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	0.084	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
ND Not Detected at the Reporting Limit
Results are wet unless otherwise specified



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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL

Work Order: N010190

Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6020_DIS

Sample ID: LCS-42974	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/13/2013	RunNo: 88952
Client ID: LCSW	Batch ID: 42974	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/21/2013	SeqNo: 1582348
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Arsenic	9.661	0.10	10.00	0	96.6	85	115	
Manganese	98.004	0.50	100.0	0	98.0	85	115	
Molybdenum	9.918	0.50	10.00	0	99.2	85	115	
Selenium	9.380	0.50	10.00	0	93.8	85	115	

Sample ID: N010190-003A-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/13/2013	RunNo: 88952
Client ID: ZZZZZZ	Batch ID: 42974	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/21/2013	SeqNo: 1582354
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Arsenic	10.439	0.10	10.00	2.641	78.0	75	125	
Manganese	112.375	0.50	100.0	0	112	75	125	
Molybdenum	61.276	0.50	10.00	53.15	81.2	75	125	
Selenium	19.314	0.50	10.00	11.31	80.1	75	125	

Sample ID: N010190-003A-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/13/2013	RunNo: 88952
Client ID: ZZZZZZ	Batch ID: 42974	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/21/2013	SeqNo: 1582355
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Arsenic	10.695	0.10	10.00	2.641	80.5	75	125	2.42	20
Manganese	116.201	0.50	100.0	0	116	75	125	3.35	20
Molybdenum	61.294	0.50	10.00	53.15	81.4	75	125	0.0288	20
Selenium	20.062	0.50	10.00	11.31	87.6	75	125	3.80	20

Sample ID: MB-42974	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/13/2013	RunNo: 88952
Client ID: PBW	Batch ID: 42974	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/21/2013	SeqNo: 1582366
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Arsenic	ND	0.10							
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Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
 Work Order: N010190
 Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6020_DIS







Sample ID: MB-42974	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/13/2013	RunNo: 88952						
Client ID: PBW	Batch ID: 42974	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/21/2013	SeqNo: 1582366						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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Signatures Approved by  Sampled by  Relinquished by  Received by  Relinquished by  Received by 	Date/Time 1610 5-7-13 5/7/13 1610 5/7/13 1800	Shipping Details Method of Shipment: courier On Ice: <input checked="" type="radio"/> yes <input type="radio"/> no 3.4 IR1 Airbill No: Lab Name: ADVANCED TECHNOLOGY LABORATO Lab Phone: (702) 307-2659	ATTN: Sample Custody and Marlon	Special Instructions: April 15 to May 9, 2013 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 or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 5/7/2013

Workorder: N010190

Rep sample Temp (Deg C): 3.4

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

Sample Receipt Checklist

- | | | | |
|---|---|-----------------------------|---|
| 1. Shipping container/cooler in good condition? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 16. Were there Non-Conformance issues at login? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| Was Client notified? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |

Comments:

Checklist Completed B

MBC

MBC 5/13/13

Reviewed By:

[Signature]

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:

$$\text{Arsenic, ug/L} = A * DF * PF$$

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:

$$\begin{aligned}\text{Arsenic, ug/L} &= 2.00666294159031 * 1 * (25/25) \\ &= 2.00666294159031\end{aligned}$$

Reporting results in two significant figures,

$$\text{Arsenic, ug/L} = 2.0$$

MS for
5/22/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N010190
 Test Method: EPA 6020
 Analysis Date: 05/21/13

Dilution Test Summary

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. *for As only*
 Dilution test of Mo and Se failed. However, PS@2X passed criteria. *13 for 5/22/13*

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

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	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 88952						
Client ID: ZZZZZZ	Batch ID: 42974	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/21/2013	SeqNo: 1582360						
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				
Selenium	30.780	1.0	20.00	11.31	97.4	75	125				

⑤ MS/MSD in within criteria - as for 5/22/13

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

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

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.

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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**Advanced Technology
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CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.07.TS
Lab Order: N010222

CASE NARRATIVE

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.

Advanced Technology Laboratories, Inc.

Date: 29-May-13

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
N010222-001A	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



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	MW-67-260-192	Water	5/9/2013 8:23:00 AM	5/9/2013	5/29/2013



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Page 2 of 2

Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 29-May-13

CLIENT: CH2M HILL
Lab Order: N010222
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010222-001

Client Sample ID: MW-62-110-192
Collection Date: 5/8/2013 2:39:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130510B	QC Batch: R88812			PrepDate:		Analyst: LCC
Specific Conductance	7800	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



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 29-May-13

CLIENT: CH2M HILL
Lab Order: N010222
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010222-002

Client Sample ID: MW-62-190-192
Collection Date: 5/8/2013 2:52:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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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



**Advanced Technology
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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 29-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

**Advanced Technology
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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 29-May-13

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
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130510B	QC Batch: R88812	PrepDate:	Analyst: LCC			
Specific Conductance	19000	0.10	0.10	umhos/cm	1	5/10/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 29-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

**Advanced Technology
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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 29-May-13

CLIENT: CH2M HILL
Lab Order: N010222
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010222-006

Client Sample ID: MW-128-192
Collection Date: 5/9/2013 6:42:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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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
ND Not Detected at the Reporting Limit
Results are wet unless otherwise specified



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ANALYTICAL RESULTS

Print Date: 29-May-13

CLIENT: CH2M HILL
Lab Order: N010222
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010222-007

Client Sample ID: MW-20-070-192
Collection Date: 5/9/2013 1:08:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130510B	QC Batch: R88812	PrepDate:	Analyst: LCC
Specific Conductance	2000 0.10 0.10	umhos/cm	1 5/10/2013

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 29-May-13

CLIENT: CH2M HILL
Lab Order: N010222
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010222-008

Client Sample ID: MW-20-100-192
Collection Date: 5/9/2013 2:23:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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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 E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 29-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 29-May-13

CLIENT: CH2M HILL
Lab Order: N010222
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010222-010

Client Sample ID: MW-67-225-192
Collection Date: 5/9/2013 9:11:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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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 E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 29-May-13

CLIENT: CH2M HILL
Lab Order: N010222
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010222-011

Client Sample ID: MW-67-260-192
Collection Date: 5/9/2013 8:23:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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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
ND Not Detected at the Reporting Limit
Results are wet unless otherwise specified



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Advanced Technology Laboratories, Inc.

Date: 29-May-13

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL

Work Order: N010222

Project: PG&E Topock, 423575.MP.07.TS

TestCode: 120.1_WPGE

Sample ID: LCS-R88812	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88812						
Client ID: LCSW	Batch ID: R88812	TestNo: EPA 120.1		Analysis Date: 5/10/2013	SeqNo: 1573036						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: N010222-003B-DUP		SampType: DUP	TestCode: 120.1_WPGE		Units: 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

Sample ID: N010222-001B MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88812						
Client ID: ZZZZZZ	Batch ID: R88812	TestNo: EPA 120.1		Analysis Date: 5/10/2013	SeqNo: 1573051						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: N010222-001B	MSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88812					
Client ID: ZZZZZZ		Batch ID: R88812	TestNo: EPA 120.1		Analysis Date: 5/10/2013	SeqNo: 1573052					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: N010222-011B-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88812						
Client ID: ZZZZZZ	Batch ID: R88812	TestNo: EPA 120.1		Analysis Date: 5/10/2013	SeqNo: 1573054						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
 Work Order: N010222
 Project: PG&E Topock, 423575.MP.07.TS

TestCode: 120.1_WPGE

Sample ID: N010222-011B MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88812						
Client ID: ZZZZZZ	Batch ID: R88812	TestNo: EPA 120.1		Analysis Date: 5/10/2013	SeqNo: 1573055						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: N010222-011B MSD		SampType: MSD	TestCode: 120.1_WPGE		Units: umhos/cm	Prep Date:		RunNo: 88812			
Client ID: ZZZZZZ		Batch ID: R88812	TestNo: EPA 120.1		Analysis Date: 5/10/2013		SeqNo: 1573056				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%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	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL RESULTS

Print Date: 29-May-13

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
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DISSOLVED METALS BY ICP

	EPA 3010A		EPA 6010B			
RunID: ICP2_130517A	QC Batch: 42967		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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.

Date: 29-May-13

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL

Work Order: N010222

Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6010_WDPGEPPB

Sample ID: MB-42967	SampType: MBLK	TestCode: 6010_WDPGE	Units: ug/L	Prep Date: 5/13/2013	RunNo: 88920						
Client ID: PBW	Batch ID: 42967	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/17/2013	SeqNo: 1579573						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Barium	ND	3.0									
Beryllium	ND	1.0									
Cadmium	ND	3.0									
Cobalt	ND	3.0									
Lead	ND	10									
Nickel	ND	5.0									
Silver	ND	3.0									
Vanadium	ND	3.0									
Zinc	ND	10									

Sample ID: LCS1-42967	SampType: LCS	TestCode: 6010_WDPGE	Units: ug/L	Prep Date: 5/13/2013	RunNo: 88920						
Client ID: LCSW	Batch ID: 42967	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/17/2013	SeqNo: 1579574						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Barium	48.287	3.0	50.00	0	96.6	85	115				
Beryllium	8.593	1.0	10.00	0	85.9	85	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	85	115				
Silver	47.467	3.0	50.00	0	94.9	85	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	TestCode: 6010_WDPGE	Units: ug/L	Prep Date: 5/13/2013	RunNo: 88920						
Client ID: ZZZZZZ	Batch ID: 42967	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/17/2013	SeqNo: 1579580						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
 Work Order: N010222
 Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6010_WDPGEPBPB

Sample ID: N010181-001B-MS1	SampType: MS	TestCode: 6010_WDPGE	Units: ug/L	Prep Date: 5/13/2013	RunNo: 88920						
Client ID: ZZZZZZ	Batch ID: 42967	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/17/2013	SeqNo: 1579580						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Barium	202.427	3.0	50.00	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	TestCode: 6010_WDPGE	Units: ug/L	Prep Date: 5/13/2013	RunNo: 88920						
Client ID: ZZZZZZ	Batch ID: 42967	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/17/2013	SeqNo: 1579581						
Analyte	Result	PQL	SPK value	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	50.00	0	82.6	75	125	42.48	2.76	20	
Nickel	43.221	5.0	50.00	0	86.4	75	125	43.58	0.829	20	
Silver	47.132	3.0	50.00	0.8072	92.6	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	50.00	0	92.7	75	125	51.21	9.94	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL RESULTS

Print Date: 29-May-13

CLIENT: CH2M HILL
Lab Order: N010222
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010222-001

Client Sample ID: MW-62-110-192
Collection Date: 5/8/2013 2:39:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: **ICP7_130523A**

QC Batch: **43045**

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 E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 29-May-13

CLIENT: CH2M HILL
Lab Order: N010222
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010222-002

Client Sample ID: MW-62-190-192
Collection Date: 5/8/2013 2:52:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130523A	QC Batch: 43045			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 E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 29-May-13

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
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DISSOLVED METALS BY ICP-MS**EPA 3010A****EPA 6020**

RunID: ICP7_130523A	QC Batch: 43045	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: 29-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130523A	QC Batch: 43045	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	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS

Print Date: 29-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130523A	QC Batch: 43045	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 29-May-13

CLIENT: CH2M HILL
Lab Order: N010222
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010222-006

Client Sample ID: MW-128-192
Collection Date: 5/9/2013 6:42:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS**EPA 3010A****EPA 6020**

RunID: ICP7_130523A

QC Batch: 43045

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 E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 29-May-13

CLIENT: CH2M HILL
Lab Order: N010222
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010222-007

Client Sample ID: MW-20-070-192
Collection Date: 5/9/2013 1:08:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: **ICP7_130523A**

QC Batch: **43045**

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 E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 29-May-13

CLIENT: CH2M HILL
Lab Order: N010222
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010222-008

Client Sample ID: MW-20-100-192
Collection Date: 5/9/2013 2:23:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

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 E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 29-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130523A	QC Batch: 43045	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	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 29-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130523A	QC Batch: 43045	PrepDate: 5/22/2013	Analyst: CEI
Arsenic	2.8	0.035	0.10
Manganese	ND	0.16	0.50
Molybdenum	29	0.074	0.50
Selenium	59	0.084	0.50

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 29-May-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130523A	QC Batch: 43045	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.

Date: 29-May-13

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL

Work Order: N010222

Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6020_DIS

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

Antimony	8.683	0.50	10.00	0	86.8	85	115				
Arsenic	9.753	0.10	10.00	0	97.5	85	115				
Manganese	97.453	0.50	100.0	0	97.5	85	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	99.6	85	115				

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: 1584198						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	12.627	2.5	10.00	0	126	75	125	11.75	7.24	20	S
Manganese	609.902	2.5	100.0	511.5	98.4	75	125	605.2	0.780	20	
Molybdenum	79.565	2.5	10.00	67.60	120	75	125	79.17	0.501	20	
Selenium	8.627	2.5	10.00	0	86.3	75	125	9.530	9.95	20	
Thallium	10.566	2.5	10.00	0	106	75	125	10.93	3.41	20	

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: 1584200						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	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	67.60	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:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
 Work Order: N010222
 Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6020_DIS

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
Arsenic	12.611	0.10	10.00	4.127	84.8	75	125				

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
Arsenic	12.854	0.10	10.00	4.127	87.3	75	125	12.61	1.91	20	

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
Antimony	ND	0.50									
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									
Thallium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 29-May-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.

Date: 29-May-13

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL

Work Order: N010222

Project: PG&E Topock, 423575.MP.07.TS

TestCode: 7470_W_DISSPGE

Sample ID: LCS-42979	SampType: LCS	TestCode: 7470_W_DIS	Units: µg/L	Prep Date: 5/14/2013	RunNo: 88874						
Client ID: LCSW	Batch ID: 42979	TestNo: EPA 7470A		Analysis Date: 5/15/2013	SeqNo: 1576009						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

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	%RPD	RPDLimit	Qual

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						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: N010122-002A-MSD	SampType: MSD	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: 1576016						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	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	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

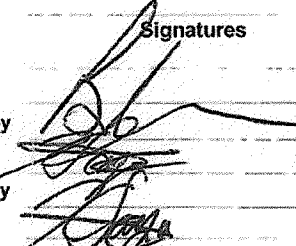
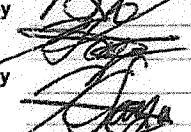


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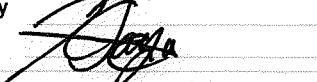

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.07.TS Task Order Project 2013-GMP-192-Q2 Turnaround Time 10 Days Shipping Date: 5/9/2013 COC Number: 19				Container: 500 ml Poly HNO3, 4°C 500 ml Poly HNO3, 4°C 500 ml Poly HNO3, 4°C 500 ml Poly HNO3, 4°C 1 Liter Poly 4°C 1 Liter Poly 4°C		Preservatives: Field 180 Field 180 Field 180 Field 180 NA 14 NA 30		Filtered: Field 180 Field 180 Field 180 Field 180 NA 14 NA 30		Holding Time: Field 180 Field 180 Field 180 Field 180 NA 14 NA 30		Number of Containers 30		COMMENTS	
DATE TIME Matrix				Arsenic (6020A) Field Filtered Metals (6010B/6020A/7470A) Field Filtered * Metals (6020A) Field Filtered Mo, Se, Mn Metals (6020A) Field Filtered Mo, Se, Mn Specific Conductance (E120.1) Extra (*)											
MW-62-110-192	5/8/2013	14:39	Water	X			X	X	X			3			
MW-62-190-192	5/8/2013	14:52	Water	X			X	X	X			3			
MW-66-240-192	5/8/2013	11:46	Water	X			X	X	X			3			
MW-68BR-280-192	5/8/2013	10:28	Water	X			X	X	X			3			
MW-12-192	5/9/2013	11:22	Water		X			X				2			
MW-128-192	5/9/2013	6:42	Water	X			X	X	X			3			
MW-20-070-192	5/9/2013	13:08	Water			X		X				2			
MW-20-100-192	5/9/2013	14:23	Water			X		X				2			
MW-67-185-192	5/9/2013	10:08	Water	X			X	X	X			3			
MW-67-225-192	5/9/2013	9:11	Water	X			X	X	X			3			
MW-67-260-192	5/9/2013	8:23	Water	X			X	X	X			3			
TOTAL NUMBER OF CONTAINERS												30			

* Metals list - Sb, As, Ba, Be, Cd, Co, Pb, Hg, Mo, Ni, Se, Ag, Tl, Va, Zn

Shawn P. Duffy
05/10/2013

Approved by Sampled by Relinquished by Received by Relinquished by Received by		Signatures  		Date/Time 5-9-13 1630 05/09/13 1630 05/09/13 1840		Shipping Details Method of Shipment: courier On Ice: <input checked="" type="checkbox"/> yes / no 32 IPI Airbill No: Lab Name: ADVANCED TECHNOLOGY LABORATO Lab Phone: (702) 307-2659		ATTN: Sample Custody and Marlon		Special Instructions: April 15 to May 9, 2013 Report Copy to Shawn Duffy (530) 229-3303	
---	--	---	--	--	--	--	--	--	--	---	--

Project Name PG&E Topock				Container:	500 ml Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly		Number of Containers	COMMENTS
Location Topock				Preservatives:	HNO ₃ , 4°C	HNO ₃ , 4°C	HNO ₃ , 4°C	HNO ₃ , 4°C	4°C	4°C			
Project Manager Jay Piper				Filtered:	Field	Field	Field	Field	NA	NA			
Sample Manager Shawn Duffy				Holding Time:	180	180	180	180	14	30			
Project Number 423575.MP.07.TS					Arsenic (6020A) Field Filtered	Metals (6010B/6020A/7470Aclis) Field Filtered	Metals (6020A) Field Filtered Mo, Se, Mn	Metals (6020A) Field Filtered	Specific Conductance (E120.1)	Extra (+)			
Task Order													
Project 2013-GMP-192-Q2													
Turnaround Time 10 Days													
Shipping Date: 5/9/2013													
COC Number: 19													
DATE	TIME	Matrix											
MW-62-110-192	5/8/2013	14:39	Water	X				X	X	X	N010222 = 1	3	
MW-62-190-192	5/8/2013	14:52	Water	X				X	X	X	- 2	3	
MW-68-240-192	5/8/2013	11:46	Water	X				X	X	X	- 3	3	
MW-68BR-280-192	5/8/2013	10:28	Water	X				X	X	X	- 4	3	
MW-12-192	5/9/2013	11:22	Water		X				X		- 5	2	
MW-128-192	5/9/2013	6:42	Water	X				X	X	X	- 6	3	
MW-20-070-192	5/9/2013	13:08	Water				X		X		- 7	2	
MW-20-100-192	5/9/2013	14:23	Water				X		X		- 8	2	
MW-67-185-192	5/9/2013	10:08	Water	X				X	X	X	- 9	3	
MW-67-225-192	5/9/2013	9:11	Water	X				X	X	X	- 10	3	
MW-67-260-192	5/9/2013	8:23	Water	X				X	X	X	- 11	3	
TOTAL NUMBER OF CONTAINERS											30		

Approved by	Signatures	Date/Time	Shipping Details	ATTN:	Special Instructions:
Sampled by		5-9-13	Method of Shipment: courier		April 15 to May 9, 2013
Relinquished by		1630	On Ice: <input checked="" type="checkbox"/> yes / no 32 IR1	Sample Custody	
Received by		09 MAY 13 1630	Airbill No:	and	Report Copy to
Relinquished by		09 MAY 13 1840	Lab Name: ADVANCED TECHNOLOGY LABORATO	Marlon	Shawn Duffy
Received by			Lab Phone: (702) 307-2659		(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 or further instruction, please contact our Project Coordinator at (702) 307-2659.

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 ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

- | | | | |
|---|---|-----------------------------|---|
| 1. Shipping container/cooler in good condition? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 16. Were there Non-Conformance issues at login? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| Was Client notified? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |

Comments:

Checklist Completed B

MBC

MBC 5/10/13

Reviewed By:

[Signature]

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:

$$\text{Barium, ug/L} = A * DF * PF * CF$$

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:

$$\begin{aligned}\text{Barium, ug/L} &= 0.05209595149 * 1 * (25/25) * 1000 \\ &= 52.09595149 \text{ ug/L}\end{aligned}$$

Reporting results in two significant figures,

$$\text{Barium, ug/L} = 52 \text{ ug/L}$$

is for
5/24/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N010222
 Test Method: EPA 6010
 Analysis Date: 05/17/13

Dilution Test Summary

Matrix: Water
 Batch No.: 42967

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: N010181-001B-PS	SampType: PS	TestCode: 6010_WDPGE Units: ug/L				Prep Date:			RunNo: 88920		
Client ID: ZZZZZZ	Batch ID: 42967	TestNo: EPA 6010B		EPA 3010A		Analysis Date: 5/17/2013			SeqNo: 1579577		
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:

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: Water

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

$$\text{Arsenic, ug/L} = A * DF * PF$$

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:

$$\text{Arsenic, ug/L} = 4.12665601822107 * 1 * (25/25)$$

$$= 4.12665601822107$$

Reporting results in two significant figures,

$$\text{Arsenic, ug/L} = 4.1$$

NS for
5/28/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N010222
 Test Method: EPA 6020
 Analysis Date: 05/23/13

Dilution Test Summary

Matrix: Water
 Batch No.: 43045

Instrument ID: ICP-MS #2
 Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

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

Sample ID: N010222-002A-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 88998						
Client ID: ZZZZZZ	Batch ID: 43045	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/23/2013	SeqNo: 1584196						
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	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 88998						
Client ID: ZZZZZZ	Batch ID: 43045	TestNo: EPA 6020	EPA 3010A	Analysis Date: 5/23/2013	SeqNo: 1584199						
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:

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 7471

TEST NAME: Mercury in Solid by Cold-Vapor Technique

MATRIX: Water/Aqueous

FORMULA:

$$\text{Mercury, ug/L} = A * DF$$

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 =	1	

Using the given formula:

$$\text{Mercury, ug/L} = A * DF$$

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**

MS for
stuck

June 04, 2013

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

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.
Laboratory Director

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Advanced Technology
Laboratories, Inc.

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: N010249

CASE NARRATIVE

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
Lab Order: N010249
Contract No: 2013-GMP-192-

Work Order Sample Summary

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



Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 04-Jun-13

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
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130515A	QC Batch: R88868	PrepDate:	Analyst: LCC
Specific Conductance	9300	0.10	0.10
		umhos/cm	1
			5/15/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**Advanced Technology
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 04-Jun-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

**Advanced Technology
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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 04-Jun-13

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
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130515A	QC Batch: R88868	PrepDate:	Analyst: LCC
Specific Conductance	17000	0.10	0.10
		umhos/cm	1
			5/15/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 04-Jun-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**Advanced Technology
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 04-Jun-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

**Advanced Technology
Laboratories, Inc.**

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 04-Jun-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**Advanced Technology
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 04-Jun-13

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		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130515A	QC Batch: R88868	PrepDate:	Analyst: LCC
Specific Conductance	19000	0.10	0.10
		umhos/cm	1
			5/15/2013

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**Advanced Technology
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 04-Jun-13

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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**Advanced Technology
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: 04-Jun-13

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

CLIENT: CH2M HILL
Work Order: N010249
Project: PG&E Topock, 423575.MP.07.TS

Sample ID: N010249-001A-DUP		SampType: DUP	TestCode: 120.1_WPGE		Units: umhos/cm	Prep Date:		RunNo: 88868				
Client ID: ZZZZZZ		Batch ID: R88868	TestNo: EPA 120.1			Analysis Date: 5/15/2013		SeqNo: 1575815				
Analyte	Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	9345.000		0.10						9330	0.161		10
Sample ID: N010249-001A MS		SampType: MS	TestCode: 120.1_WPGE		Units: umhos/cm	Prep Date:		RunNo: 88868				
Client ID: ZZZZZZ		Batch ID: R88868	TestNo: EPA 120.1			Analysis Date: 5/15/2013		SeqNo: 1575816				
Analyte	Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	19400.000		0.20	9992	9330	101	75	125				
Sample ID: N010249-001A MSD		SampType: MSD	TestCode: 120.1_WPGE		Units: umhos/cm	Prep Date:		RunNo: 88868				
Client ID: ZZZZZZ		Batch ID: R88868	TestNo: EPA 120.1			Analysis Date: 5/15/2013		SeqNo: 1575817				
Analyte	Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	19360.000		0.20	9992	9330	100	75	125	19400	0.206		10
Sample ID: LCS-R88868		SampType: LCS	TestCode: 120.1_WPGE		Units: umhos/cm	Prep Date:		RunNo: 88868				
Client ID: LCSW		Batch ID: R88868	TestNo: EPA 120.1			Analysis Date: 5/15/2013		SeqNo: 1575818				
Analyte	Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	10050.000		0.10	9992	0	101	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 04-Jun-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL

Work Order: N010249

Project: PG&E Topock, 423575.MP.07.TS

TestCode: 300_W_FPGE

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

Sample ID: LCS-R88902_F	SampType: LCS	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 88902						
Client ID: LCSW	Batch ID: R88902	TestNo: EPA 300.0		Analysis Date: 5/15/2013	SeqNo: 1578318						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: N010249-005ADUP	SampType: DUP	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: 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	SampType: MS	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: 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						
Analyte	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

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL RESULTS

Print Date: 04-Jun-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130603A	QC Batch: 43046	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS

Print Date: 04-Jun-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130603A	QC Batch: 43046	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 04-Jun-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130603A	QC Batch: 43046	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS

Print Date: 04-Jun-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130603A	QC Batch: 43046	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	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 04-Jun-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130603A	QC Batch: 43046	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	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 04-Jun-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130603A	QC Batch: 43046	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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 04-Jun-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130603A	QC Batch: 43046	PrepDate: 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	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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Advanced Technology Laboratories, Inc.

