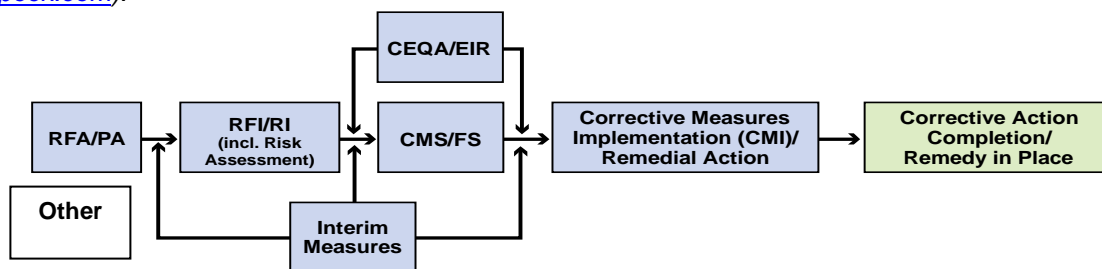


Topock Project Executive Abstract

<p>Document Title: First Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California</p>	<p>Date of Document: 5/15/2013</p> <p>Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other)</p> <p>PG&E</p>
<p>Submitting Agency: DTSC</p> <p>Final Document? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	
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<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>Is this a Regulatory Requirement?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p>If no, why is the document needed?</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>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 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 first quarter 2013, which includes the months of January, February, and March 2013. The average pumping rate for the IM extraction system during the first quarter 2013 was 132.6 gallons per minute. To date, the IM extraction system has removed a total of 7,530 pounds (3,420 kilograms) of chromium.</p> <p>Written by: Pacific Gas and Electric Company</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



**Pacific Gas
and
Electric
Company**

Yvonne J. Meeks
Manager

Environmental Remediation

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

Location
6588 Ontario Road
San Luis Obispo, CA 93405

805.234.2257
Fax: 805.773.8281
E-Mail: yjm1@pge.com

May 15, 2013

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

Subject: *First Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California (Document ID: PGE20130515A)*

Dear Mr. Yue:

Enclosed is the *First 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 first quarter (January through March 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 first 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. The submittal of this report on May 15, 2013 was approved by DTSC in an e-mail dated April 30, 2013.

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

Sincerely,

Yvonne Meeks
Topock Project Manager

Enclosure

First 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

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

Document ID: PGE20130515A

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

on behalf of
Pacific Gas and Electric Company

May 15, 2013

CH2MHILL®

155 Grand Avenue Suite 800
Oakland, CA 94612

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

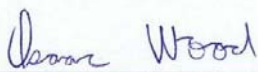
PG&E Topock Compressor Station,
Needles, California

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

On behalf of
Pacific Gas and Electric Company

May 15, 2013

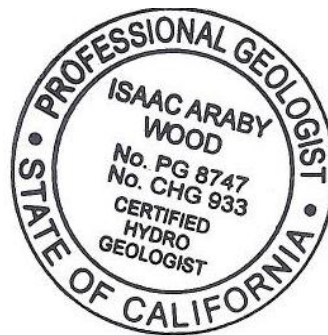
This report was prepared under the supervision of a
California Professional Geologist



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
BOR	United States Bureau of Reclamation
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
EPA	United States Environmental Protection Agency
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
mg/L	milligrams per liter
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

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 January 1, 2013, through March 31, 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. The submittal of this report on May 15, 2013 was approved by DTSC in an e-mail dated April 30, 2013.

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 [EPA] 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 – Hydrogeological 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 (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, 2013).

In compliance with the requirements for groundwater and surface water monitoring program directive of April 2005 (DTSC, 2005a), this document presents the first quarter 2013 GMP and RMP report for the IM monitoring activities from January 1, 2013, through March 31, 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 (including bedrock wells equipped with packers and newly installed East Ravine/Topock Compressor Station Wells; 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 first quarter 2013 PMP evaluation report for the IM monitoring activities from January 1, 2013, through March 31, 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.

First 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 January, February, and March 2013.

2.1.2 Quarterly

Following the July 23, 2010, sampling schedule approval (DTSC, 2010a), the first quarter 2013 GMP quarterly groundwater monitoring event was conducted from February 4, 2013, through March 14, 2013. 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 first quarter 2013 sampling event, including:

- California Code of Regulations Title 22 metals, which includes arsenic, at MW-12.
- 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.