Date: 04-Jun-13

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL

Work Order: N010249

Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6020_DIS

Sample ID: MB-43046	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/21/2013	RunNo: 89088
Client ID: PBW	Batch ID: 43046	TestNo: EPA 6020	EPA 3010A	Analysis Date: 6/3/2013	SeqNo: 1587612
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-43046	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/21/2013	RunNo: 89088
Client ID: LCSW	Batch ID: 43046	TestNo: EPA 6020	EPA 3010A	Analysis Date: 6/3/2013	SeqNo: 1587613
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Arsenic	9.548	0.10	10.00	0	95.5	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		

Sample ID: N010257-001B-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/21/2013	RunNo: 89088
Client ID: ZZZZZZ	Batch ID: 43046	TestNo: EPA 6020	EPA 3010A	Analysis Date: 6/3/2013	SeqNo: 1587617
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Arsenic	10.912	0.10	10.00	1.242	96.7	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		

Sample ID: N010257-001B-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/21/2013	RunNo: 89088
Client ID: ZZZZZZ	Batch ID: 43046	TestNo: EPA 6020	EPA 3010A	Analysis Date: 6/3/2013	SeqNo: 1587618
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Arsenic	10.821	0.10	10.00	1.242	95.8	75	125	10.91	0.840	20
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Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
 Work Order: N010249
 Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6020_DIS

Sample ID: N010257-001B-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/21/2013	RunNo: 89088						
Client ID: ZZZZZZ	Batch ID: 43046	TestNo: EPA 6020	EPA 3010A	Analysis Date: 6/3/2013	SeqNo: 1587618						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%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	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.07.TS Task Order Project 2013-GMP-192-Q2 Turnaround Time 10 Days Shipping Date: 5/14/2013 COC Number: 22				Container: 500 ml Poly 500 ml Poly 500 ml Poly 1 Liter Poly 1 Liter Poly 1 Liter Poly			Preservatives: HNO3, 4°C HNO3, 4°C HNO3, 4°C 4°C 4°C 4°C			Filtered: Field Field Field NA NA NA			Holding Time: 180 180 180 14 14 30			Arsenic (6020A) Field Filtered Metals (6020A) Field Filtered Mo,Se,Mn Metals (6020A) Field Filtered Specific Conductance (E120.1) Anions (E300.0) Fluoride Extra (*)			Number of Containers			COMMENTS		
DATE	TIME	MATRIX																						
MW-51-192	5/13/2013	15:05	Water	X		X	X																	
MW-59-100-192	5/13/2013	12:52	Water	X		X	X			X														
MW-66-230-192	5/13/2013	9:05	Water	X		X	X			X														
MW-68-180-192	5/13/2013	10:56	Water	X		X	X			X														
MW-10-192	5/14/2013	11:11	Water		X		X	X																
MW-20-130-192	5/14/2013	8:20	Water	X		X	X																	
MW-50-200-192	5/14/2013	15:11	Water				X																	
TW-01-192	5/14/2013	13:52	Water		X		X																	
TOTAL NUMBER OF CONTAINERS																	18							

Signatures Approved by  Sampled by  Relinquished by  Received by  Relinquished by Received by		Date/Time 5-14-13 1635 14 MAY 13 1635 14 MAY 13 1900		Shipping Details Method of Shipment: courier On Ice: <input checked="" type="checkbox"/> / no 30 IR1 Airbill No: Lab Name: ADVANCED TECHNOLOGY LABORATORY Lab Phone: (702) 307-2659		ATTN: Sample Custody and Marlon		Special Instructions: April 15 to May 9, 2013 Report Copy to Shawn Duffy (530) 229-3303	
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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 or further instruction, please contact our Project Coordinator 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 ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

- | | | | |
|---|---|-----------------------------|---|
| 1. Shipping container/cooler in good condition? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH < 2 for Metals | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 16. Were there Non-Conformance issues at login? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| Was Client notified? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |

Comments:

Checklist Completed B

MBC *mmw 5/15/13*

Reviewed By:

g

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:

$$\text{Fluoride, mg/L} = A * DF$$

where:

A = mg/L, IC calculated concentration

DF = dilution factor

For **N010249-005A**, concentration in mg/L are calculated as follows:

$$\begin{aligned}\text{Fluoride, mg/L} &= 0.867 * 5 \\ &= 4.335\end{aligned}$$

Reporting **N010249-005A** results in two significant figures,

$$\text{Fluoride, mg/L} = 4.3$$

Asish

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:

$$\text{Arsenic, ug/L} = A * DF * PF$$

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:

$$\text{Arsenic, ug/L} = 3.5650720155 * 1 * (25/25)$$

$$= 3.5650720155$$

Reporting results in two significant figures,

$$\text{Arsenic, ug/L} = 3.6$$

MS for
6/4/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N010249
Test Method: EPA 6020
Analysis Date: 06/03/13

Dilution Test Summary

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 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	0.224246454	156.50%	10

Note: NA - Not applicable

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	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 89088						
Client ID: ZZZZZZ	Batch ID: 43046	TestNo: EPA 6020	EPA 3010A	Analysis Date: 6/3/2013	SeqNo: 1587616						
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
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.:2676
NV Cert. No.:NV-009222007A

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.
Laboratory Director

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Advanced Technology
Laboratories, Inc.

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: N010265

CASE NARRATIVE

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
Lab Order: N010265
Contract No: 2013-GMP-192-

Work Order Sample Summary

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



Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 05-Jun-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

**Advanced Technology
Laboratories, Inc.**

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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 05-Jun-13

CLIENT: CH2M HILL
Lab Order: N010265
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010265-002

Client Sample ID: MW-36-090-192
Collection Date: 5/15/2013 2:17:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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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
ND Not Detected at the Reporting Limit
Results are wet unless otherwise specified



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 05-Jun-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 05-Jun-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 05-Jun-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 05-Jun-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 05-Jun-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.

Date: 05-Jun-13

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

CLIENT: CH2M HILL
Work Order: N010265
Project: PG&E Topock, 423575.MP.07.TS

Sample ID: LCS-R88909	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88909						
Client ID: LCSW	Batch ID: R88909	TestNo: EPA 120.1		Analysis Date: 5/17/2013	SeqNo: 1578830						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	10230.000	0.10	9992	0	102	85	115				
Sample ID: N010265-005B-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88909						
Client ID: ZZZZZZ	Batch ID: R88909	TestNo: EPA 120.1		Analysis Date: 5/17/2013	SeqNo: 1578836						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	8370.000	0.10			8350	0.239	10				
Sample ID: N010265-005B MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88909						
Client ID: ZZZZZZ	Batch ID: R88909	TestNo: EPA 120.1		Analysis Date: 5/17/2013	SeqNo: 1578838						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	17960.000	0.20	9992	8350	96.2	75	125				
Sample ID: N010265-005B MSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 88909						
Client ID: ZZZZZZ	Batch ID: R88909	TestNo: EPA 120.1		Analysis Date: 5/17/2013	SeqNo: 1578839						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	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	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 05-Jun-13

CLIENT: CH2M HILL
Lab Order: N010265
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010265-001

Client Sample ID: MW-22-192
Collection Date: 5/15/2013 12:06:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP

EPA 3010A

EPA 6010B

RunID: ICP2_130524C

QC Batch: 43016

PrepDate: 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 E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



**Advanced Technology
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: 05-Jun-13

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL

Work Order: N010265

Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6010_WDPGEPPB

Sample ID: MB-43016	SampType: MBLK	TestCode: 6010_WDPGE	Units: ug/L	Prep Date: 5/20/2013	RunNo: 89025						
Client ID: PBW	Batch ID: 43016	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/24/2013	SeqNo: 1585576						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Barium	ND	3.0									
Beryllium	ND	1.0									
Cadmium	ND	3.0									
Cobalt	ND	3.0									
Copper	ND	5.0									
Lead	ND	10									
Nickel	ND	5.0									
Silver	ND	3.0									
Vanadium	ND	3.0									
Zinc	ND	10									

Sample ID: LCS-43016	SampType: LCS	TestCode: 6010_WDPGE	Units: ug/L	Prep Date: 5/20/2013	RunNo: 89025						
Client ID: LCSW	Batch ID: 43016	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/24/2013	SeqNo: 1585581						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Barium	50.617	3.0	50.00	0	101	85	115				
Beryllium	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	113	85	115				
Copper	10.052	5.0	10.00	0	101	85	115				
Lead	46.792	10	50.00	0	93.6	85	115				
Nickel	48.363	5.0	50.00	0	96.7	85	115				
Silver	48.825	3.0	50.00	0	97.6	85	115				
Vanadium	9.372	3.0	10.00	0	93.7	85	115				
Zinc	50.476	10	50.00	0	101	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
 Work Order: N010265
 Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6010_WDPGEPPB

Sample ID: N010265-001A-MS	SampType: MS	TestCode: 6010_WDPGE	Units: ug/L	Prep Date: 5/20/2013	RunNo: 89025						
Client ID: ZZZZZZ	Batch ID: 43016	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/24/2013	SeqNo: 1585586						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Barium	124.343	6.0	50.00	74.57	99.5	75	125				
Beryllium	10.533	2.0	10.00	0	105	75	125				
Cadmium	4.618	6.0	10.00	0	46.2	75	125				S
Cobalt	11.832	6.0	10.00	0	118	75	125				
Copper	16.171	10	10.00	5.212	110	75	125				
Lead	38.119	20	50.00	0	76.2	75	125				
Nickel	49.152	10	50.00	0	98.3	75	125				
Silver	61.714	6.0	50.00	5.671	112	75	125				
Vanadium	10.871	6.0	10.00	0	109	75	125				
Zinc	54.686	20	50.00	5.028	99.3	75	125				

Sample ID: N010265-001A-MSD	SampType: MSD	TestCode: 6010_WDPGE	Units: ug/L	Prep Date: 5/20/2013	RunNo: 89025						
Client ID: ZZZZZZ	Batch ID: 43016	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/24/2013	SeqNo: 1585587						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Barium	126.754	6.0	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	6.0	10.00	0	45.2	75	125	4.618	0	20	S
Cobalt	12.462	6.0	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	50.00	0	76.1	75	125	38.12	0.117	20	
Nickel	48.843	10	50.00	0	97.7	75	125	49.15	0.631	20	
Silver	62.007	6.0	50.00	5.671	113	75	125	61.71	0.475	20	
Vanadium	10.620	6.0	10.00	0	106	75	125	10.87	2.33	20	
Zinc	57.720	20	50.00	5.028	105	75	125	54.69	5.40	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 05-Jun-13

CLIENT: CH2M HILL
 Lab Order: N010265
 Project: PG&E Topock, 423575.MP.07.TS
 Lab ID: N010265-001

Client Sample ID: MW-22-192
 Collection Date: 5/15/2013 12:06:00 PM
 Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130603A

QC Batch: 43046

PrepDate: 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 E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



Advanced Technology
Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 05-Jun-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 05-Jun-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130603A	QC Batch: 43046	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	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS

Print Date: 05-Jun-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS

Print Date: 05-Jun-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 05-Jun-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130604A	QC Batch: 43046	PrepDate: 5/21/2013	Analyst: CEI
Arsenic	2.8	0.17	0.50
Manganese	1500	4.0	12

µg/L	5	6/4/2013 11:40 AM
µg/L	25	6/3/2013 03:45 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 05-Jun-13

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
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130603A	QC Batch: 43046	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	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



**Advanced Technology
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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL

Work Order: N010265

Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6020_DIS

Sample ID: MB-43046	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/21/2013	RunNo: 89088						
Client ID: PBW	Batch ID: 43046	TestNo: EPA 6020	EPA 3010A	Analysis Date: 6/3/2013	SeqNo: 1587612						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	ND	0.50									
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									
Thallium	ND	0.50									

Sample ID: LCS-43046	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/21/2013	RunNo: 89088						
Client ID: LCSW	Batch ID: 43046	TestNo: EPA 6020	EPA 3010A	Analysis Date: 6/3/2013	SeqNo: 1587613						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	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	95.5	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	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/21/2013	RunNo: 89088						
Client ID: ZZZZZZ	Batch ID: 43046	TestNo: EPA 6020	EPA 3010A	Analysis Date: 6/3/2013	SeqNo: 1587617						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	9.952	0.50	10.00	0.09480	98.6	75	125				
Arsenic	10.912	0.10	10.00	1.242	96.7	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				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
 Work Order: N010265
 Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6020_DIS

Sample ID: N010257-001B-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 5/21/2013	RunNo: 89088						
Client ID: ZZZZZZ	Batch ID: 43046	TestNo: EPA 6020	EPA 3010A	Analysis Date: 6/3/2013	SeqNo: 1587618						
Analyte	Result	PQL	SPK value	SPK Ref Val	%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	95.8	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
 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



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 05-Jun-13

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
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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	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**Advanced Technology
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Advanced Technology Laboratories, Inc.

Date: 05-Jun-13

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL

Work Order: N010265

Project: PG&E Topock, 423575.MP.07.TS

TestCode: 7470_W_DISSPGE

Sample ID: LCS-43006	SampType: LCS	TestCode: 7470_W_DIS	Units: µg/L	Prep Date: 5/17/2013	RunNo: 88928						
Client ID: LCSW	Batch ID: 43006	TestNo: EPA 7470A		Analysis Date: 5/17/2013	SeqNo: 1580536						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	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	TestCode: 7470_W_DIS	Units: µg/L	Prep Date: 5/17/2013	RunNo: 88928						
Client ID: ZZZZZZ	Batch ID: 43006	TestNo: EPA 7470A		Analysis Date: 5/17/2013	SeqNo: 1580539						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.365	0.20	5.000	0	107	75	125				
Sample ID: N010265-001A-MSD	SampType: MSD	TestCode: 7470_W_DIS	Units: µg/L	Prep Date: 5/17/2013	RunNo: 88928						
Client ID: ZZZZZZ	Batch ID: 43006	TestNo: EPA 7470A		Analysis Date: 5/17/2013	SeqNo: 1580540						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.311	0.20	5.000	0	106	75	125	5.365	1.01	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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CH2MHILL

CHAIN OF CUSTODY RECORD

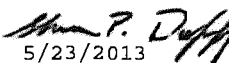
5/16/2013 1:52:03 PM



Page 1 OF 1

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.07.TS Task Order Project 2013-GMP-192-Q2 Turnaround Time 10 Days Shipping Date: 5/16/2013 COC Number: 25				Containers: 500 ml Poly 500 ml Poly 500 ml Poly 1 Liter Poly	Preservatives: HNO3, 4°C HNO3, 4°C HNO3, 4°C	Filtered: Field Field Field	Holding Time: 180 180 180	NA 14	Number of Containers	COMMENTS
DATE TIME Matrix	Arsonic (6020A) Field Filtered	Metals (6010B/6020A/7470Adis) Field Filtered *	Metals (6020A) Field Filtered Mn	Specific Conductance (EI20.1)						
MW-22-192	5/15/2013 12:06	Water		X	X	X		2		
MW-36-090-192	5/15/2013 14:17	Water	X			X		2		
MW-52D-192	5/16/2013 10:45	Water	X		X	X		2		
MW-52M-192	5/16/2013 10:42	Water	X			X		2		
MW-52S-192	5/16/2013 11:29	Water	X			X		2		
MW-53D-192	5/16/2013 9:15	Water	X		X	X		2		
MW-53M-192	5/16/2013 9:29	Water	X		X	X		2		
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.


 5/23/2013

Approved by Sampled by Relinquished by Received by Relinquished by Received by	Signatures  	Date/Time 5-16-13 1545 6 MAY 13 1545 16 MAY 13 1549	Shipping Details Method of Shipment: courier On Ice: yes no 4.2 IR1 Airbill No: Lab Name: ADVANCED TECHNOLOGY LABORATO Lab Phone: (702) 307-2659
---	---	--	---

ATTN:

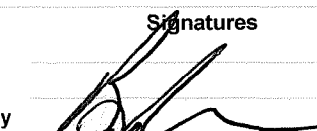



Special Instructions:

April 15 to May 9, 2013

Sample Custody

and
Marlon**Report Copy to**Shawn Duffy
(530) 229-3303

Project Name PG&E Topock				Container:	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly		Number of Containers	COMMENTS
Location Topock				Preservatives:	HNO ₃ , 4°C	HNO ₃ , 4°C	HNO ₃ , 4°C	4°C			
Project Manager Jay Piper											
Sample Manager Shawn Duffy				Filtered:	Field	Field	Field	NA			
				Holding Time:	180	180	180	14			
Project Number 423575.MP.07.TS											
Task Order											
Project 2013-GMP-192-Q2											
Turnaround Time 10 Days											
Shipping Date: 5/16/2013											
COC Number: 25											
DATE	TIME	Matrix									
MW-22-192	5/15/2013	12:06	Water		X	X	X	N010265-1	2		
MW-36-090-192	5/15/2013	14:17	Water	X			X	2	2		
MW-52D-192	5/16/2013	10:45	Water	X		X	X	3	2		
MW-52M-192	5/16/2013	10:42	Water	X			X	4	2		
MW-52S-192	5/16/2013	11:29	Water	X			X	5	2		
MW-53D-192	5/16/2013	9:15	Water	X		X	X	6	2		
MW-53M-192	5/16/2013	9:29	Water	X		X	X	7	2		
TOTAL NUMBER OF CONTAINERS									14		

Signatures		Date/Time	Shipping Details		ATTN: Sample Custody and Marlon	Special Instructions:
Approved by		5-16-13	Method of Shipment: courier			April 15 to May 9, 2013
Sampled by		1545	On Ice: <input checked="" type="radio"/> yes <input type="radio"/> no 42121			
Relinquished by		16MAY13 1545	Airbill No:			
Received by		16MAY13 1549	Lab Name: ADVANCED TECHNOLOGY LABORATORY			Report Copy to Shawn Duffy (530) 229-3303
Received by			Lab Phone: (702) 307-2659			

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 or further instruction, please contact our Project Coordinator 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

Sample Receipt Checklist

- | | | | |
|---|---|-----------------------------|---|
| 1. Shipping container/cooler in good condition? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 16. Were there Non-Conformance issues at login? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| Was Client notified? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |

Comments:

Checklist Completed B

MBC

MAC 5/17/13

Reviewed By:

NS 6/5/13

Nancy Sibucan

From: Marlon B. Cartin [mailto:marlon@atl-labs.com]
Sent: Wednesday, June 05, 2013 1:21 PM
To: Nancy Sibucan
Subject: 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:

$$\text{Barium, ug/L} = A * DF * PF * CF$$

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:

$$\text{Barium, ug/L} = 0.03728743106 * 2 * (25/25) * 1000$$

$$= 74.57486212 \text{ ug/L}$$

Reporting results in two significant figures,

$$\text{Barium, ug/L} = 75 \text{ ug/L}$$

NSG
C/4/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N010265
Test Method: EPA 6010
Analysis Date: 05/24/13

Dilution Test Summary

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
Work Order: N010265
Project: PG&E Topock, 423575.MP.07.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: N010265-001A-PS	SampType: PS	TestCode: 6010_WDPGE Units: ug/L				Prep Date:			RunNo: 89025		
Client ID: ZZZZZZ	Batch ID: 43016	TestNo: EPA 6010B		EPA 3010A		Analysis Date: 5/24/2013			SeqNo: 1585580		
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
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: Water

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

$$\text{Arsenic, ug/L} = A * DF * PF$$

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:

$$\begin{aligned}\text{Arsenic, ug/L} &= 16.960829187 * 1 * (25/25) \\ &= 16.960829187\end{aligned}$$

Reporting results in two significant figures,

$$\text{Arsenic, ug/L} = 17$$

vs for
6/5/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N010265
Test Method: EPA 6020
Analysis Date: 06/03/13

Dilution Test Summary

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	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

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N010257-001B-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 89088						
Client ID: ZZZZZZ	Batch ID: 43046	TestNo: EPA 6020	EPA 3010A	Analysis Date: 6/3/2013	SeqNo: 1587616						
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				

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 7471

TEST NAME: Mercury in Solid by Cold-Vapor Technique

MATRIX: Water/Aqueous

FORMULA:

$$\text{Mercury, ug/L} = A * DF$$

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**

$$\begin{array}{lcl} A = & 0.02182 & \text{ug/L} \\ DF = & 1 & \end{array}$$

Using the given formula:

$$\text{Mercury, ug/L} = A * DF$$

The concentration in ug/L will be equal to:

$$\text{Mercury, ug/L} = \underline{0.02182}$$

Reporting results in two significant figures,

$$\text{Mercury, ug/L} = 0.022$$

$$\text{Mercury, ug/L} = \text{ND}$$

NSG
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



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June 27, 2013

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

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,



Jose Tenorio Jr.
Laboratory Director

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Advanced Technology
Laboratories, Inc.

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CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.07.TS
Lab Order: N010435

CASE NARRATIVE

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
Lab Order: N010435
Contract No: 2013-GMP-192-

Work Order Sample Summary

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



Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 27-Jun-13

CLIENT: CH2M HILL
Lab Order: N010435
Project: PG&E Topock, 423575.MP.07.TS
Lab ID: N010435-001

Client Sample ID: MW-66BR-270-192
Collection Date: 6/18/2013 10:56:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	-----	------	-------	----	---------------

SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130621A	QC Batch: R89325			PrepDate:		Analyst: LCC
Specific Conductance	17000	0.10	0.10	umhos/cm	1	6/21/2013

DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130626A	QC Batch: 43263			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: B Analyte detected in the associated Method Blank E Value above quantitation range
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
DO Surrogate Diluted Out



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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL

Work Order: N010435

Project: PG&E Topock, 423575.MP.07.TS

TestCode: 120.1_WPGE

Sample ID: N010435-001B-DUP	SampleType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 89325					
Client ID: ZZZZZZ	Batch ID: R89325	TestNo: EPA 120.1		Analysis Date: 6/21/2013	SeqNo: 1597582					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Specific Conductance	0.10	0.120	10
16620.000			

Qualifiers:

	B	ND	DO	Analyte detected in the associated Method Blank	Not Detected at the Reporting Limit	Diluted Out	E	R	H
				Value above quantitation range	RPD outside accepted recovery limits	Calculations are based on raw values			Holding times for preparation or analysis exceeded
									Spike/Surrogate outside of limits due to matrix interference

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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
Work Order: N010435
Project: PG&E Topock, 423575.MP.07.TS

TestCode: 6020_DIS

Sample ID: MB-43263	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 6/21/2013	RunNo: 89382						
Client ID: PBW	Batch ID: 43263	TestNo: EPA 6020	EPA 3010A	Analysis Date: 6/26/2013	SeqNo: 1600862						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: LCS-43263	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 6/21/2013	RunNo: 89382						
Client ID: LCSW	Batch ID: 43263	TestNo: EPA 6020	EPA 3010A	Analysis Date: 6/26/2013	SeqNo: 1600863						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: N010439-001B-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 6/21/2013	RunNo: 89382						
Client ID: ZZZZZZ	Batch ID: 43263	TestNo: EPA 6020	EPA 3010A	Analysis Date: 6/26/2013	SeqNo: 1600867						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: N010439-001B-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 6/21/2013	RunNo: 89382						
Client ID: ZZZZZZ	Batch ID: 43263	TestNo: EPA 6020	EPA 3010A	Analysis Date: 6/26/2013	SeqNo: 1600868						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B Analyte detected in the associated Method Blank
 ND Not Detected at the Reporting Limit
 DO Surrogate Diluted Out
 E Value above quantitation range
 R RPD outside accepted recovery limits
 Calculations are based on raw values
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference



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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	TestCode: 6020_DIS	Units: µg/L	Prep Date: 6/21/2013	RunNo: 89382						
Client ID: ZZZZZZ	Batch ID: 43263	TestNo: EPA 6020	EPA 3010A	Analysis Date: 6/26/2013	SeqNo: 1600868						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	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	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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Sample Receiving Items

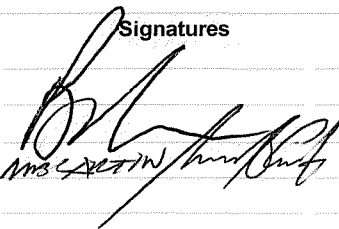
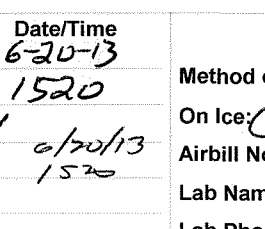
CH2MHILL

CHAIN OF CUSTODY RECORD

6/18/2013 10:38:41 AM

Page 1 OF 1

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.07.TS Task Order Project 2013-GMP-192-Q2 Turnaround Time 10 Days Shipping Date: 4/11/2013 COC Number: ATL-192-Q2				Container: 500 ml Poly HNO ₃ , 4°C Field 180	500 ml Poly HNO ₃ , 4°C Field 180	1 Liter Poly 4°C NA 14	1 Liter Poly 4°C NA 30	Number of Containers COMMENTS	
Filtered: Holding Time:	Field 180	Field 180	NA 14	NA 30					
DATE TIME Matrix				Arsenic (6020A) Field Filtered Metals (6020A) Field Filtered Mo, Se, Mn Specific Conductance (E120.1) Extra (*)	MW-66BR-270-192 6/18/2013 10:56 Water X X X X NO10435-1		3	3	
TOTAL NUMBER OF CONTAINERS								3	3

Approved by Sampled by Relinquished by Received by Relinquished by Received by	Signatures  	Date/Time 6-20-13 1520 6/20/13 1520	Shipping Details Method of Shipment: FedEx On Ice: yes / no 4.2°C ICE 12#1 Airbill No: Lab Name: ADVANCED TECHNOLOGY LABORATO Lab Phone: (702) 307-2659	ATTN: Sample Custody and Marlon	Special Instructions: April 15 to May 9, 2013 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 or further instruction, please contact our Project Coordinator at (702) 307-2659.

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

Sample Receipt Checklist

- | | | | |
|---|---|-----------------------------|---|
| 1. Shipping container/cooler in good condition? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 16. Were there Non-Conformance issues at login? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| Was Client notified? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |

Comments:

Checklist Completed By MBC MAC 6/21/13

Reviewed By: 

Appendix B
Other Groundwater Monitoring Results

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
		17-Apr-13 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
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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	FD	1.6
		08-Nov-12		1.1
		14-Feb-13		1.4
		14-Feb-13		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	FD	1.7
		12-Dec-12		1.4
		12-Dec-12		1.5
		05-Feb-13		1.3
		16-Apr-13		1.3
MW-34-100	DA	01-Oct-12	FD	1.5
		01-Oct-12		1.6
		26-Nov-12	FD	1.8
		26-Nov-12		1.9
		12-Dec-12	FD	1.5
		24-Jan-13		1.7
		26-Feb-13	FD	1.6
		26-Feb-13		1.5
		16-Apr-13	FD	1.3
		16-Apr-13		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
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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
		04-Feb-13 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
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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 FD	3.7
		06-Nov-12	3.6
		06-Nov-12 FD	3.4
		13-Feb-13	4.1
		13-Feb-13 FD	3.9
		18-Apr-13	3.2
		18-Apr-13 FD	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 FD	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

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Arsenic Results in Monitoring Wells, June 2012 through June 2013
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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

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Arsenic Results in Monitoring Wells, June 2012 through June 2013
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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
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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
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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
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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.

µg/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.

Table B-2
Background Metals, Second Quarter 2013
Second Quarter 2013 Interim Measures Performance Monitoring and Site-wide
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		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.
µg/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.

Appendix C
Groundwater Monitoring Data for GMP and
Interim Measures Monitoring Wells

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

Location	Sample Date	Total Dissolved Solids								Alkalinity				
		Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	(total) (mg/L)	Calcium	Magnesium	Potassium	Sodium	Boron	
Monitoring Wells														
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

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

Location	Sample Date	Total Dissolved Solids								Alkalinity				
		Solids (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	(total) (mg/L)	Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
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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Location	Sample Date	Total Dissolved Solids								Alkalinity (total) (mg/L)	Dissolved Metals (mg/L)				
		Solids (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Calcium		Magnesium	Potassium	Sodium	Boron	
Monitoring Wells															
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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Location	Sample Date	Total Dissolved Solids								Alkalinity (total) (mg/L)	Dissolved Metals (mg/L)				
		Solids (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Calcium		Magnesium	Potassium	Sodium	Boron	
Monitoring Wells															
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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Location	Sample Date	Total Dissolved Solids								Alkalinity (total) (mg/L)	Dissolved Metals (mg/L)				
		Solids (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Calcium		Magnesium	Potassium	Sodium	Boron	
Monitoring Wells															
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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Location	Sample Date	Total Dissolved Solids				Alkalinity				Dissolved Metals (mg/L)					
		Solids (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	(total) (mg/L)	Calcium	Magnesium	Potassium	Sodium	Boron	
Monitoring Wells															
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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		Solids (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Calcium		Magnesium	Potassium	Sodium	Boron	
Monitoring Wells															
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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Location	Sample Date	Total Dissolved Solids								Alkalinity				
		Solids (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	(total) (mg/L)	Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
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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Location	Sample Date	Total Dissolved Solids								Alkalinity (total) (mg/L)	Dissolved Metals (mg/L)				
		Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Calcium	Magnesium		Potassium	Sodium	Boron		
Monitoring Wells															
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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Location	Sample Date	Total Dissolved Solids								Alkalinity (total) (mg/L)	Dissolved Metals (mg/L)				
		Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Calcium	Magnesium		Potassium	Sodium	Boron		
Monitoring Wells															
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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Location	Sample Date	Total Dissolved Solids								Alkalinity				
		Solids (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	(total) (mg/L)	Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
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 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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Location	Sample Date	Total Dissolved Solids								Alkalinity (total) (mg/L)	Dissolved Metals (mg/L)				
		Solids (mg/L)	Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Calcium		Magnesium	Potassium	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	

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

Location	Sample Date	Total Dissolved Solids								Alkalinity (total) (mg/L)	Dissolved Metals (mg/L)				
		Oxygen-18 (0/00)	Deuterium (0/00)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (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:

(---) = data not collected or available.

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.

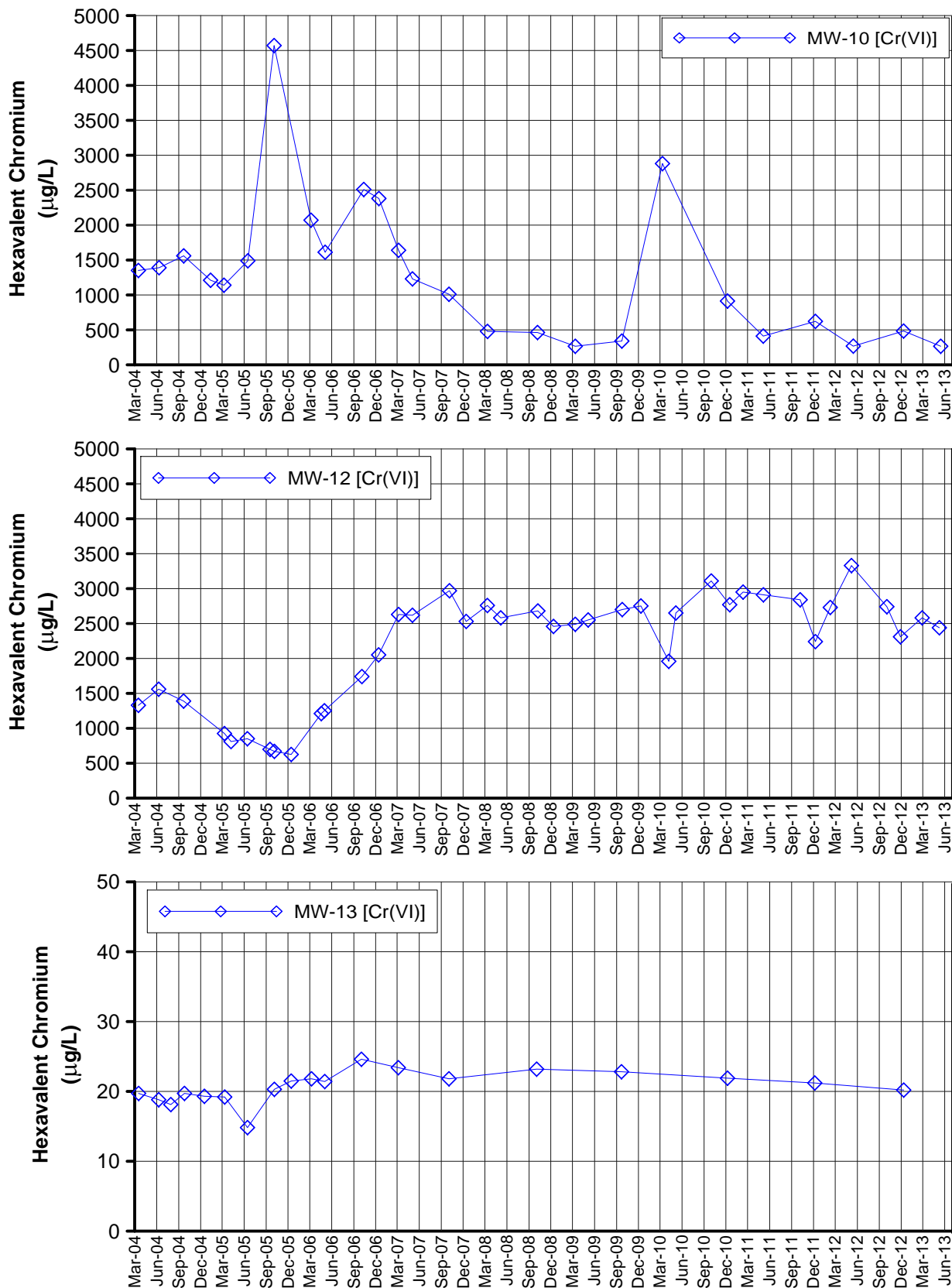
mg/L = milligrams per liter.

ND =parameter not detected at the listed reporting limit.

Alkalinity (total) reported as calcium carbonate. Nitrate reported as nitrogen (N).

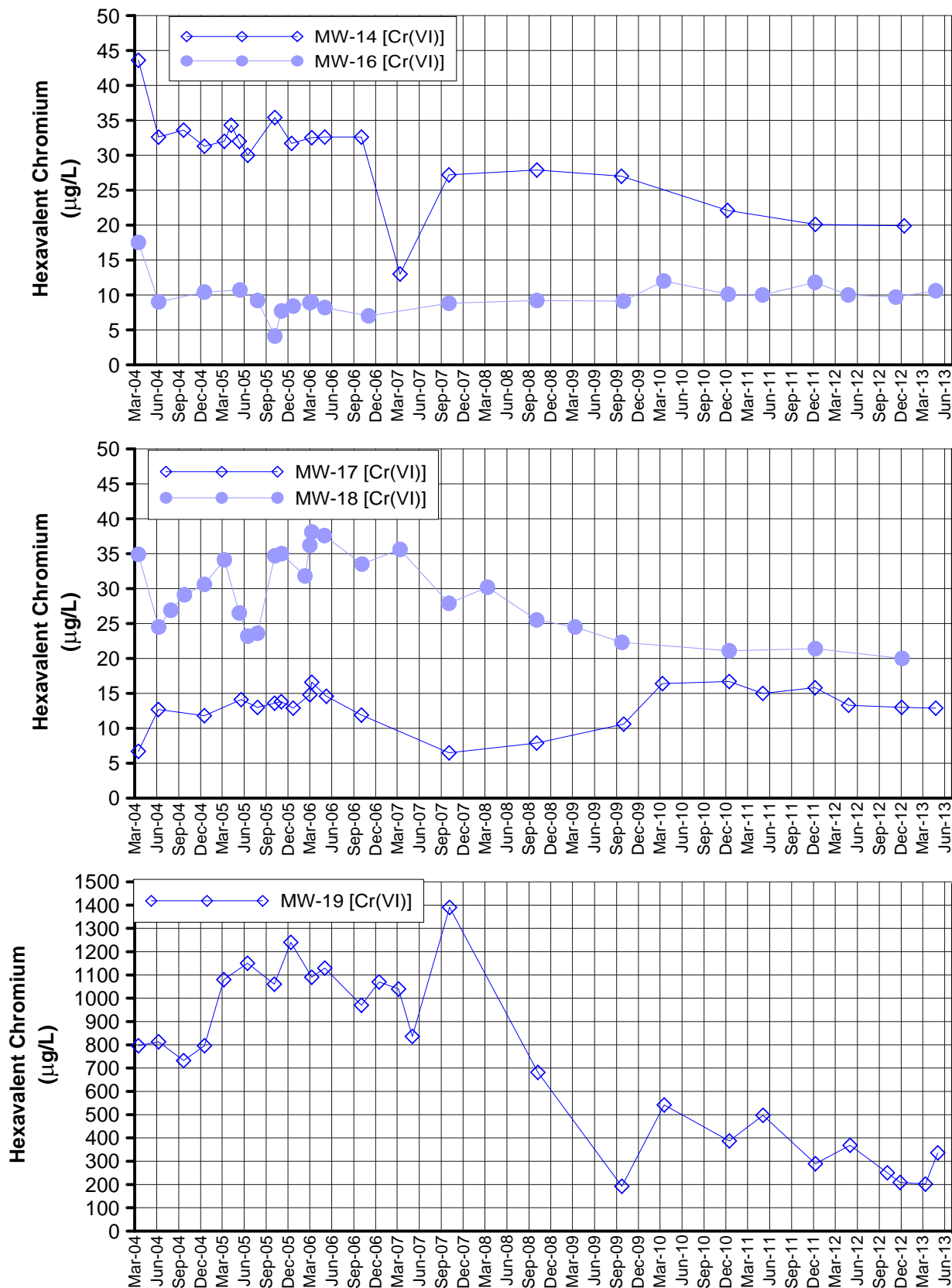
* Nitrate as nitrogen was not requested. Nitrate/nitrite as nitrogen is shown.

^a Data collected February 2011 due to field logistical issues.

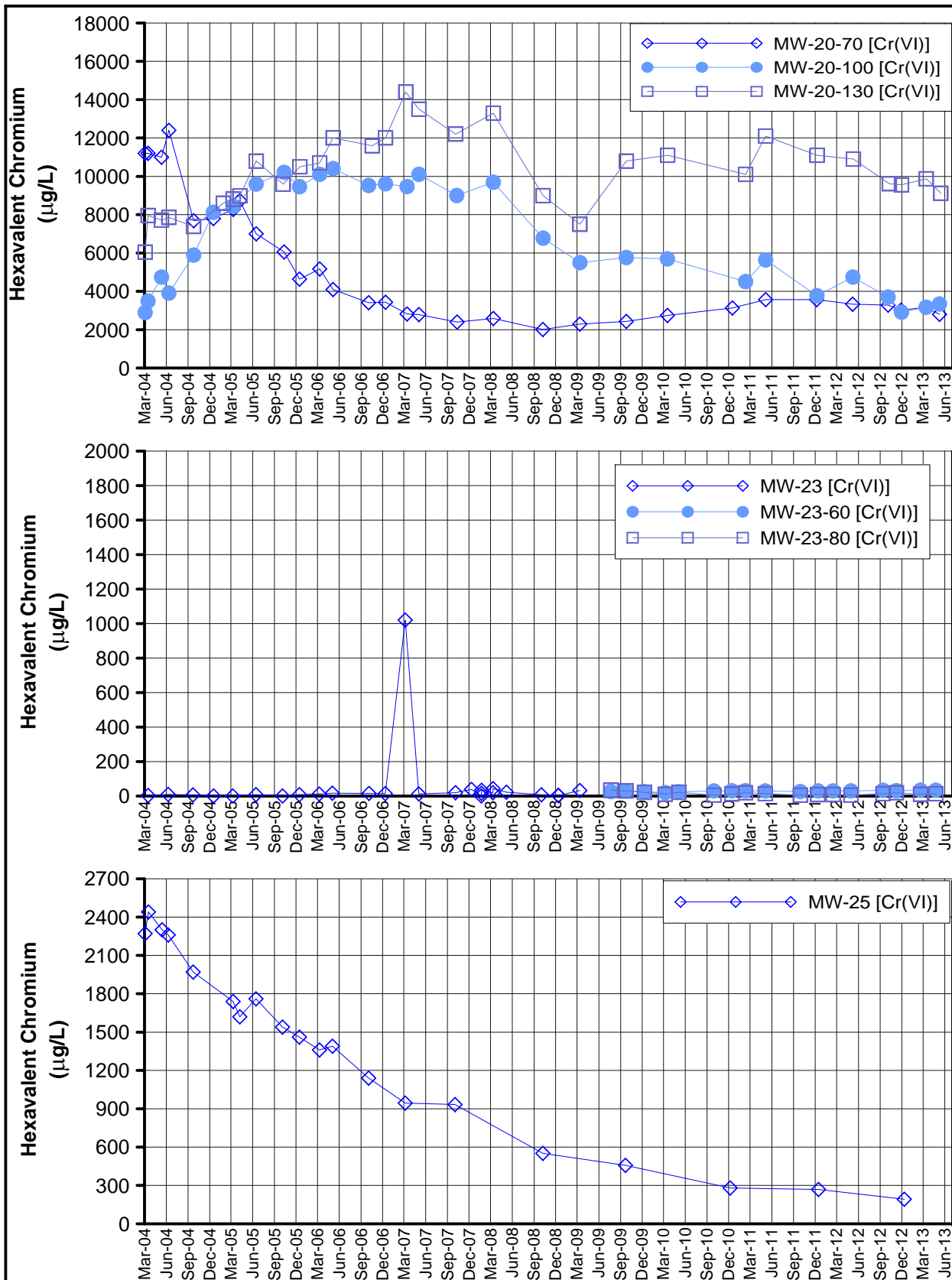


**FIGURE C-1
HEXAVALENT CHROMIUM
IN MW-10, MW-12 AND MW-13**

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



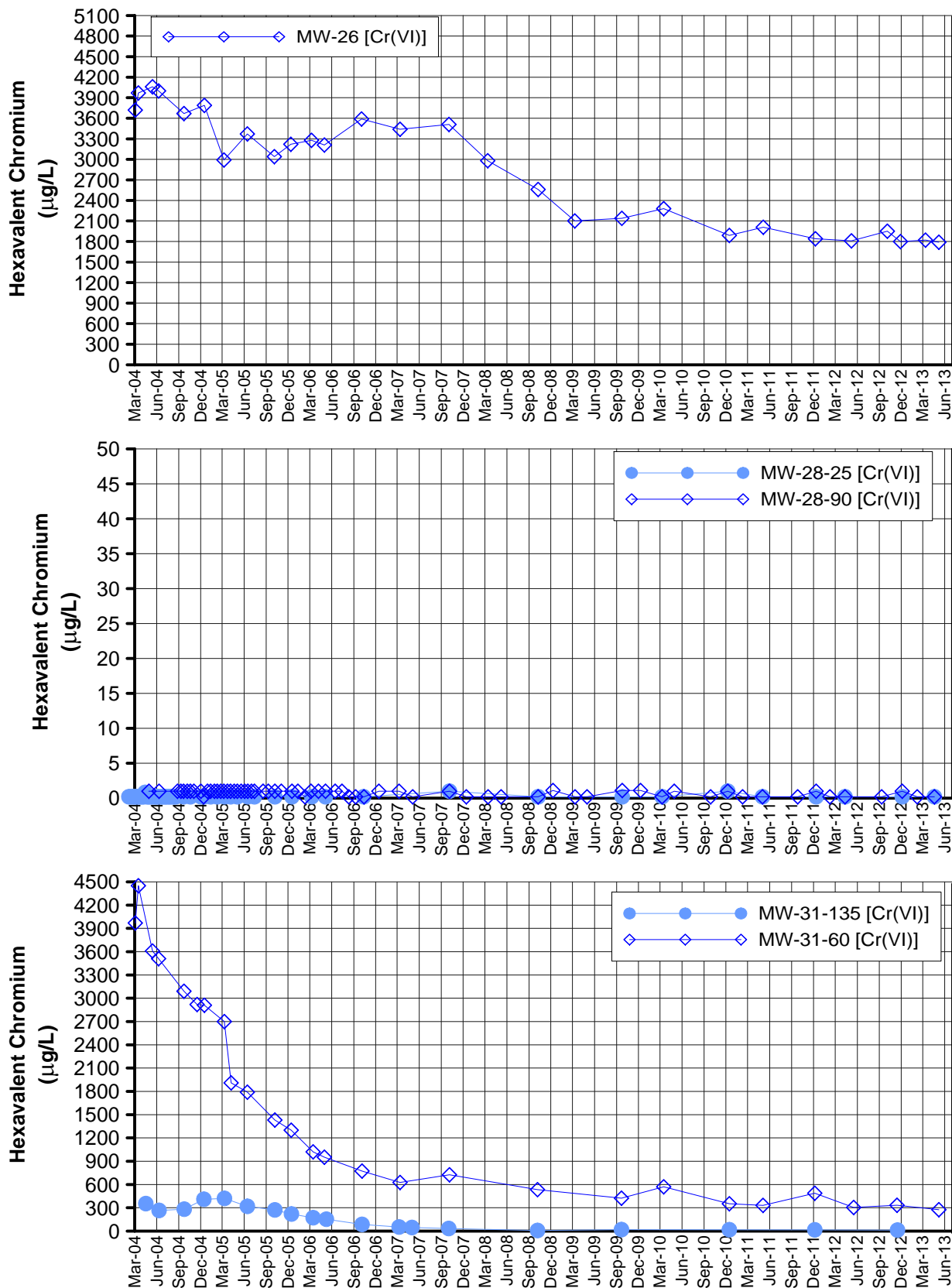
**FIGURE C-2
HEXAVALENT CHROMIUM
IN MW-14, MW-16, MW-17, MW-18 AND MW-19
SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA**



Notes:

1. Fourth Quarter 2010 data for MW-20-100 and MW-20-130 collected in February 2011 due to logistical issues.

**FIGURE C-3
HEXAVALENT CHROMIUM
IN MW-20 CLUSTER, MW-23 CLUSTER AND MW-25
SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA**



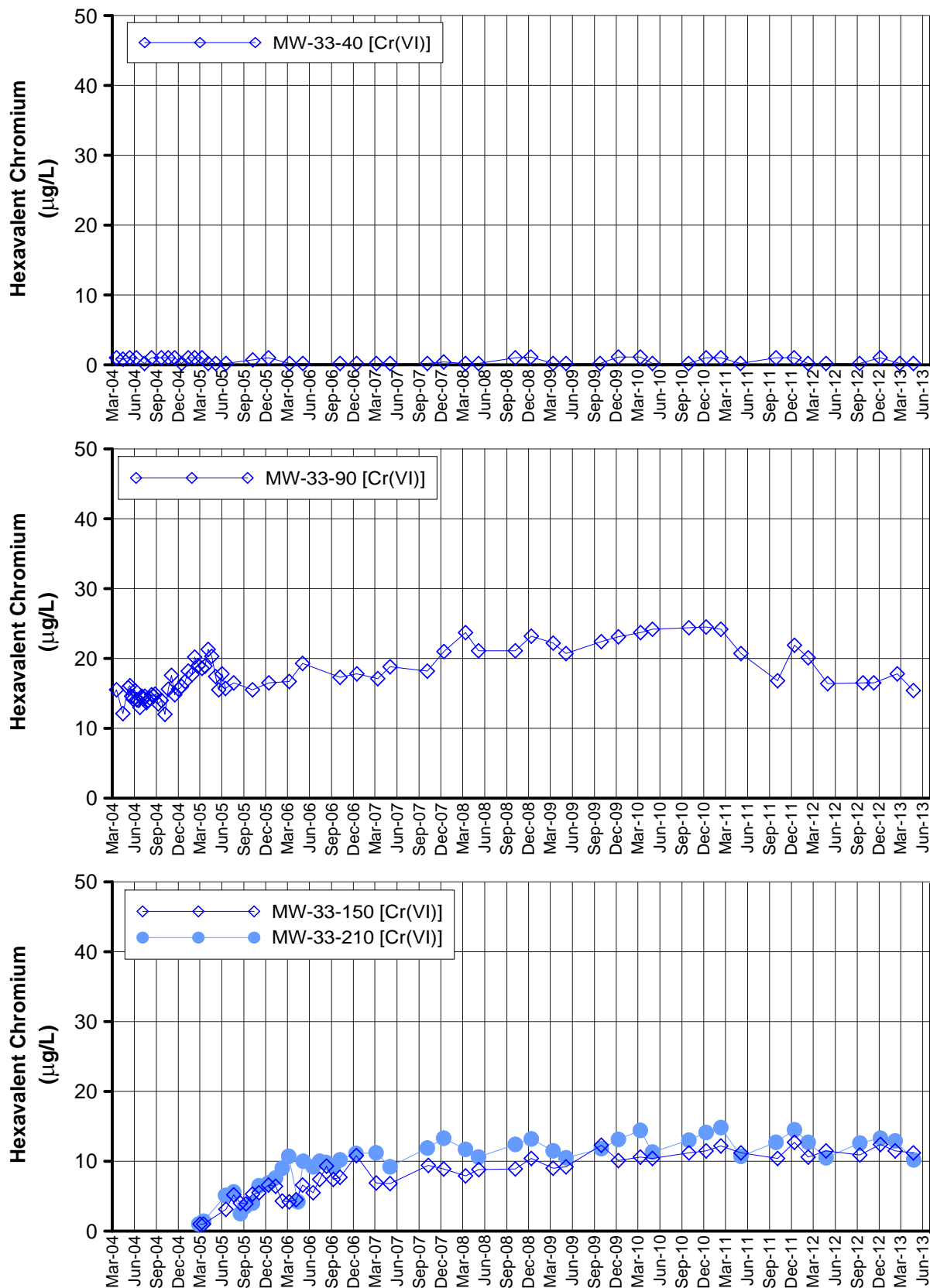
Notes:

1. The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2. The trigger level for MW-28-90 is 20 µg/L.

FIGURE C-4

HEXAVALENT CHROMIUM

IN MW-26, MW-28 CLUSTER AND MW-31 CLUSTER
 SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE
 MONITORING AND SITE-WIDE GROUNDWATER
 AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION,
 NEEDLES, CALIFORNIA



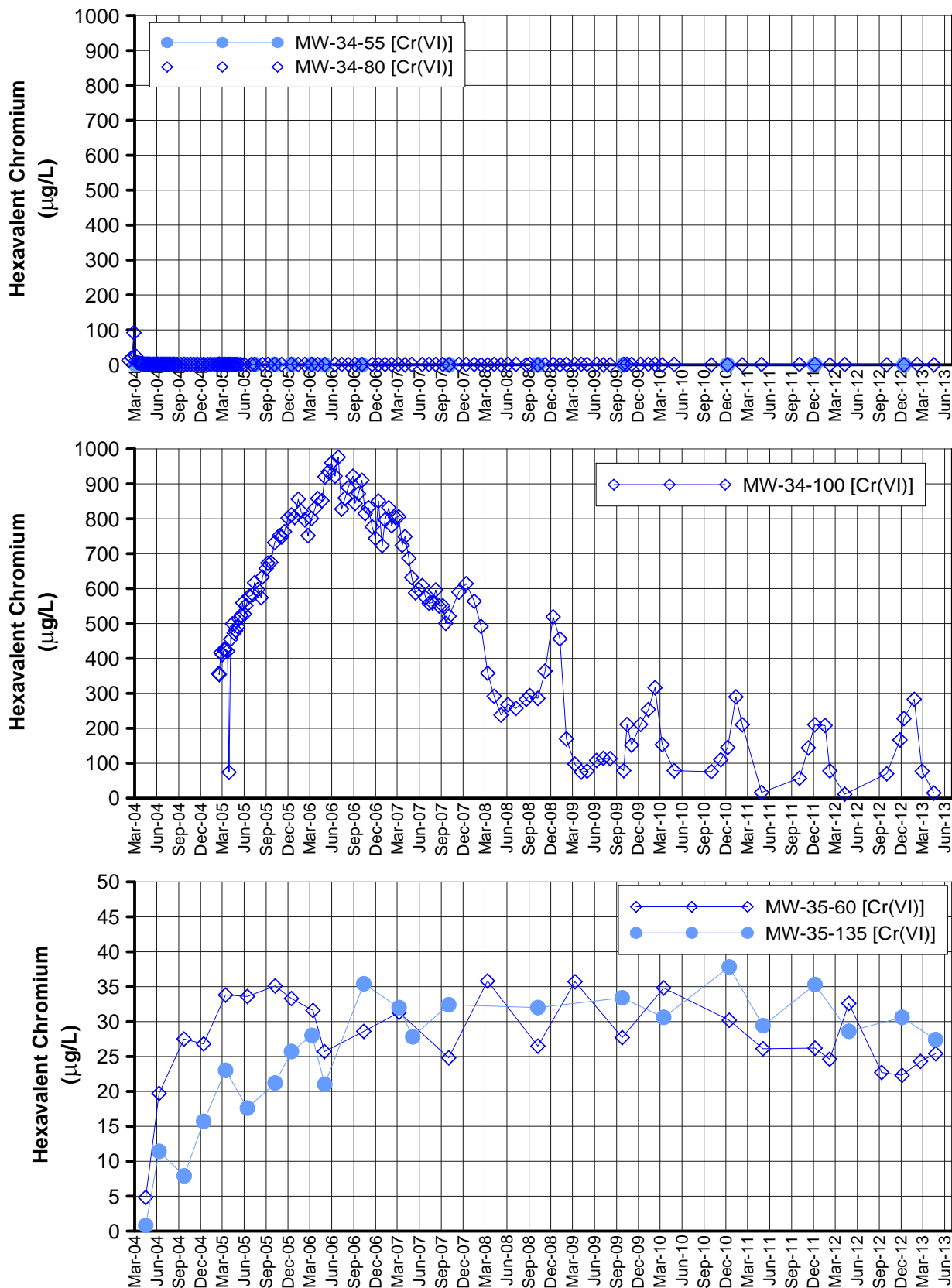
Notes:

1. The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2. The trigger level for MW-33-40 is 20 µg/L.
3. The trigger level for MW-33-90 is 25 µg/L.
4. The trigger level for MW-33-150 is 20 µg/L.
5. The trigger level for MW-33-210 is 20 µg/L.

**FIGURE C-5
HEXAVALENT CHROMIUM
IN MW-33 CLUSTER**

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

CH2MHILL

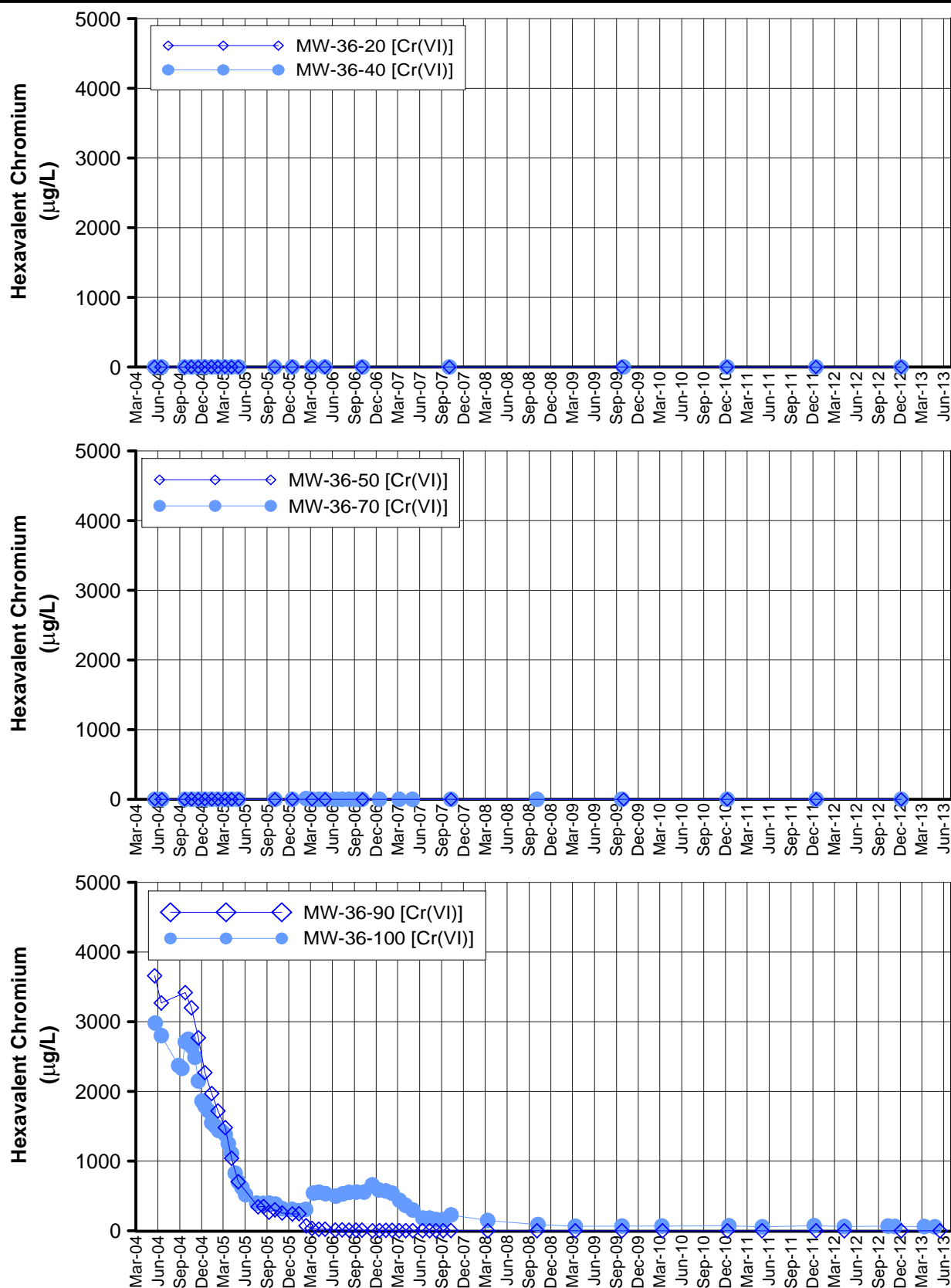


Notes:

1. The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2. The trigger level for MW-34-80 is 20 µg/L.
3. The trigger level for MW-34-100 is 750 µg/L.

**FIGURE C-6
HEXAVALENT CHROMIUM
IN MW-34 AND MW-35 CLUSTERS**

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



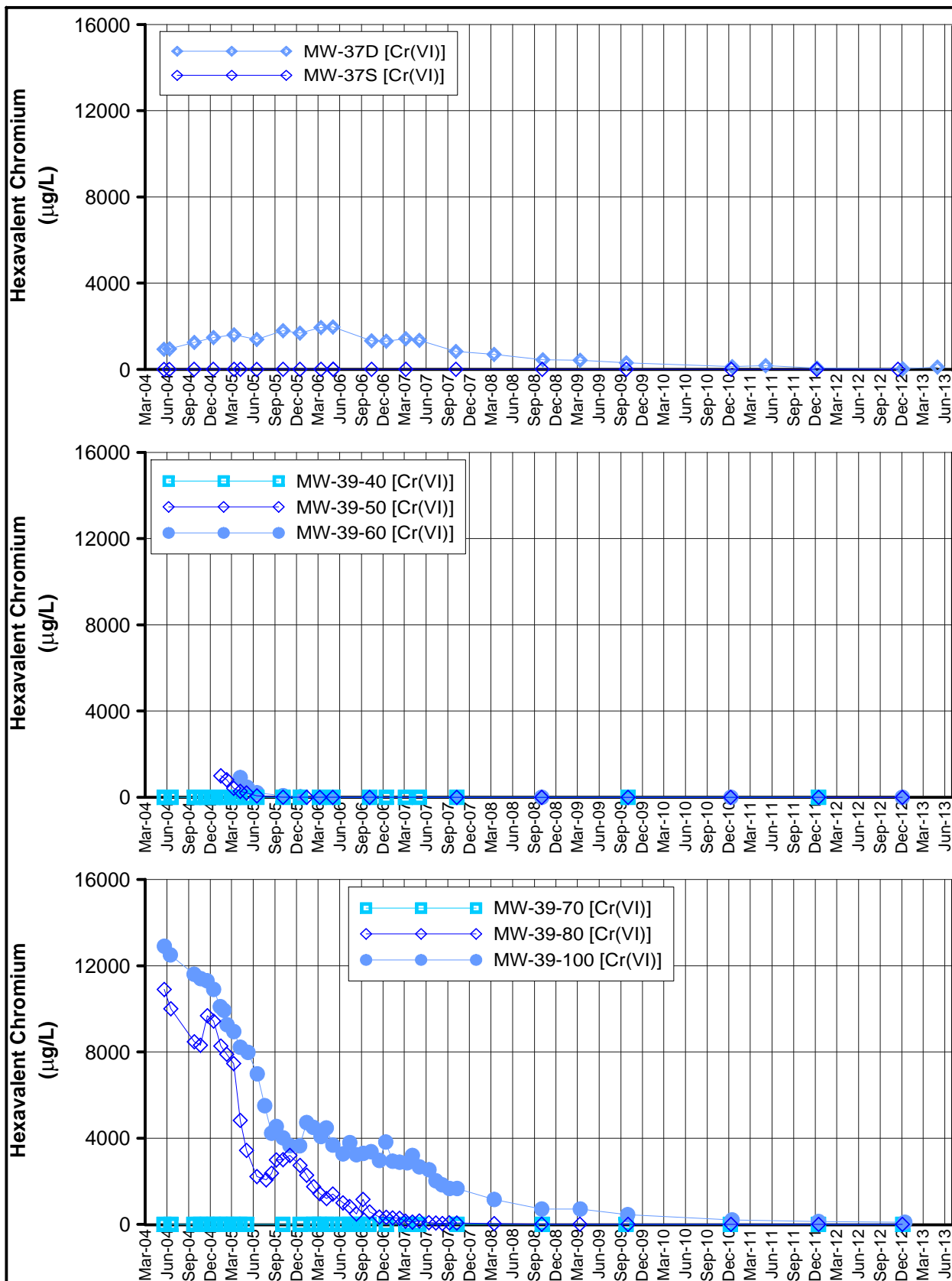
Notes:

1. The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2. The trigger level for MW-36-70 is 20 µg/L.

**FIGURE C-7
HEXAVALENT CHROMIUM
IN MW-36 CLUSTER**

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

CH2MHILL

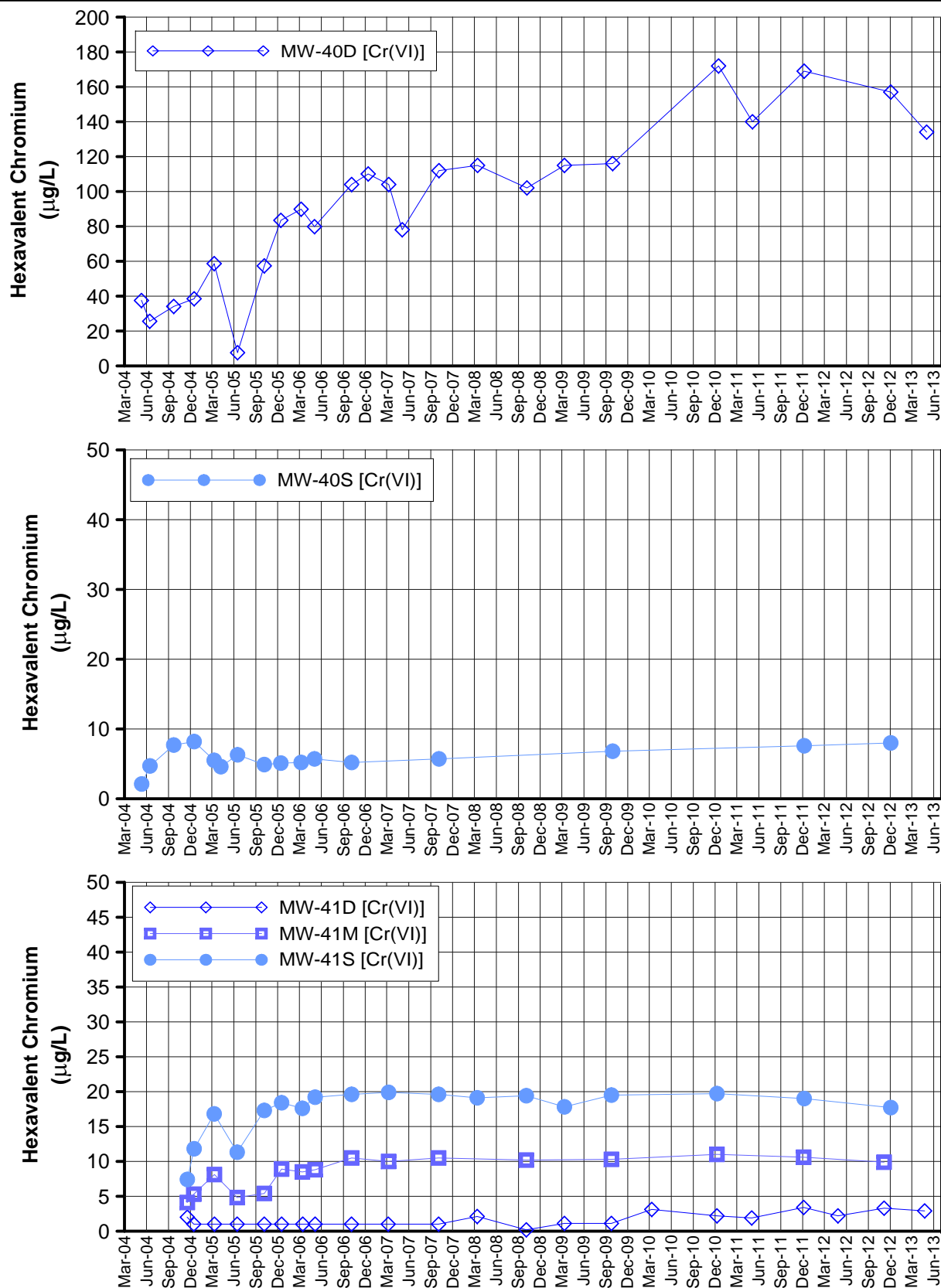


Notes:

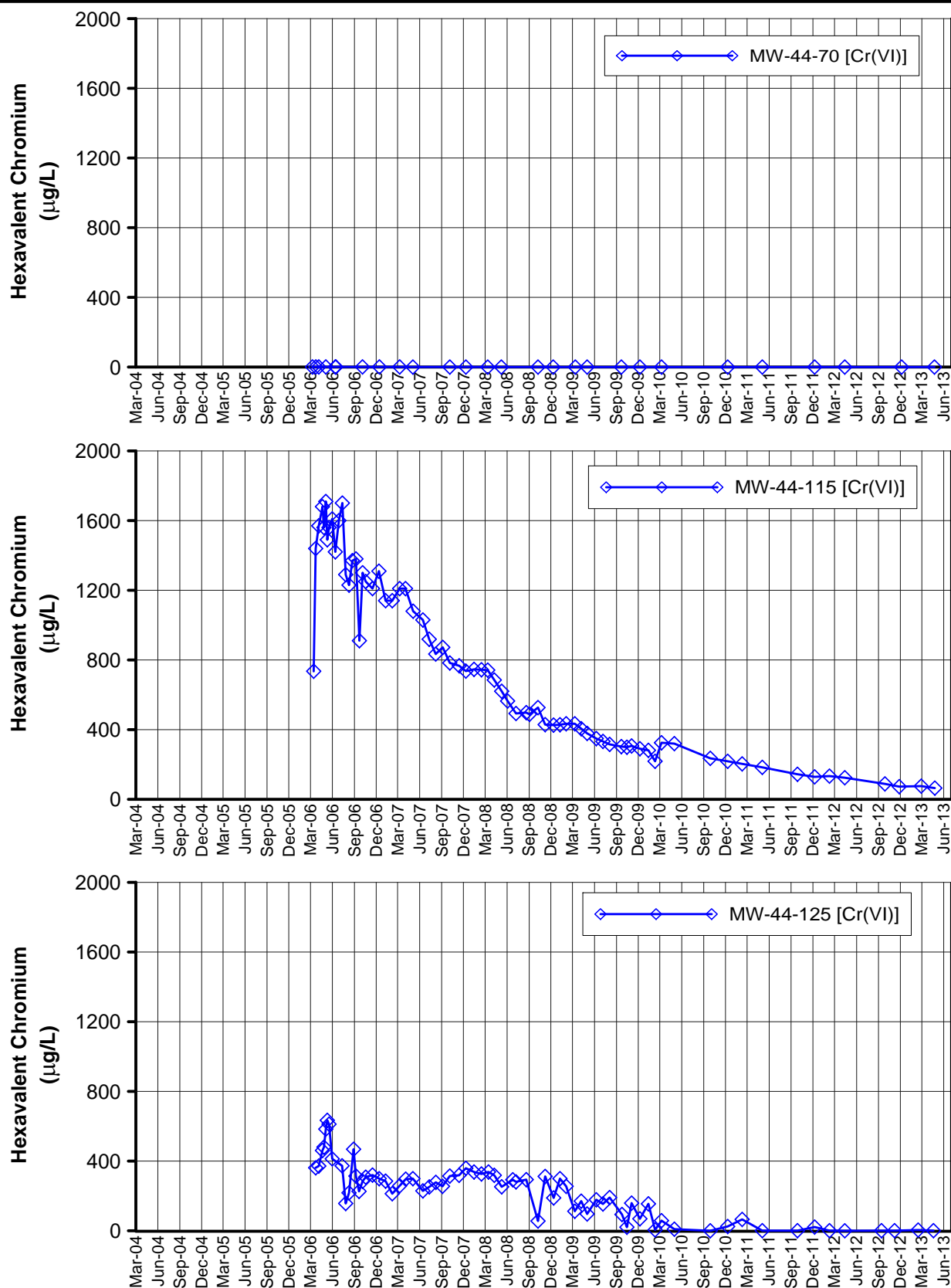
1. The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2. The trigger level for MW-39-40 is 20 µg/L.

**FIGURE C-8
HEXAVALENT CHROMIUM
IN MW-37 AND MW-39 CLUSTERS**

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



**FIGURE C-9
HEXAVALENT CHROMIUM
IN MW-40 AND MW-41 CLUSTERS**
SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA



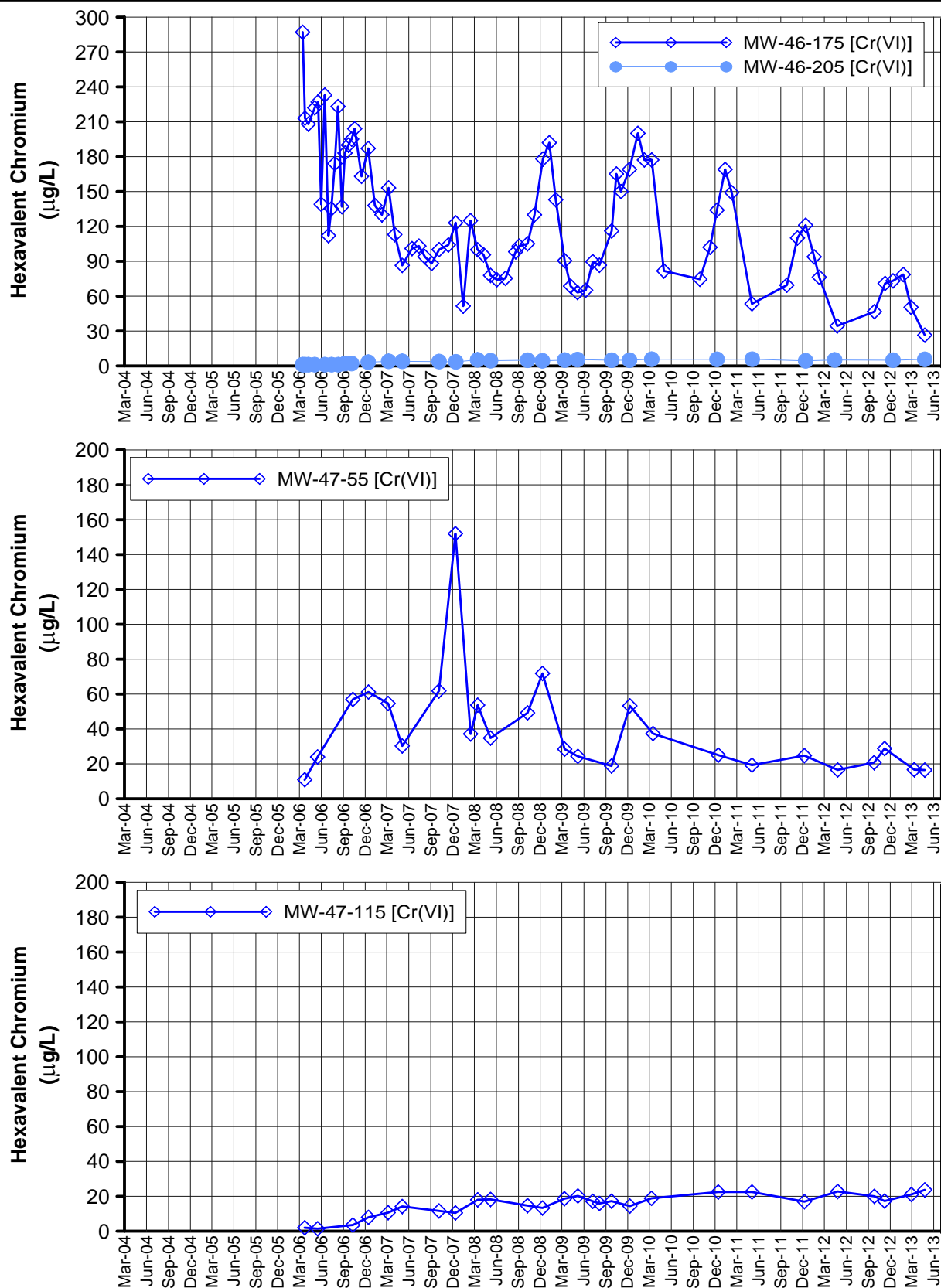
Notes:

1. The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2. The trigger level for MW-44-70 is 20 µg/L.
3. The trigger level for MW-44-115 is 1,200 µg/L.
4. The trigger level for MW-44-125 is 475 µg/L.