2.2 Surface Water Monitoring Program

Quarterly surface water sampling was conducted from January 8, 2013 through January 9, 2013, and from March 5, 2013 through March 6, 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 (January, February, and March). 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 first quarter 2013, the maximum detected Cr(VI) concentration was 17,300 µg/L at well MW-68-180. The laboratory reports for analytical results from first 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 first 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 fourth quarter 2012, where a larger number of wells were sampled, and first 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 2013).

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 first quarter 2013. The wells where maximum concentrations of these analytes were reported are summarized as follows:

- MW-46-175 with a molybdenum concentration of 179 µg/L
- MW-66-165 with a nitrate concentration of 39.1 milligrams per liter (mg/L)
- MW-67-185 with a selenium concentration of 110 µg/L
- MW-42-65 with a manganese concentration of 1,300 µg/L
- MW-12 with an arsenic concentration of 46.5 (arsenic results are discussed in Section 3.2.3)
- MW-33-40 with a fluoride concentration of 12.0 mg/L

3.2.2 Title 22 Metals

Table 3-3 presents the Title 22 metals results for the GMP monitoring well MW-12 sampled during first 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.

3.2.3 Arsenic Sampling in Monitoring Wells

Select Alluvial Aquifer wells were sampled for arsenic in the first quarter 2013 event. These results are presented in Table B-1 in Appendix B. Four of these monitoring well samples had arsenic concentrations greater than the CA MCL of 10 µg/L (MW-12, MW-33-40, MW-42-55, and MW-67-260). The maximum concentration (46.5 µg/L) was reported at MW-12. The arsenic concentrations are within the previously observed ranges for each well.

Select bedrock wells were sampled for arsenic in the first quarter 2013 event. These results are presented in Table B-1 in Appendix B. Three bedrock monitoring wells samples had an arsenic concentration greater than the CA MCL of 10 µg/L (MW-57-185 at 13.0 µg/L, MW-72-80 at 11.0 µg/L, and MW-72BR-200 at 14.0 µg/L).

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, C-MAR-D, and RRB, where moderate values were reported. The C-MAR-S, C-MAR-D, and RRB 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 first 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:

- Three Cr(VI) (EPA Method 218.6) samples were associated with an equipment blank that had a detect result. The associated sample results were greater than 5 times the instrument response of the equipment blank; therefore, the sample results were not qualified or flagged.
- Ten Cr (EPA Method SW 6020A) samples were associated with equipment blanks that had detections greater than the reporting limits. Six of the associated samples had instrument responses that were greater than 5 times the instrument response from the equipment blank detects; therefore, these sample results were not qualified or flagged. Four of the associated samples had responses that were less than 5 times the responses from the associated equipment blanks. These results were qualified and flagged "J." Normal protocol would dictate these four samples be qualified as non-detect at a reporting limit equal to the concentration reported by the laboratory. However, because the results are within the historic norms for these wells and are consistent with the Cr(VI) results from the same samples, the results were flagged "J." As explained in table notes, this indicates that the concentration or reporting limit is estimated by laboratory or data validation.
- 20 Cr(VI) (EPA Method 218.6) 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.
- One Cr(VI) (EPA Method 218.6) sample was analyzed outside the EPA-recommended holding time. The detect result was qualified as estimated and flagged "J."
- One nitrate/nitrite (EPA Method 353.2) field duplicate pair had a relative percent difference greater than the upper control limit. The detect results were qualified and flagged "J."
- One molybdenum (EPA Method SW 6020A) sample had matrix spike and matrix spike duplicate recoveries that were outside the control limits. The associated detect result was qualified and flagged "J."
- Based on the March 2007 EPA ruling, pH has a 15-minute holding time. It is impossible to meet this holding time requirement without a certified laboratory onsite. As a result, all of the EPA Method SM4500-HB pH results for the River Monitoring Program samples, analyzed in a certified lab, were qualified as estimated and flagged "J."

No other significant analytical deficiencies were identified in the first quarter 2013 data. Additional details are provided in the data validation reports, which are kept in the project file and are available upon request. Field decontamination procedures for pumps used when sampling from utility vehicles were modified in response to the equipment blank results.

IM Performance Monitoring Program Evaluation

4.1 Water Quality Results for Performance Monitoring Program Floodplain Wells

Table C-1 in Appendix C 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 March 2013. In July 2008, DTSC approved modifications to the PMP IM chemical performance monitoring program (DTSC, 2008b). These wells are sampled annually 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 first 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 first 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 first quarter 2013.