**FIGURE C-10
HEXAVALENT CHROMIUM
IN MW-44 CLUSTER**

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

CH2MHILL

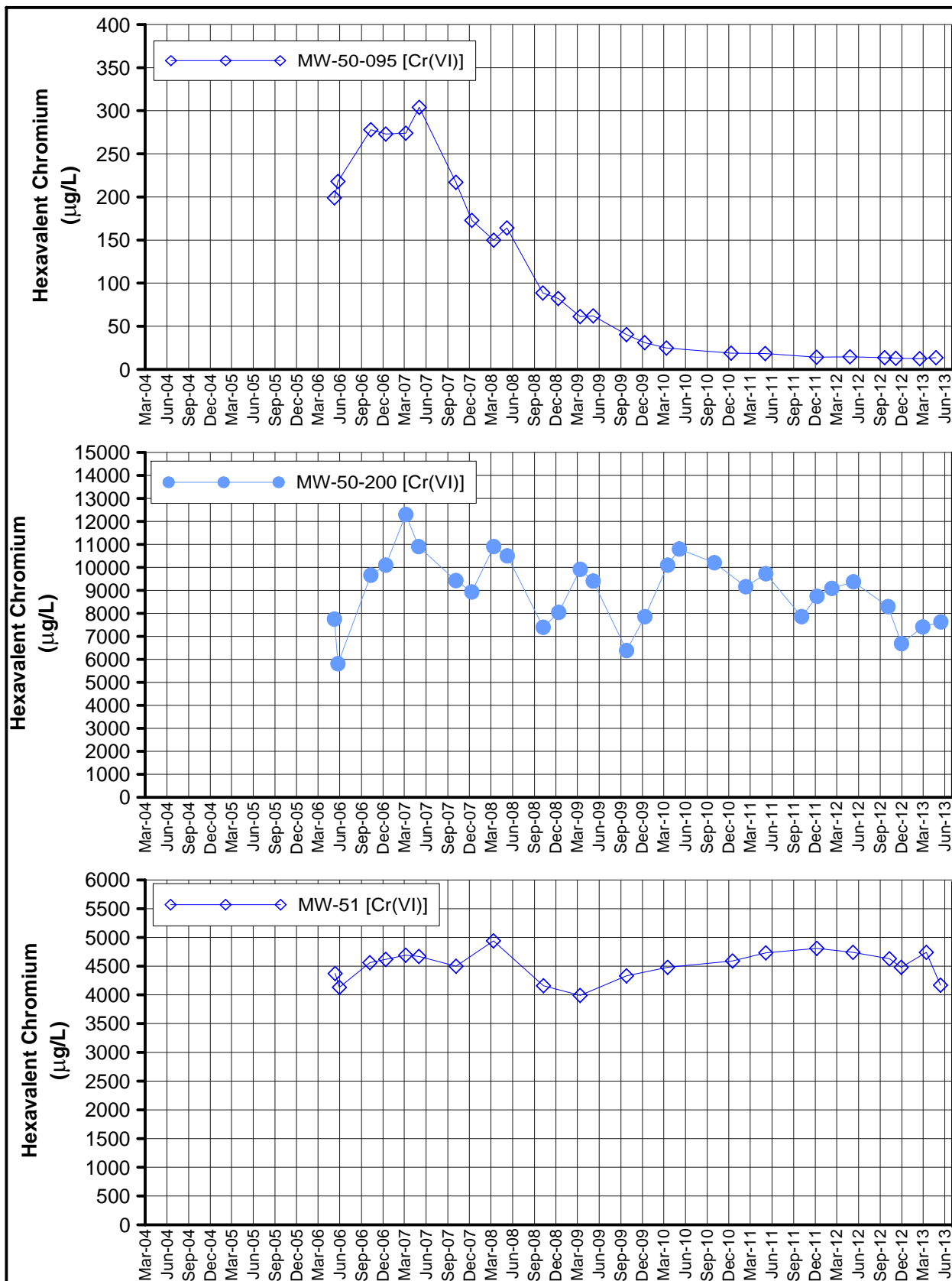


Notes:

1. The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2. The trigger level for MW-46-175 is 225 µg/L.
3. The trigger level for MW-46-205 is 20 µg/L.
4. The trigger level for MW-47-55 is 475 µg/L.
5. The trigger level for MW-47-115 is 31 µg/L.

**FIGURE C-11
HEXAVALENT CHROMIUM
IN MW-46 AND MW-47 CLUSTERS**

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

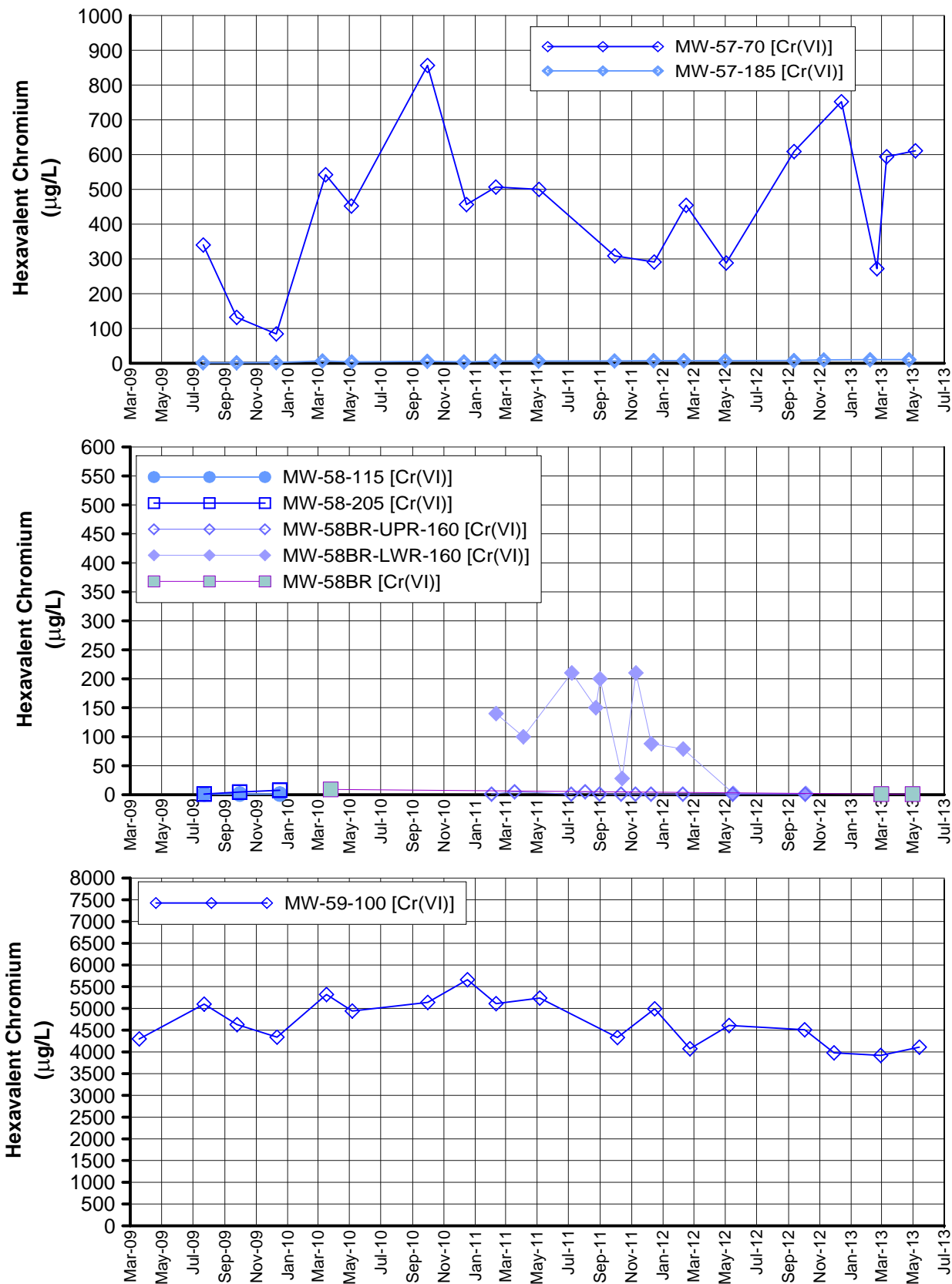


Notes:

1. Fourth Quarter 2010 data for MW-50-200 collected in February 2011 due to logistical issues.

**FIGURE C-12
HEXAVALENT CHROMIUM
IN MW-50 CLUSTER AND MW-51**

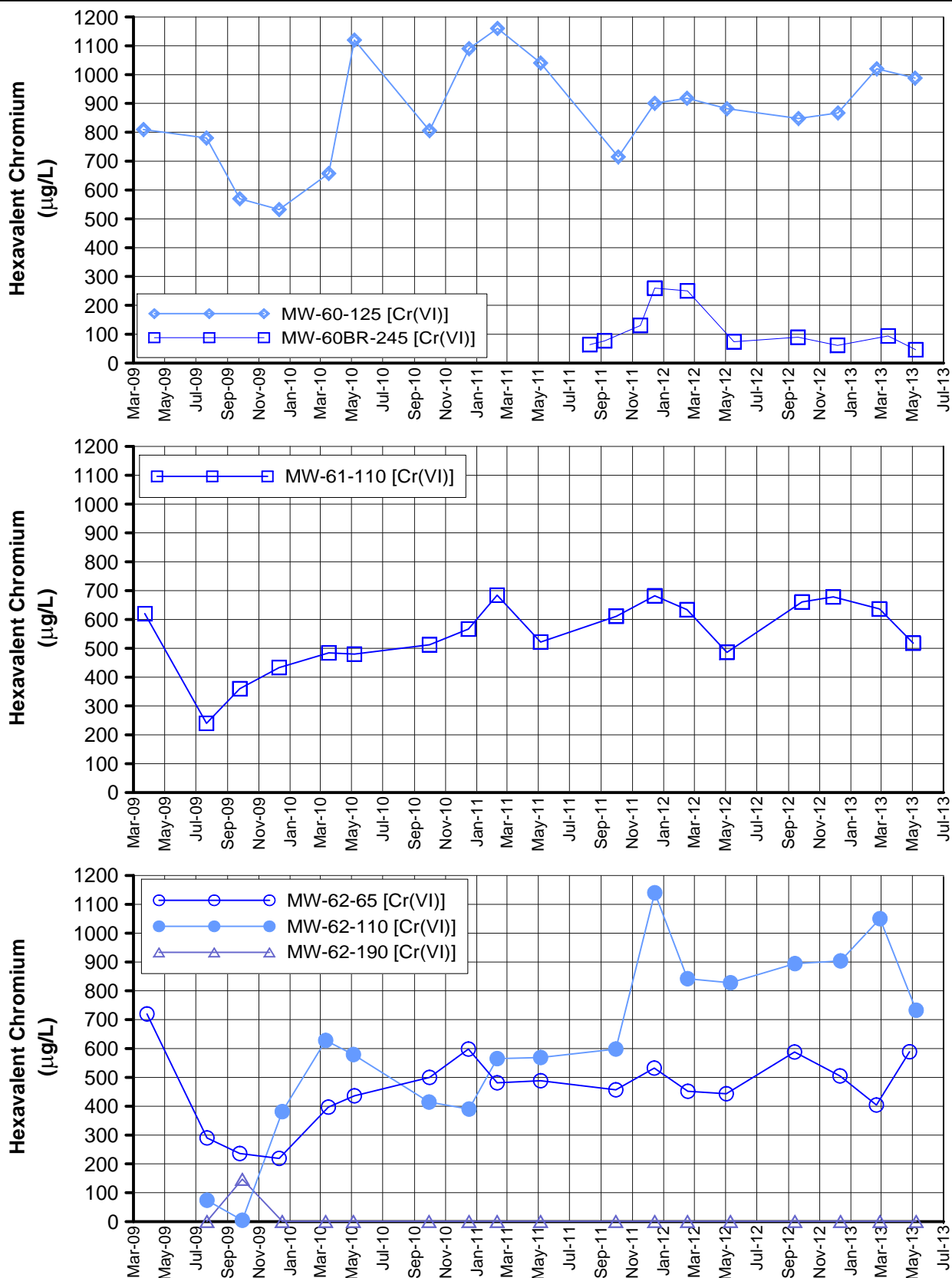
SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA



Note:
MW-58BR upper and lower packer 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.

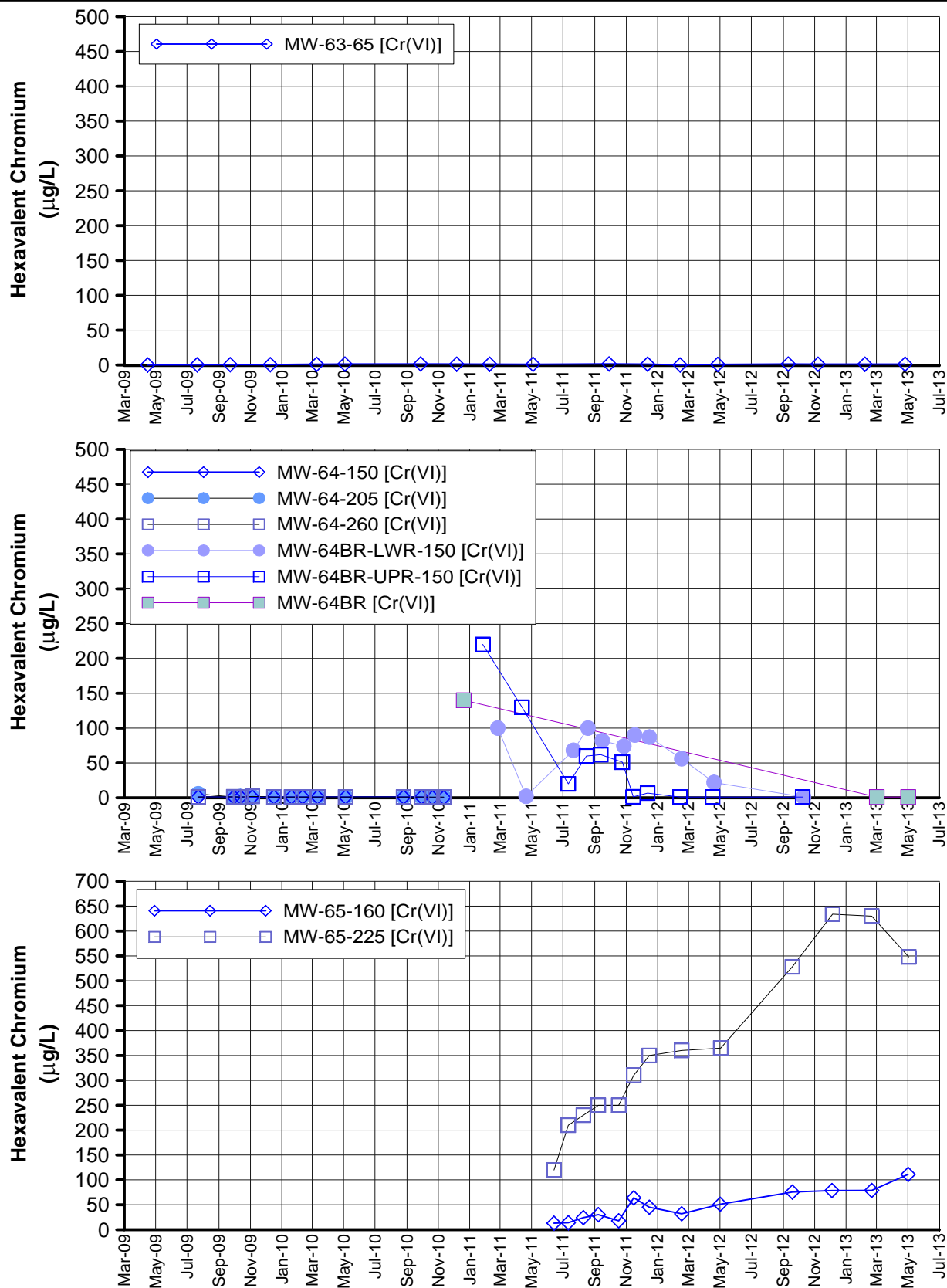
**FIGURE C-13
HEXAVALENT CHROMIUM
IN MW-57 CLUSTER, MW-58 CLUSTER AND MW-59-100**
SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Note:
MW-60BR-245 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.

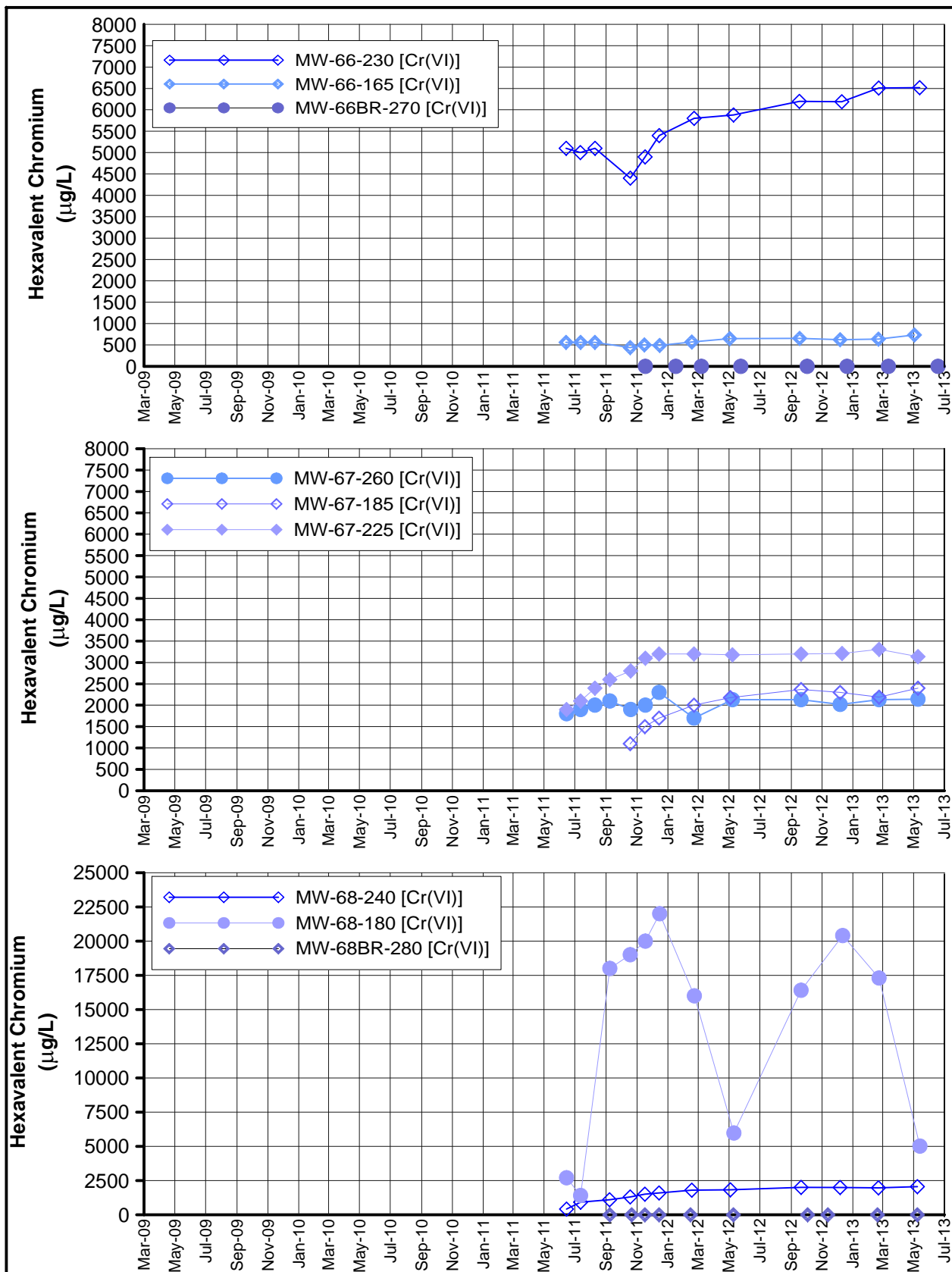
FIGURE C-14
HEXAVALENT CHROMIUM
IN MW-60 CLUSTER, MW-61-110 AND MW-62 CLUSTER
SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA



Note:
 MW-64BR upper and lower packer data, MW-65-160, and MW-65-225 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-15
HEXAVALENT CHROMIUM
IN MW-63-65, MW-64 CLUSTER AND MW-65 CLUSTER
 SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Note:

Data prior to May 2012 is reported in:

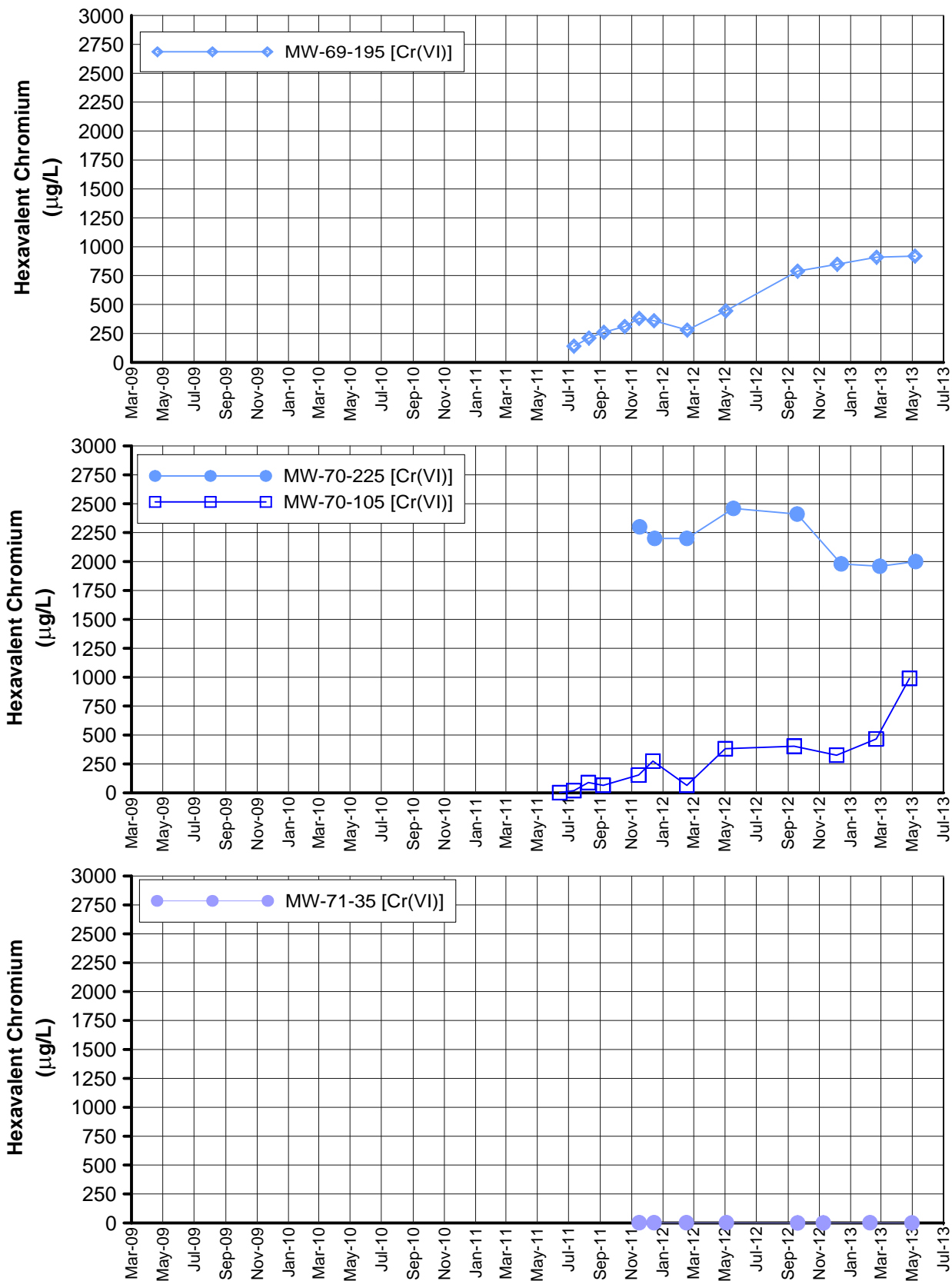
CH2M HILL. 2012d. Technical Memorandum. *Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California.* November 15.