Figure 4-3 presents Cr(VI) concentration trend graphs for selected deep monitoring wells in the floodplain area through March 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 well clusters through March 2013.

Wells showing marked decreases in concentration are generally in the floodplain area where IM pumping is removing chromium in groundwater. Wells with historical detections near or at reporting limits (for chromium, a typical reporting limit is 0.2 to 1.0 ug/L) remained at these low levels during first 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 first quarter 2013 include:

- Cr(VI) concentrations at MW-34-100 have been variable, but generally declining, since June 2006, as shown on Figure 4-3 and Figure C-6 in Appendix C. 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 MW-35-60 (Figure C-6 in Appendix C) and a stable to decreasing trend at MW-46-175 (Figure 4-3 and Appendix C, Figure C-11). River levels are discussed in Section 4.6.

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) concentrations at 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).

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 first 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 January 1 through March 31, 2013, are presented in Table 4-1. From January 1, 2013, through March 31, 2013, the volume of groundwater extracted and treated by the IM-3 system was 17,196,399 gallons. This resulted in the removal of an estimated 105 pounds (47.6 kilograms) of chromium from the aquifer during the period from January 1, 2013, through March 31, 2013. To date, the interim measures have removed approximately 7,530 pounds of chromium from the floodplain at the Topock site through March 2013.

During first quarter 2013, extraction wells TW-3D and PE-1 operated at a combined pumping rate of 132.6 gallons per minute (gpm), including periods of planned and unplanned downtime. The average monthly pumping rates during the reporting period were 131.7 gpm (January 2013), 131.4 gpm (February 2013), and 134.8 gpm (March 2013). Extraction wells TW-2S and TW-2D were not operated during first quarter 2013. The operational run-time percentage for the IM extraction system was 97.7 percent during this reporting period. The operations log for the extraction system during first 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 a non-hazardous waste and was transported to Liquid Environmental Solutions in Phoenix, Arizona, for treatment and disposal. Eight containers of solids from the IM-3 facility were disposed of at the U.S. Ecology Chemical Waste Management facility in Beatty, Nevada, during first 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 1,020 $\mu\text{g/L}$ in February 2013 to a minimum value of 867 $\mu\text{g/L}$ in March 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 6.5 to 8.1 $\mu\text{g/L}$ during the reporting period, as shown in Table 4-2. TDS concentrations in PE-1 for this reporting period have also remained relatively 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 Table E-1 in Appendix E. 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 first 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 first 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 first 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 0.0055 to 0.0064 feet per foot (ft/ft). This is 5.5 to 6.4 times greater than the required gradient of 0.001 ft/ft. The gradient for the northern well pair ranged from 2.2 to 2.5 times the target gradient of 0.001 ft/ft. For the central well pair, the average landward gradient ranged from 10.4 to 12.4 times the target gradient. The southern well pair gradients averaged 3.8 to 4.4 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 (BOR). 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 BOR projections of Davis Dam discharge and Lake Havasu levels from the preceding month. As an example, the projected river level for April 2013 is based on the March 2013 BOR 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 BOR long-range projections of Davis Dam releases and Lake Havasu levels from March 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 BOR projections, presented in Table 4-4, show that the average projected Davis Dam release for April 2013 (17,600 cubic feet per second) will be more than the actual release in March 2013 (15,545 cubic feet per second). Based on April 2013 BOR predictions, it is anticipated that the Colorado River level at the I-3 gage location in April 2013 will be approximately 0.61 feet higher compared to the actual levels in March 2013. Current projections show that the water levels will increase during the next quarterly reporting period (April through June 2013), as shown on Figure 4-7.

4.7 Quarterly Performance Monitoring Program Evaluation Summary

The groundwater elevation and hydraulic gradient data from January 2013 through March 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 first quarter 2013 were 5.5 to 6.4 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 first quarter 2013 reporting period.

A total of 17,196,399 gallons of groundwater was extracted between January and March 2013 by the IM-3 treatment facility. The average pumping rate for the IM extraction system during first quarter 2013, including system downtime, was 132.6 gpm. An estimated 105 pounds (47.6 kilograms) of chromium were removed and treated between January 1 and March 31, 2013. To date, the interim measures have removed approximately 7,530 pounds of chromium from the floodplain at the Topock site through March 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) generally 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 second quarter 2013 monitoring report, which will be submitted by August 15, 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 second monitoring event will occur mid-April through mid-May 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 two weeks of each month.