FIGURE C-16

HEXAVALENT CHROMIUM

IN MW-66, MW-67 AND MW-68 CLUSTERS

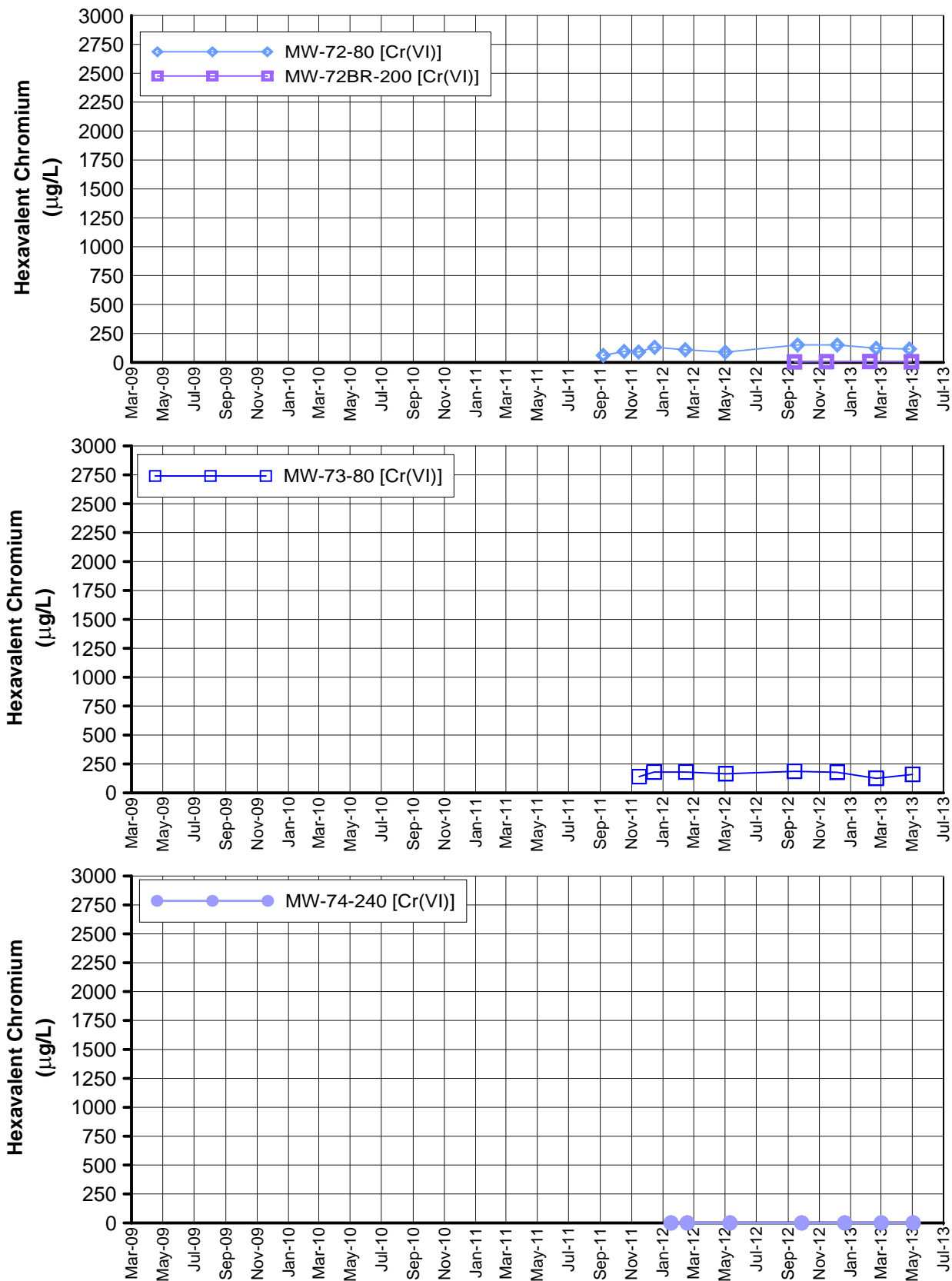
SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



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



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-18

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

CH2MHILL

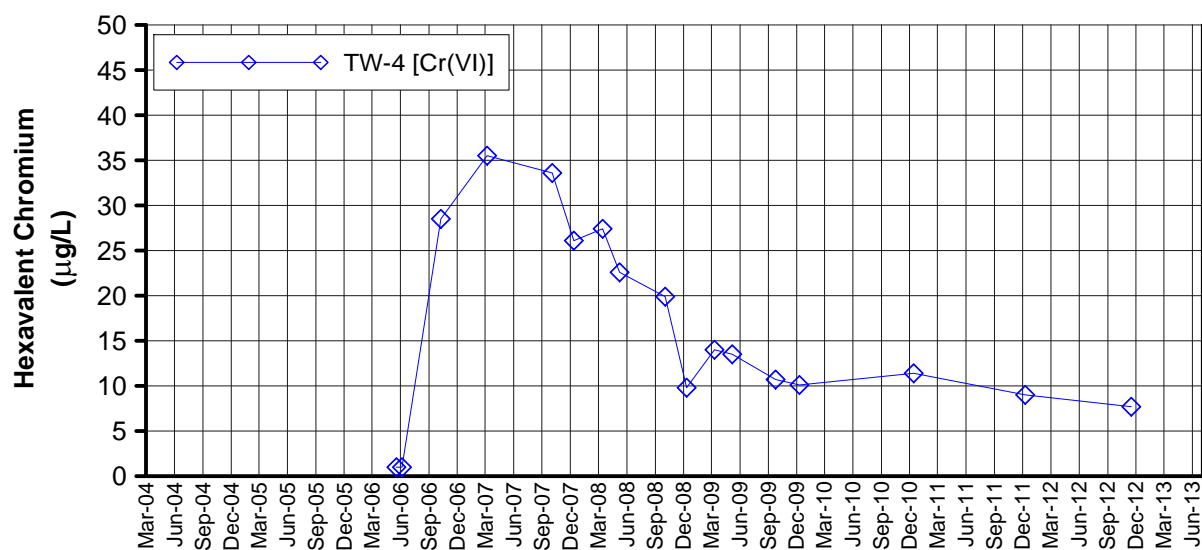


FIGURE C-19
HEXAVALENT CHROMIUM
IN TW-4

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

Appendix D
Interim Measures Extraction System Operations Log,
Second Quarter 2013

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.

Appendix E
Hydraulic Data for Interim Measures
Reporting Period

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*

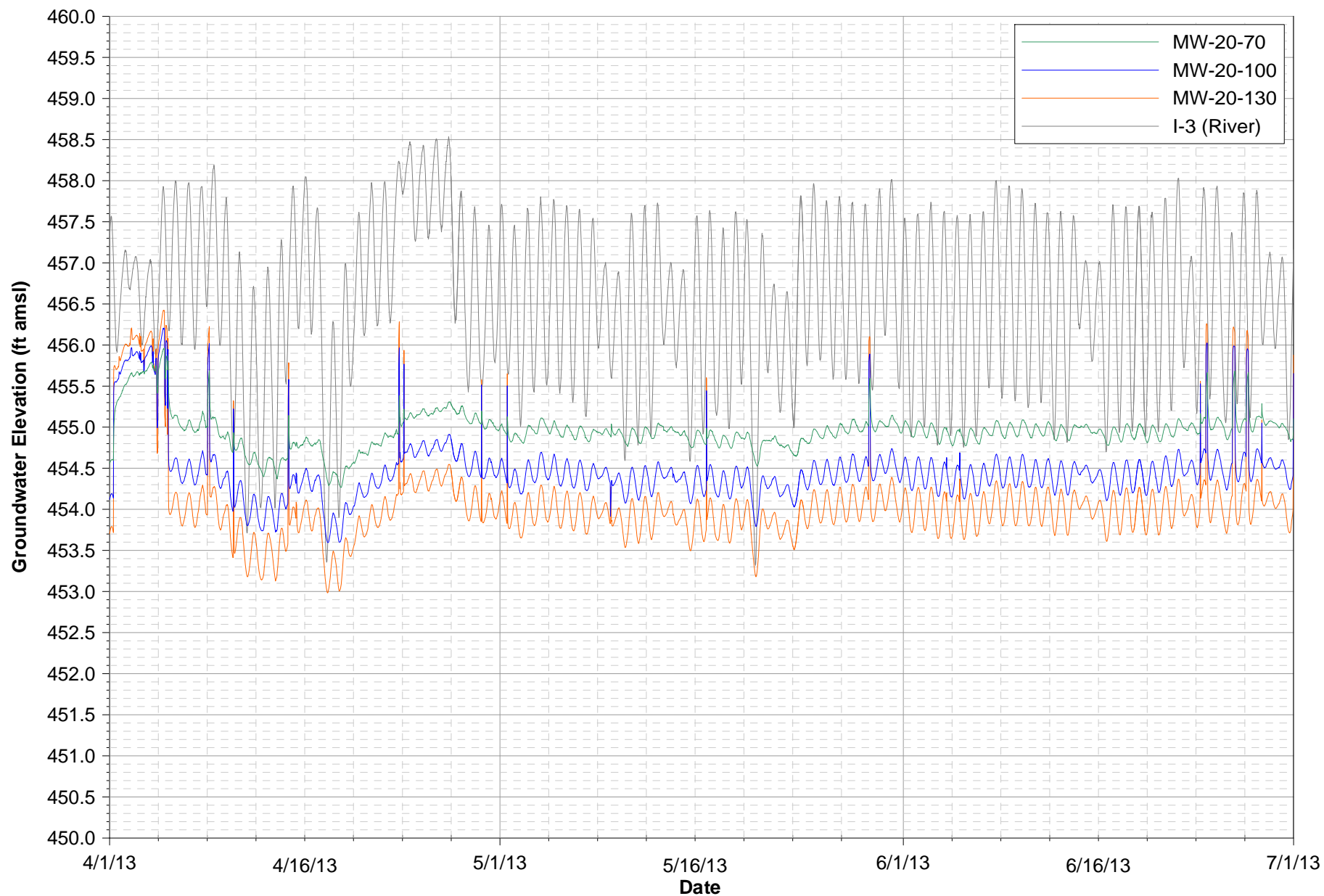
Well ID	Aquifer Zone	April 2013	May 2013	June 2013	Quarter Average	Days in Quarter Average
MW-50-095	Middle Zone	455.95	456.01	456.07	456.01	91
MW-51	Middle Zone	455.63	455.86	455.98	455.82	91
MW-54-085	Deep Zone	456.87	456.58	456.62	456.69	91
MW-54-140	Deep Zone	456.95	456.73	456.73	456.81	91
MW-54-195	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.



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE E-1A

MW-20 CLUSTER HYDROGRAPHS

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



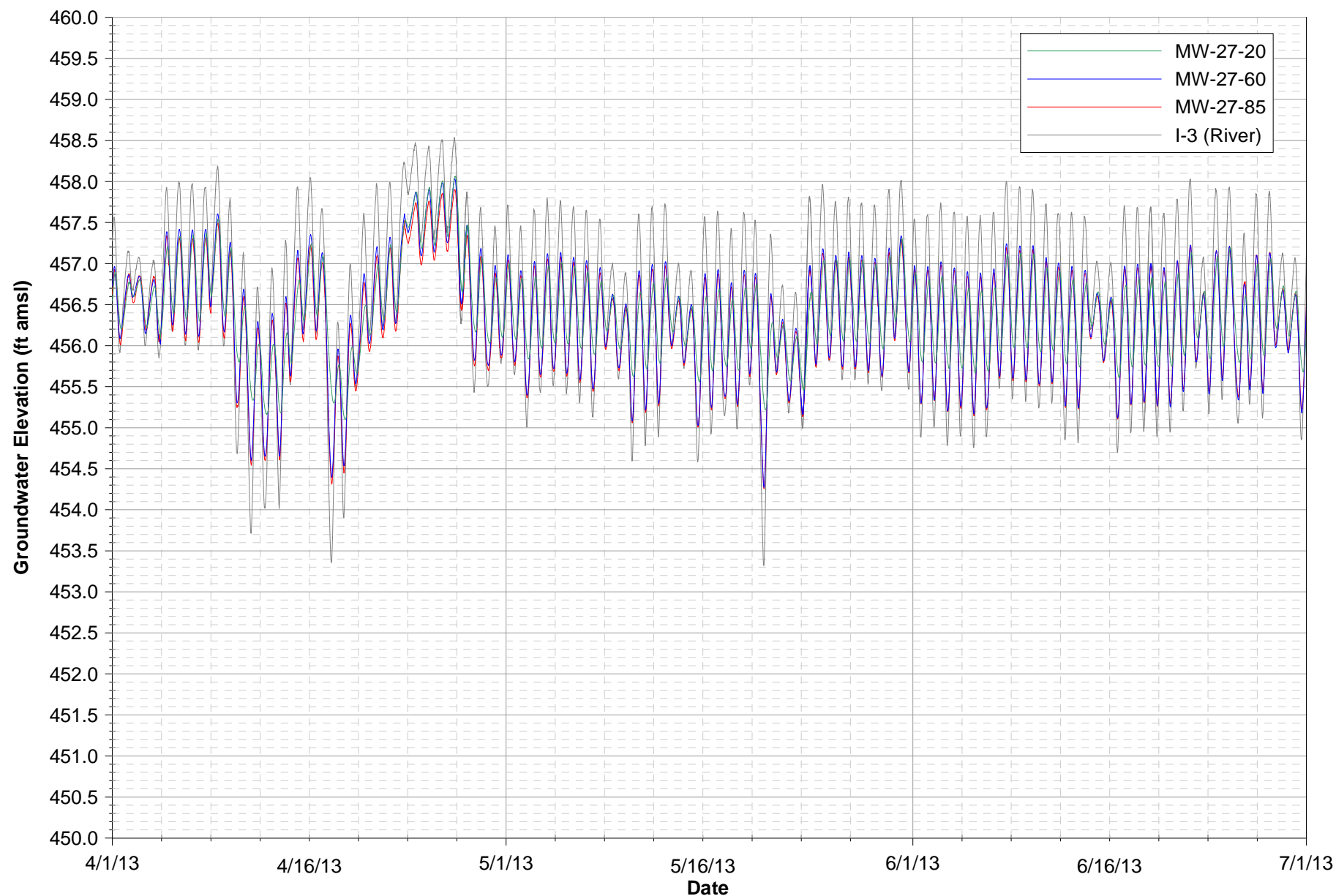
Notes:

1. Data subject to review.
2. MW-25 data unavailable from April 1, 2013 through April 10, 2013 due to transducer malfunction.
3. ft amsl = feet above mean sea level.

FIGURE E-1B

MW-22, MW-25, AND MW-26 HYDROGRAPHS

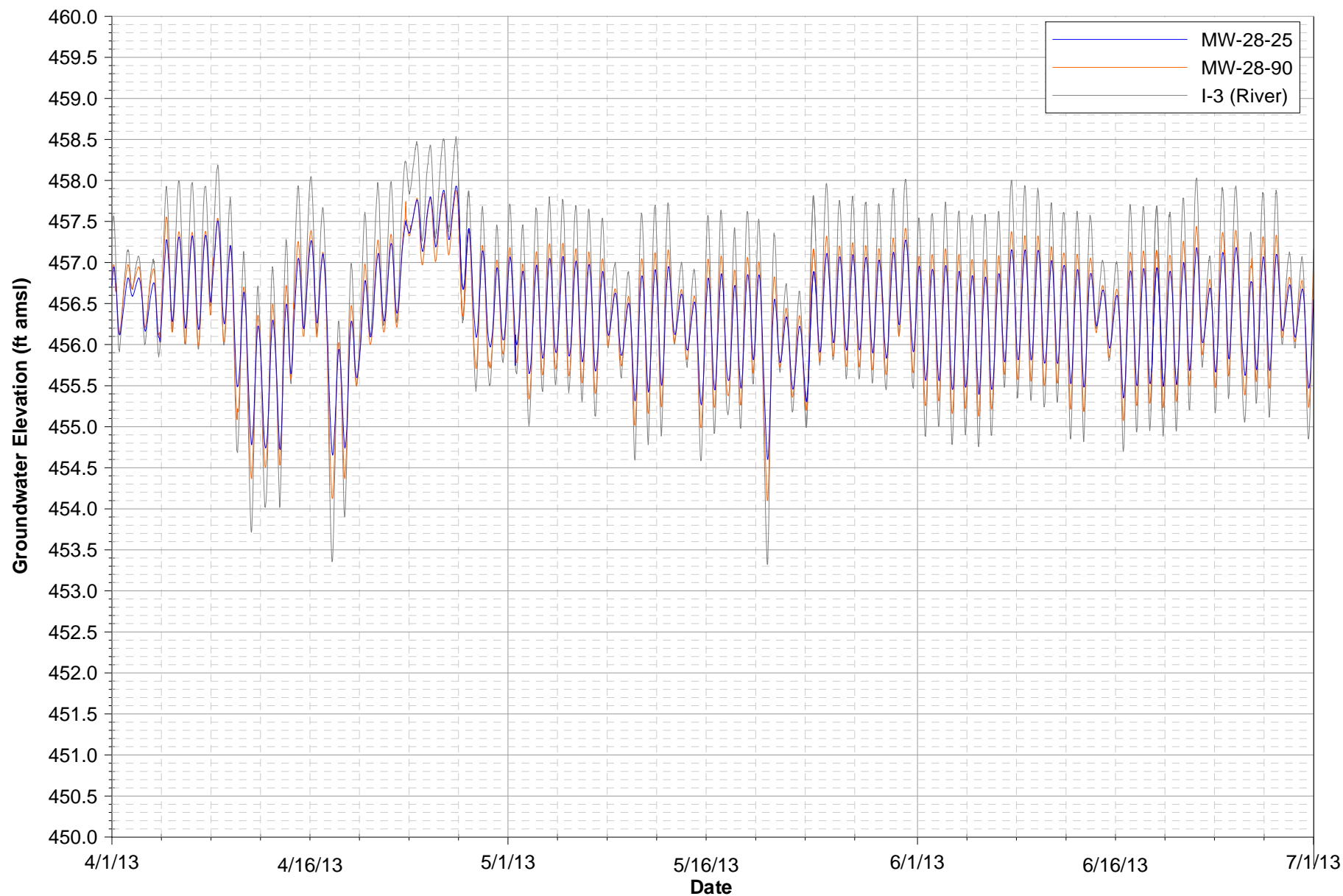
SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE E-1C **MW-27 CLUSTER HYDROGRAPHS**

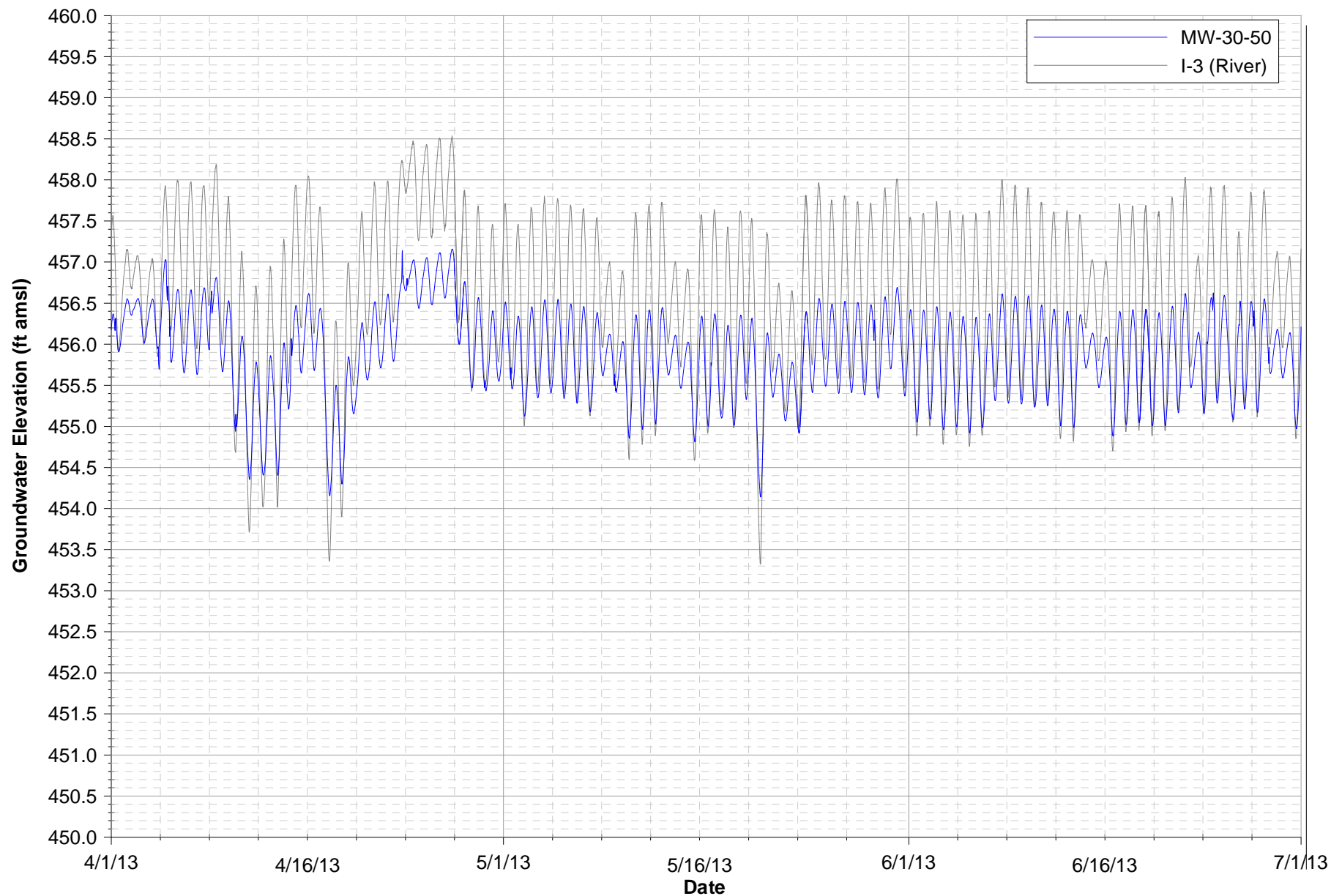
SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE E-1D **MW-28 CLUSTER HYDROGRAPHS**

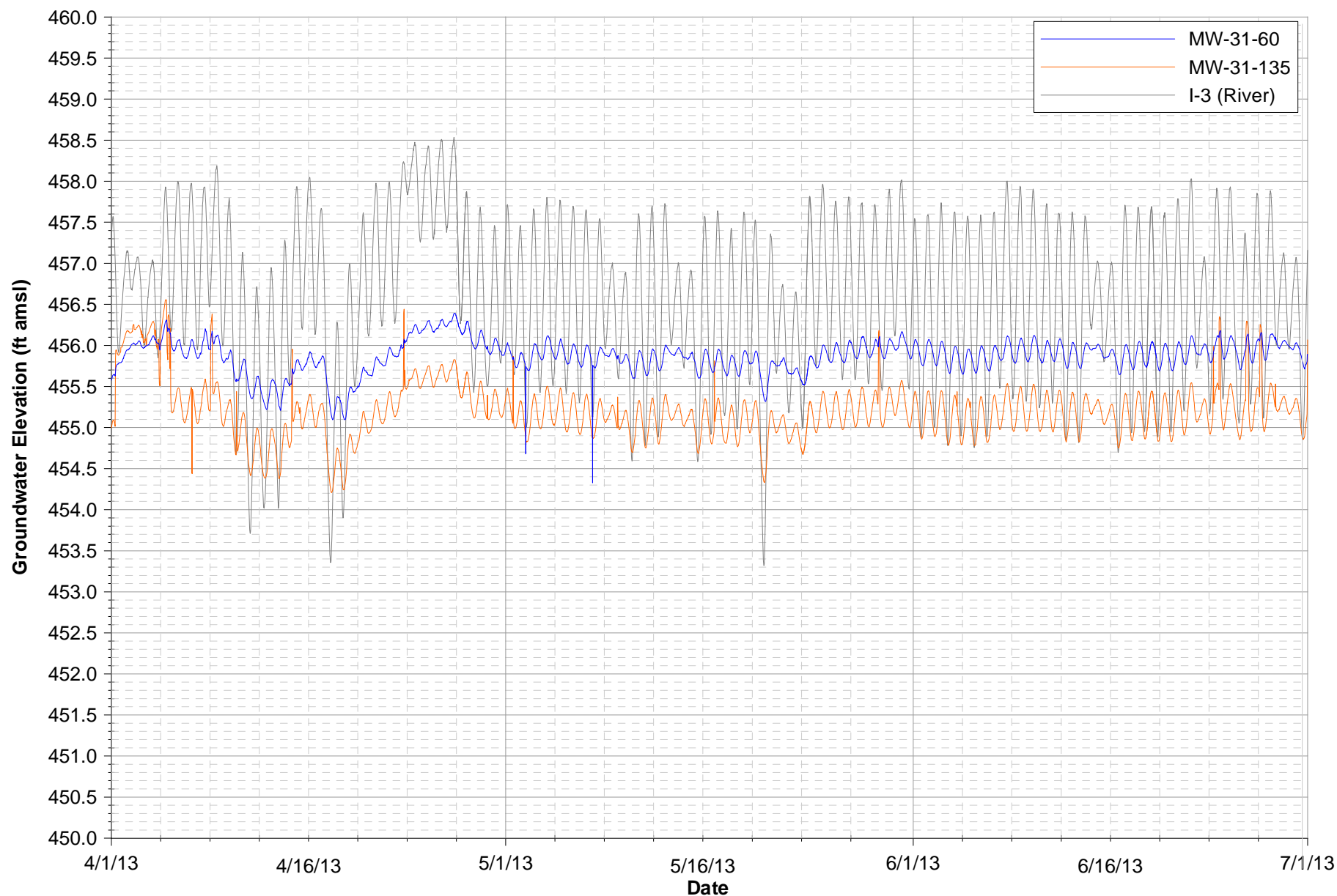
SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE E-1E MW-30-50 HYDROGRAPH

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

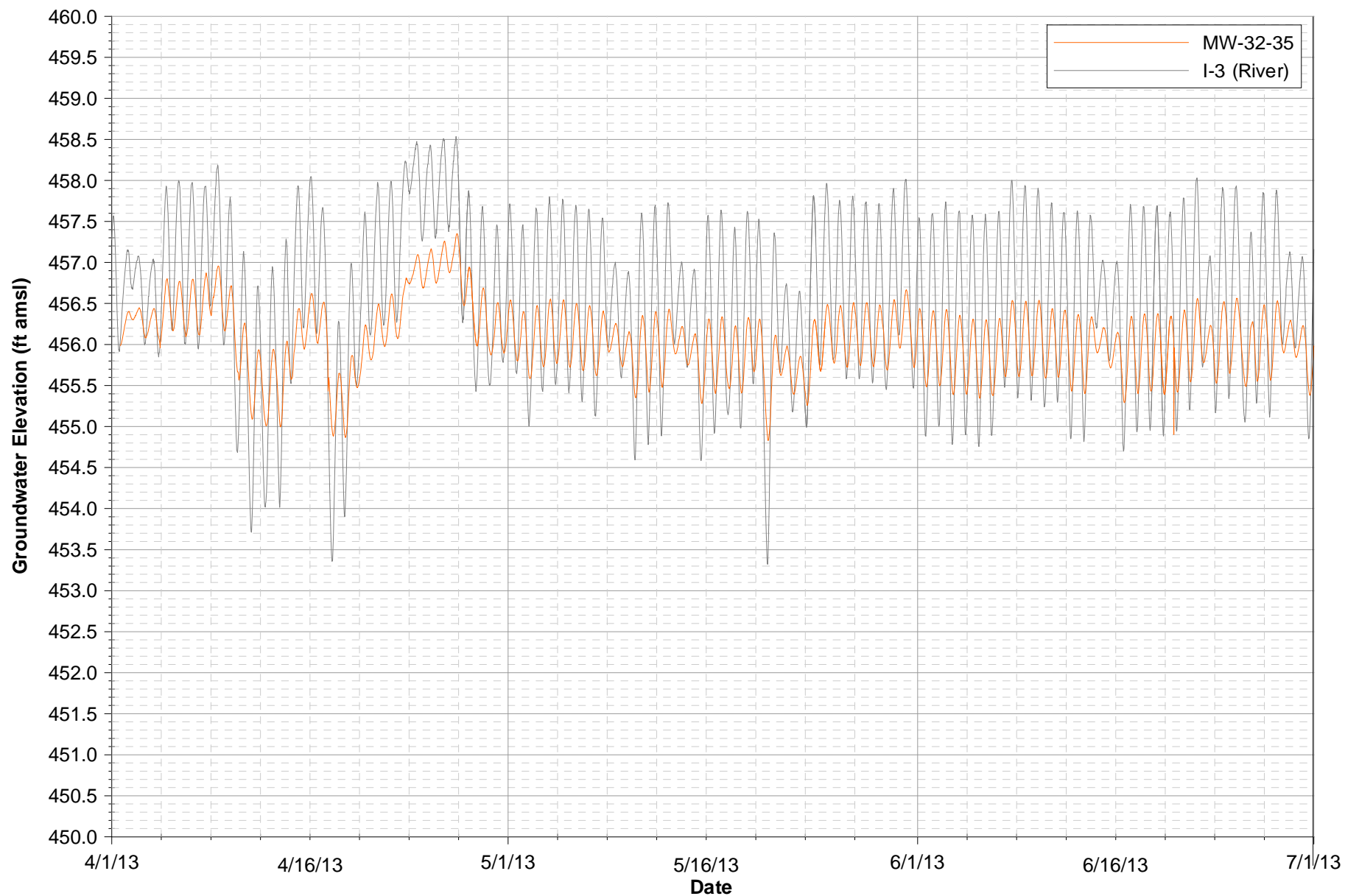


Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE E-1F

MW-31 CLUSTER HYDROGRAPHS

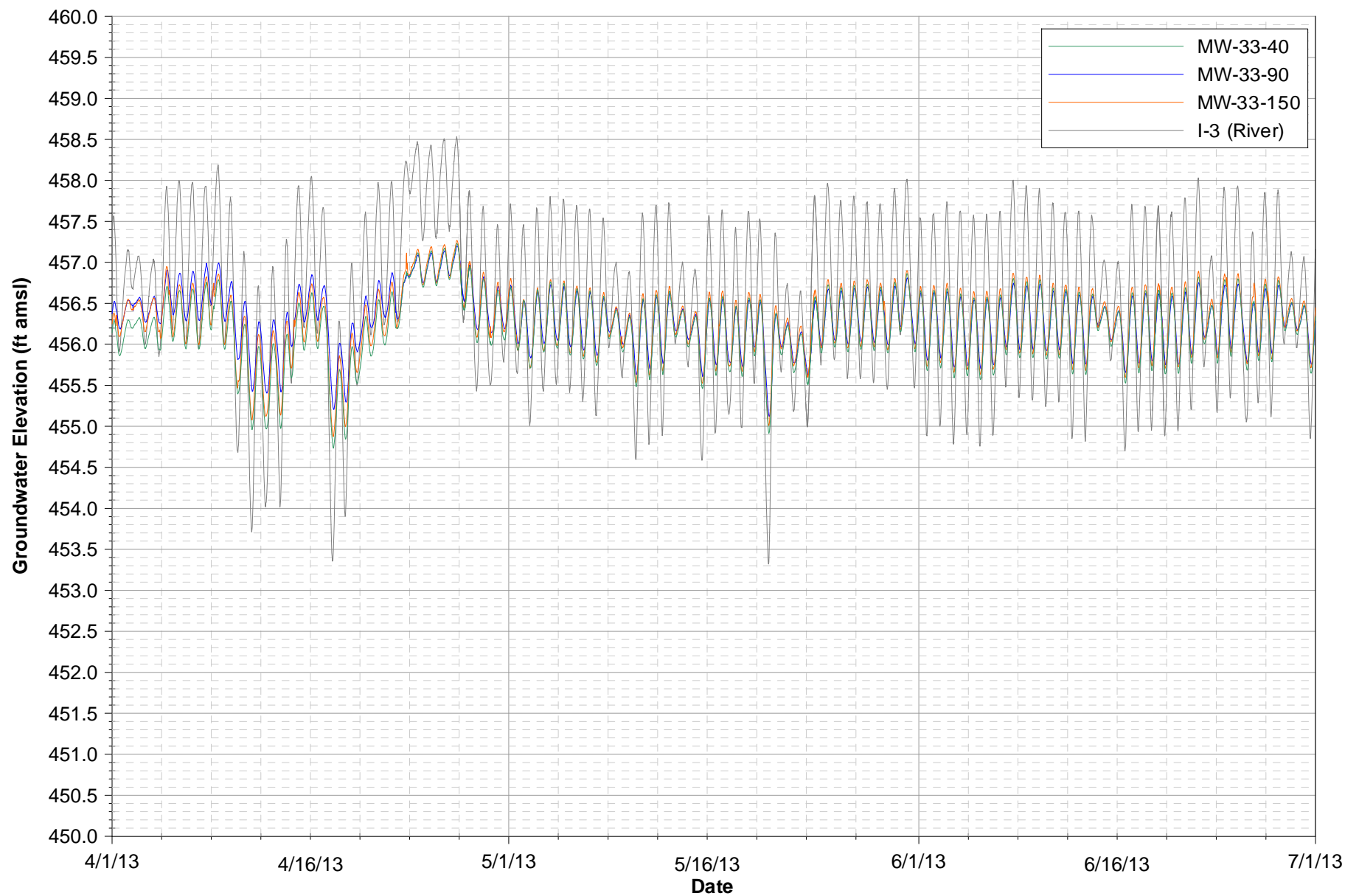
SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE E-1G **MW-32 HYDROGRAPH**

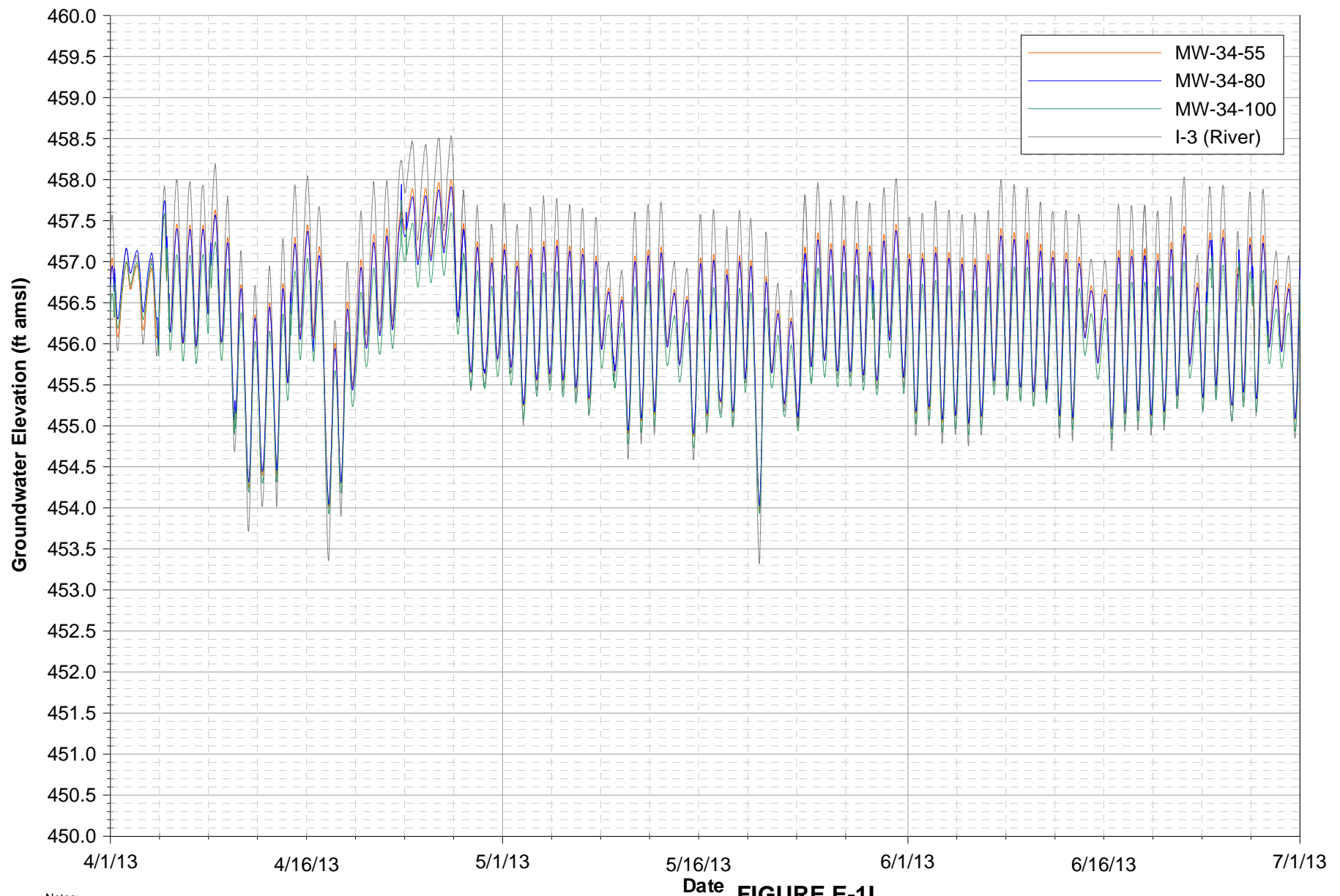
SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE E-1H MW-33 CLUSTER HYDROGRAPHS

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

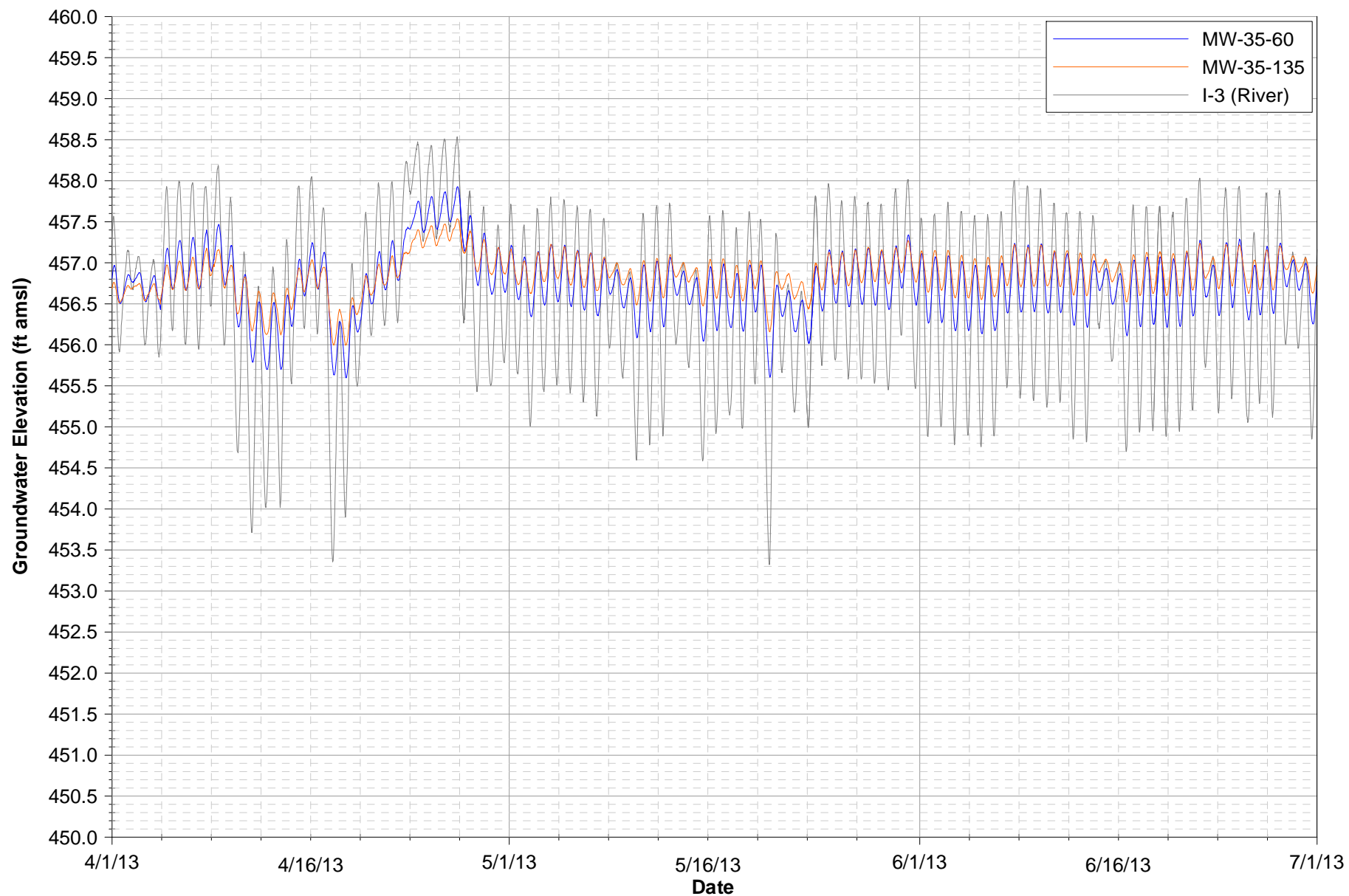


Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE E-11

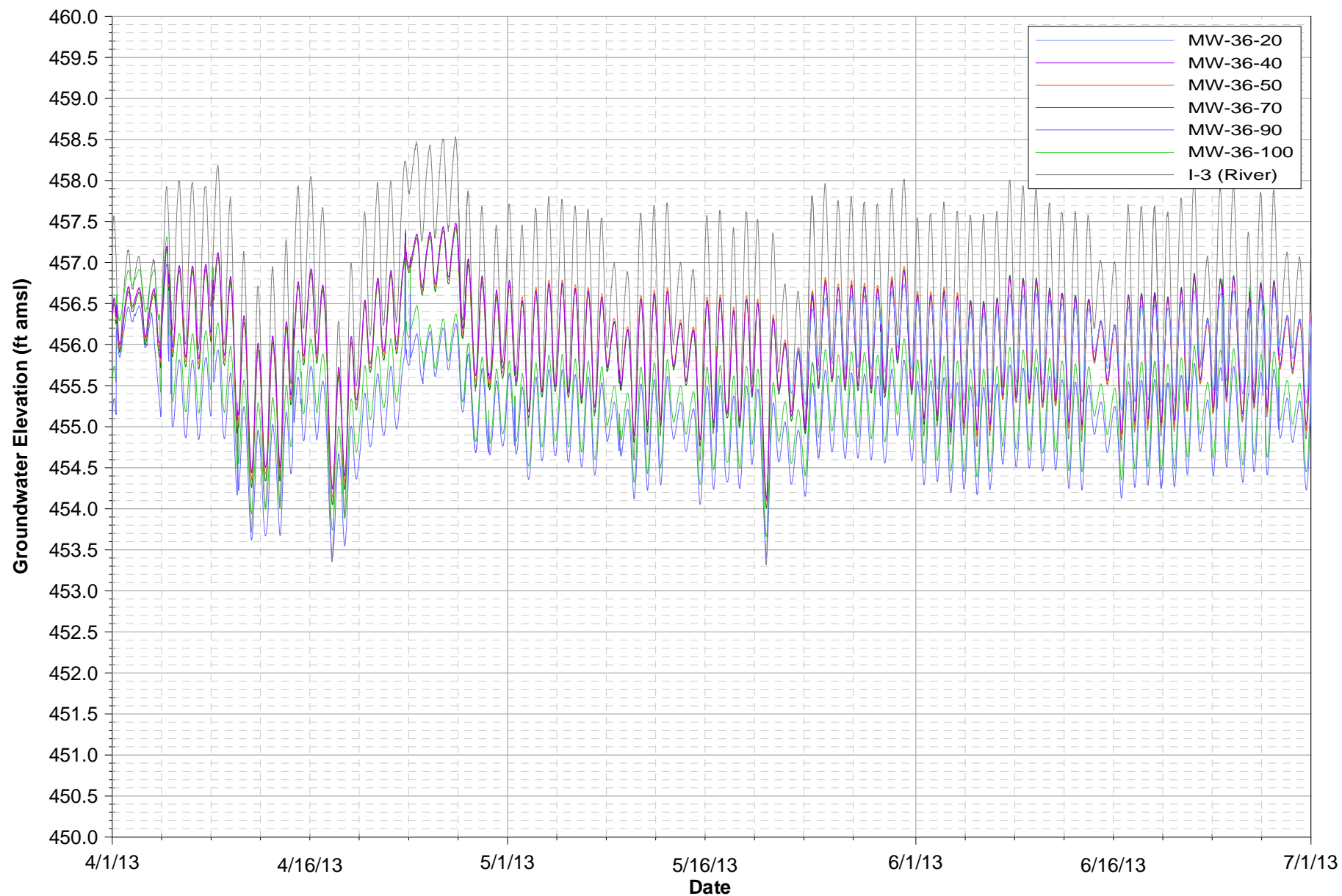
MW-34 CLUSTER HYDROGRAPHS

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



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE E-1J
MW-35 CLUSTER HYDROGRAPHS
 SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



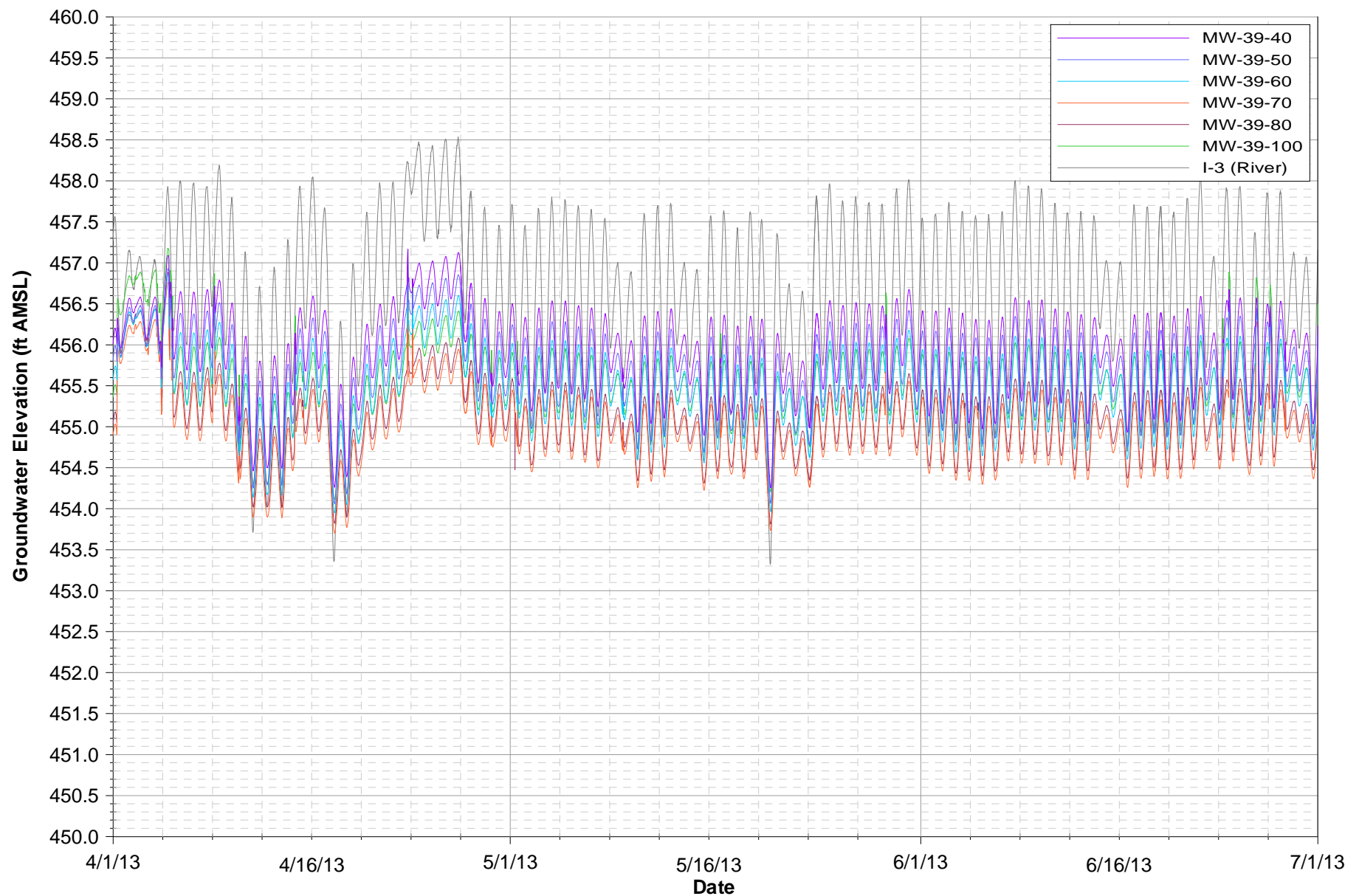
Notes:

1. Data subject to review.
2. MW-36-20 data unavailable from April 1, 2013 through May 22, 2013 due to transducer malfunction.
3. ft amsl = feet above mean sea level.