5.2 Surface Water Monitoring Program

The second quarter 2013 surface water monitoring event will be conducted at locations in the RMP monitoring network and will occur May 21, 2013, to May 22, 2013. Results will be reported in the second 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 second 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 second quarter 2013. Downloads of the remainder of the transducers will occur during the first week of each month during second quarter 2013.

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Table 1-1

Topock Monitoring Reporting Schedule

*First 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, February 2012 through March 2013
 First 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
MW-12	SA	09-Feb-12	2,730	3,100	7,000	120	7.6
		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
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
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
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
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
MW-20-100	MA	08-May-12	4,740	5,030	3,000	100	7.3
		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
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

Refer to table footnotes for data qualifier explanation.

Table 3-1

Groundwater Sampling Results, February 2012 through March 2013
 First 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-20-130	DA	29-Nov-12	FD	9,560	9,270	11,000	FD	FD
		14-Mar-13		9,870	9,690	12,000	240	7.3
MW-21	SA	07-Feb-12		2.1	4.8	10,000	77	7.1
		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
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
MW-23-060	BR	14-Feb-12		30.2	32.1	16,000	67	R
		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
MW-23-080	BR	14-Feb-12		9.5	10.8	16,000	-140	7.6
		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
MW-24BR	BR	10-Feb-12		ND (1.0)	ND (1.0)	14,000	-240	8.0
		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
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
MW-27-20	SA	03-Dec-12		0.25	1.3	950	-33	7.3
MW-27-60	MA	07-Feb-12		ND (0.2)	ND (1.0)	1,100	-160	8.1
		01-Oct-12		ND (0.2)	ND (1.0)	1,100	-140	7.8

Refer to table footnotes for data qualifier explanation.

Table 3-1

Groundwater Sampling Results, February 2012 through March 2013
 First 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-27-60	MA	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
MW-27-85	DA	07-Feb-12	ND (1.0)	ND (1.0)	12,000	-53	7.3
		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
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
MW-28-90	DA	07-Feb-12	ND (0.2)	ND (1.0)	7,200	-100	7.3
		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
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
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
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
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
MW-33-40	SA	08-Feb-12	ND (0.2)	1.6	7,000	-45	8.1
		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

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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-33-40	SA	25-Feb-13	ND (0.2)	ND (1.0)	6,100	47	8.0
MW-33-90	MA	09-Feb-12	20.1	23.0	10,000	83	7.4
		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
MW-33-150	DA	09-Feb-12	10.6	11.8	16,000	110	7.5
		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
MW-33-210	DA	09-Feb-12	12.7	14.4	18,000	98	7.3
		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
MW-34-55	MA	12-Dec-12	ND (0.2)	ND (1.0)	980	-13	7.6
MW-34-80	DA	07-Feb-12	ND (0.2)	ND (1.0)	7,800	-27	7.3
		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
MW-34-100	DA	07-Feb-12	76.6	84.9	17,000	33	7.5
		07-Feb-12 FD	77.8	89.9	17,000	FD	FD
		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

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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-34-100	DA	26-Feb-13	76.8	71.9	17,000	110	7.5
		26-Feb-13 FD	77.1	71.2	17,000	FD	FD
MW-35-60	SA	06-Feb-12	24.6	27.7	6,900	110	7.3
		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
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
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
		04-Dec-12	ND (0.2)	ND (1.0)	1,200	-54	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
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
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
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

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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-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
MW-42-30	SA	06-Dec-12	ND (0.2)	ND (1.0)	4,400	-150	7.9
MW-42-55	MA	07-Feb-12	ND (0.2)	ND (1.0)	5,400	-130	7.6
		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
MW-42-65	MA	07-Feb-12	ND (1.0)	ND (1.0)	9,400	-40	7.2
		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
		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
MW-43-25	SA	10-Dec-12	ND (0.2)	ND (1.0)	1,200	-120	7.4
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
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
MW-44-115	DA	08-Feb-12	134	120	12,000	-93	8.0
		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
MW-44-125	DA	08-Feb-12	ND (1.0)	13.5	13,000 J	-200	7.8
		08-Feb-12 FD	ND (1.0)	13.2	7,700 J	FD	FD
		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

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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-44-125	DA	13-Feb-13	FD	3.5	8.4	12,000	FD	FD
MW-45-095a	DA	13-Dec-12		20.2	20.4	9,000	100	7.3
MW-46