FIGURE E-1K

MW-36 CLUSTER HYDROGRAPHS

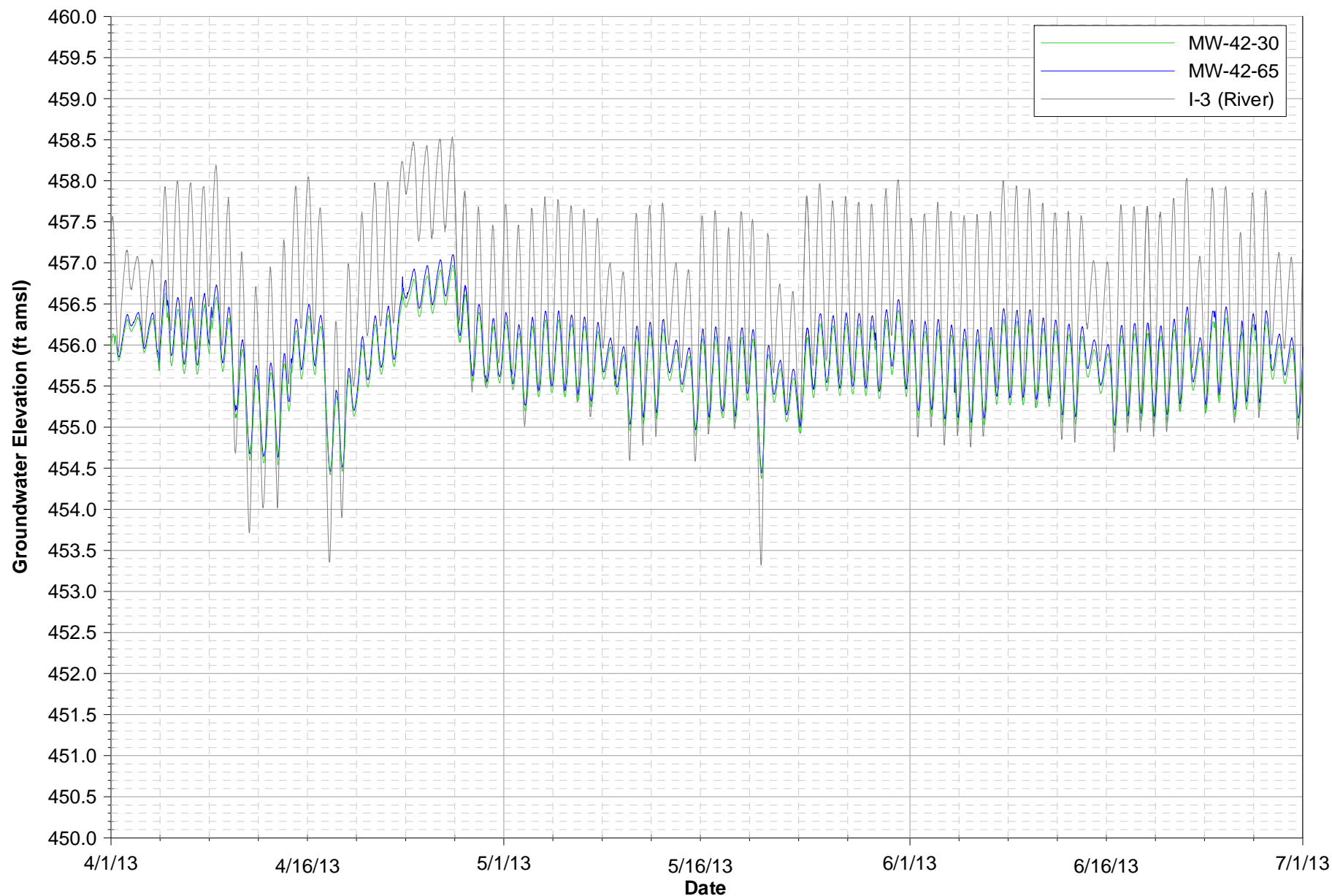
SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE E-1L **MW-39 CLUSTER HYDROGRAPHS**

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

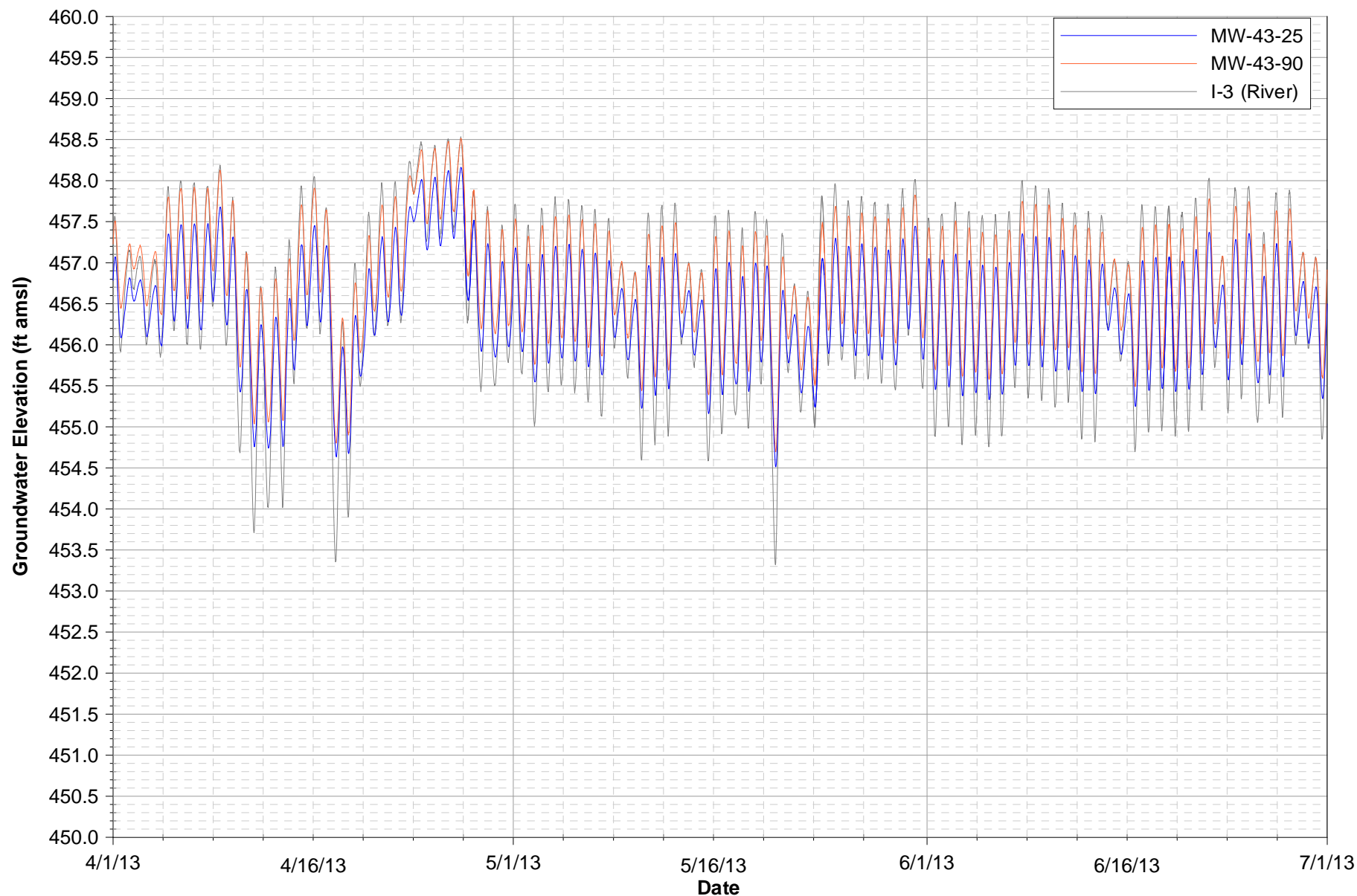


Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE E-1M

MW-42 CLUSTER HYDROGRAPHS

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



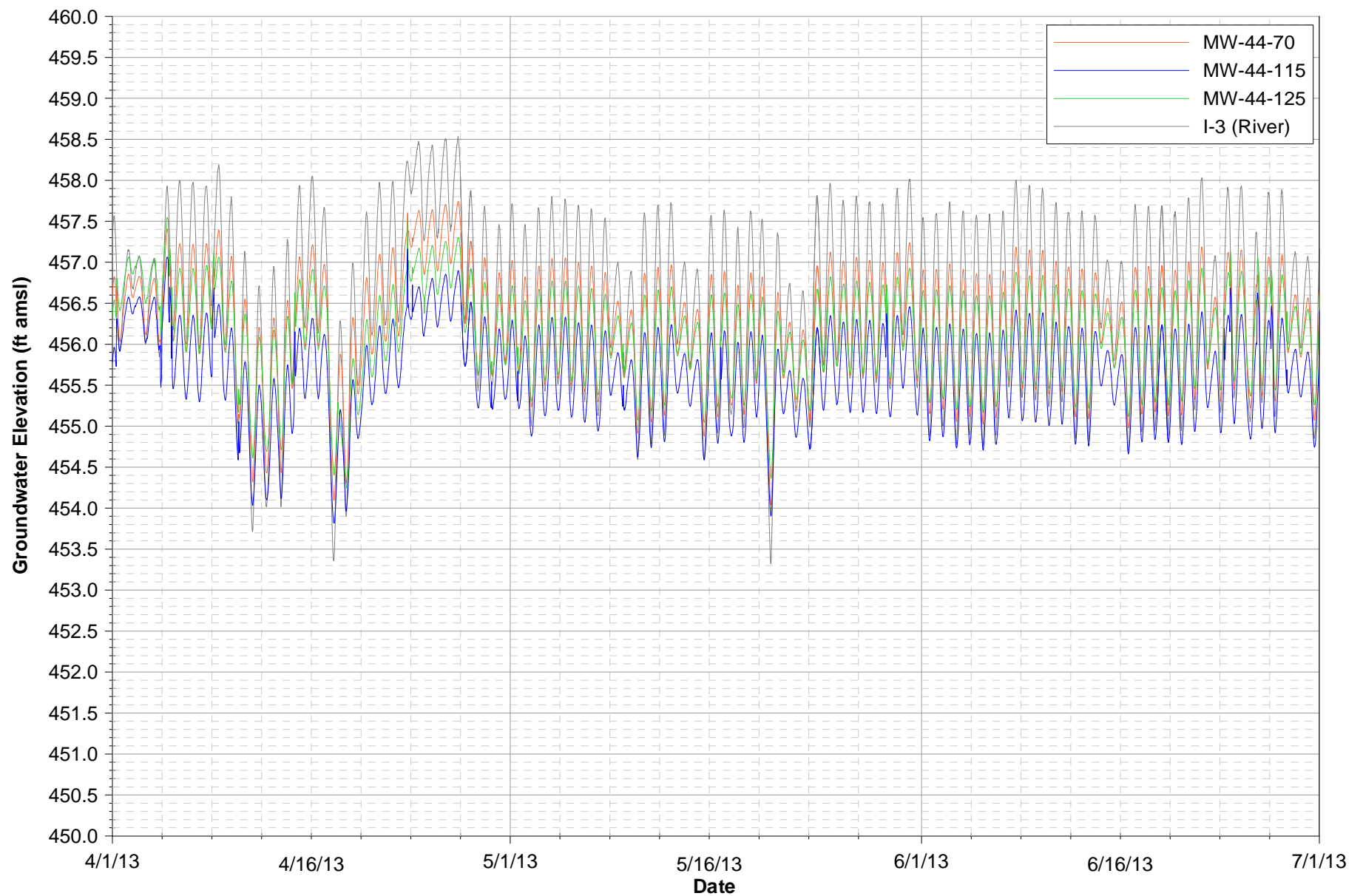
Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE E-1N

MW-43 CLUSTER HYDROGRAPHS

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



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

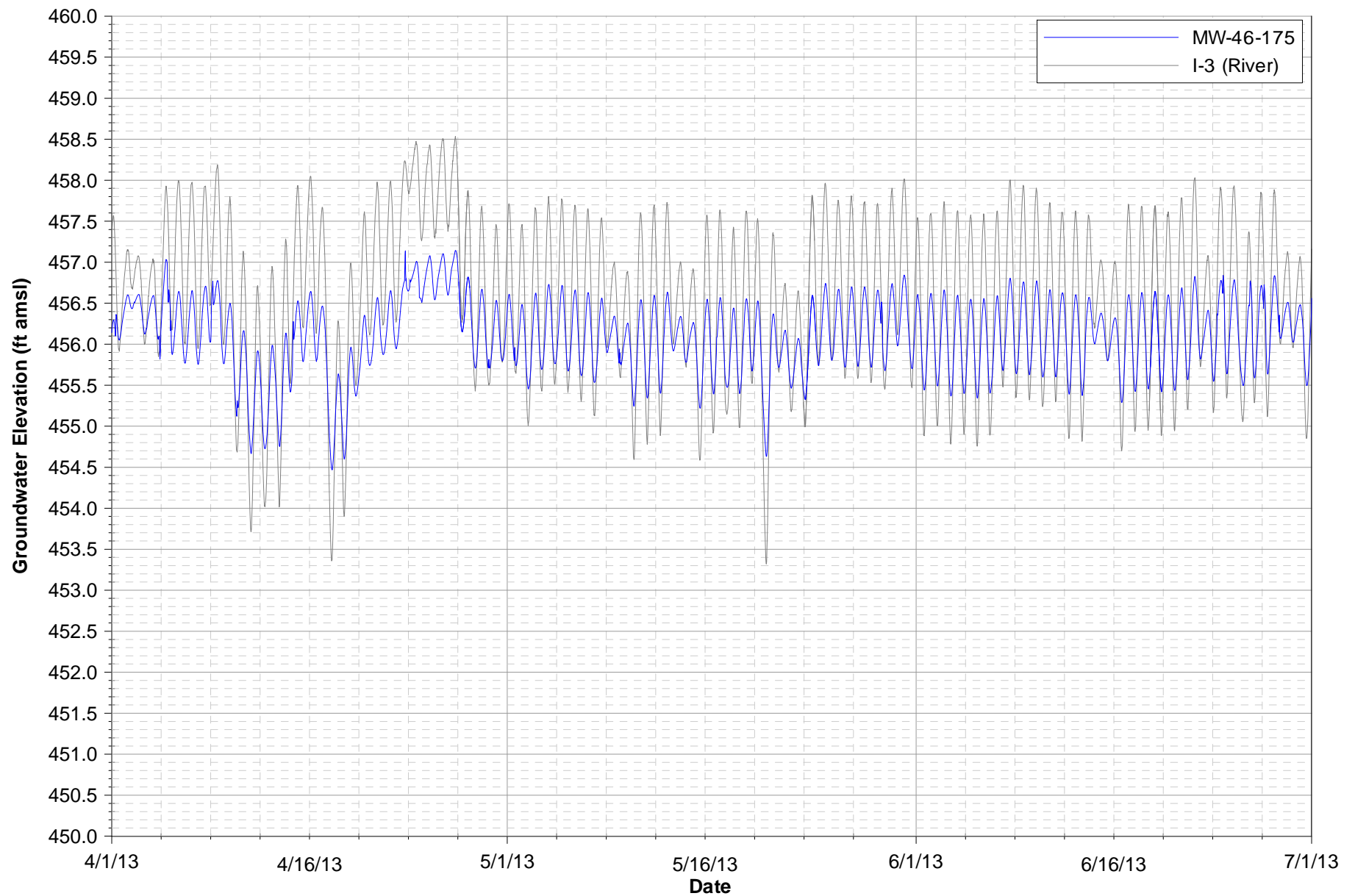
FIGURE E-10
MW-44 CLUSTER HYDROGRAPHS
 SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE E-1P MW-45-95a HYDROGRAPH

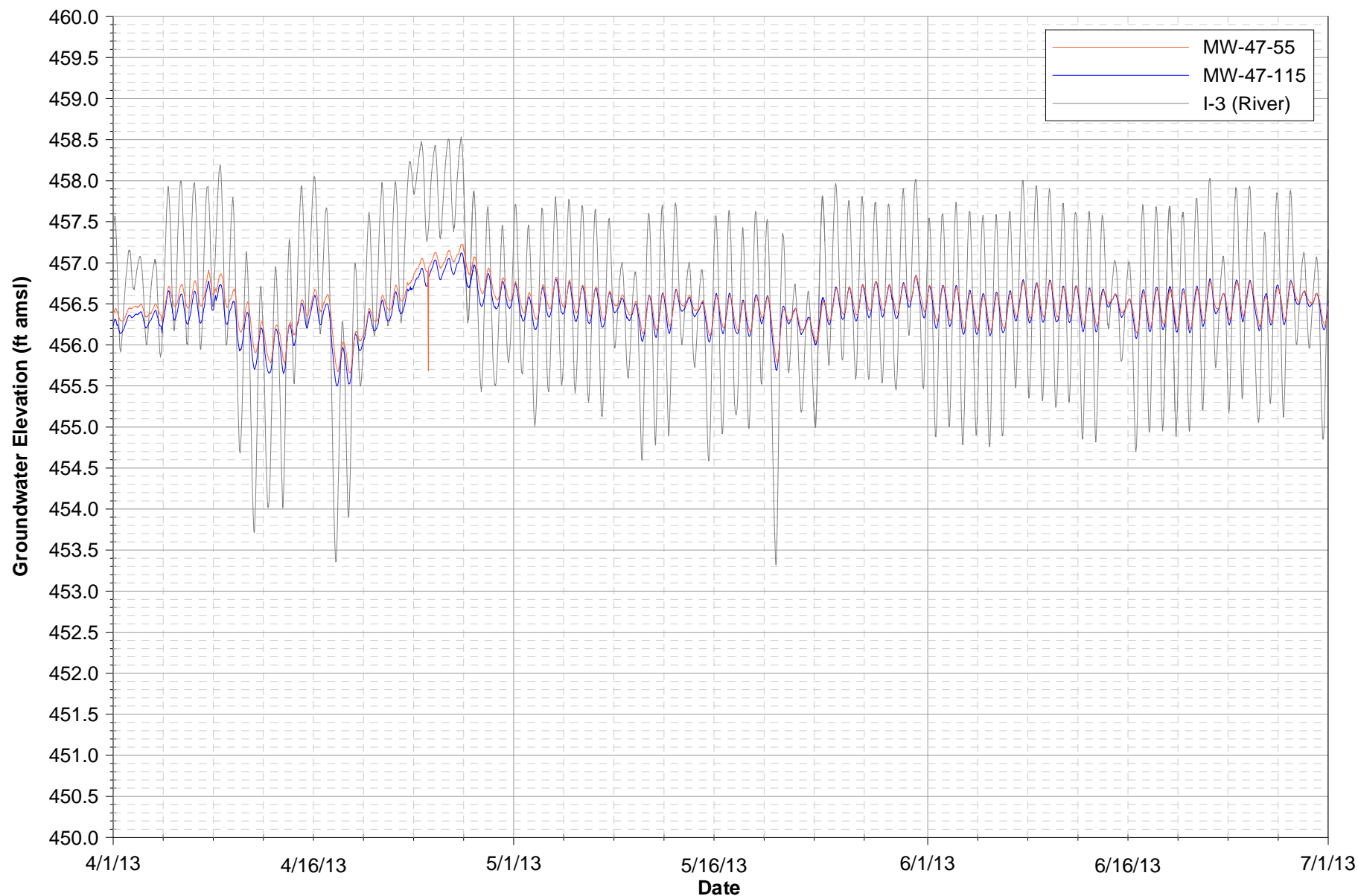
SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE E-1Q MW-46 HYDROGRAPH

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



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE E-1R
MW-47 CLUSTER HYDROGRAPHS

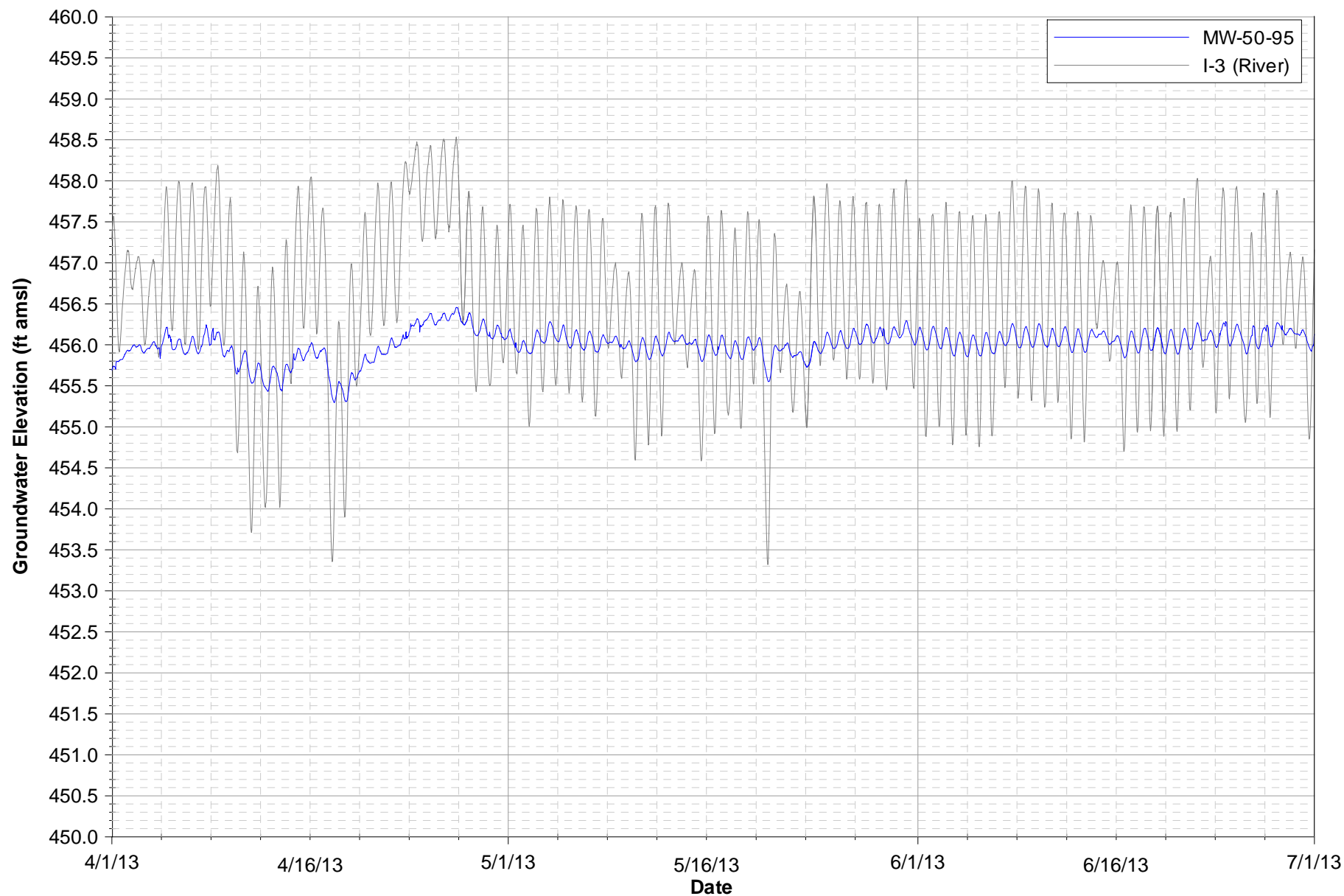
SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE E-1S MW-49 HYDROGRAPH

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



Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE E-1T

MW-50 HYDROGRAPH

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

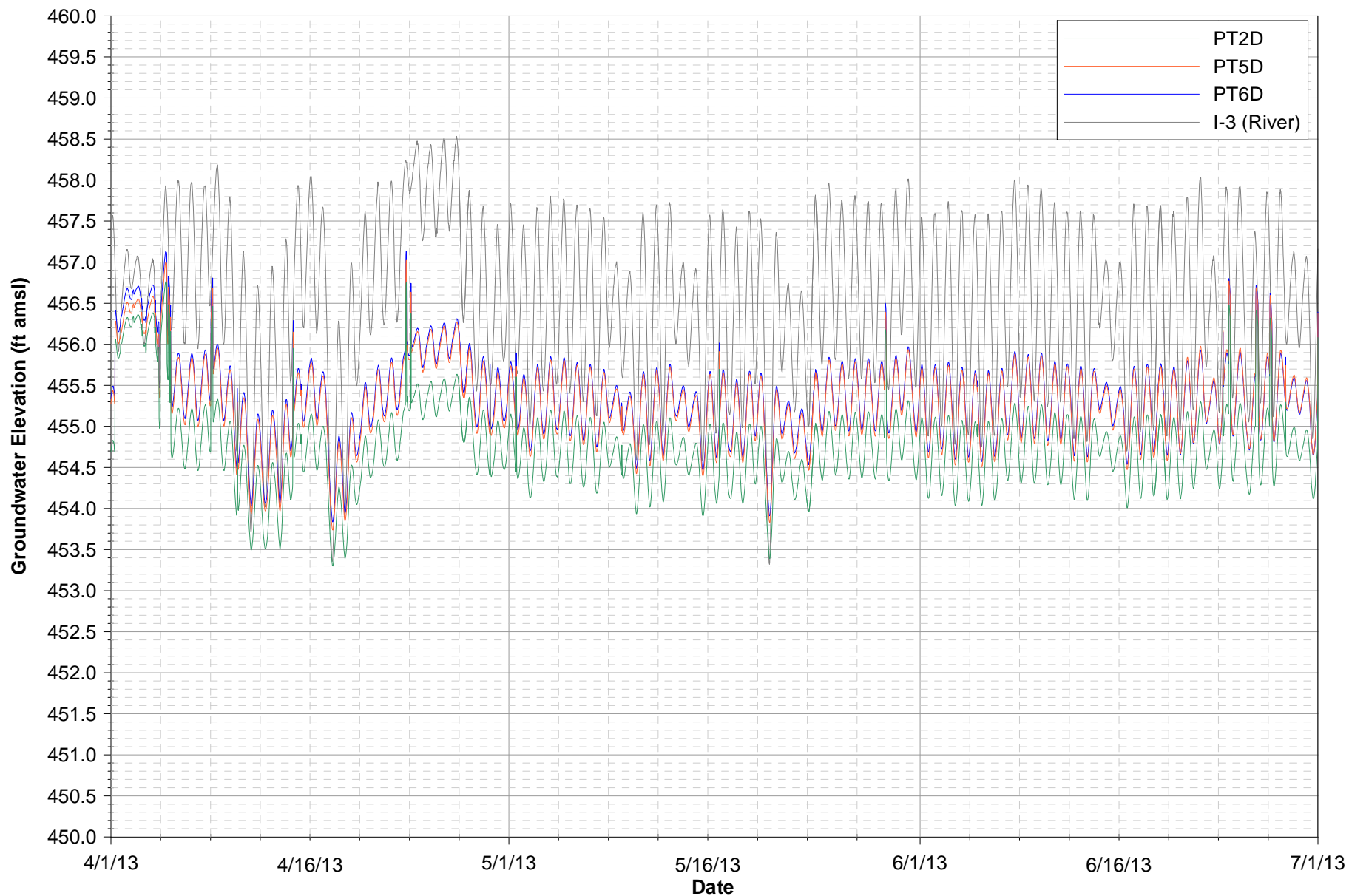


Notes:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE E-1U

MW-26 & MW-51 HYDROGRAPHS

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



Note:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE E-1V
INSITU PILOT STUDY WELL HYDROGRAPHS
 SECOND QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA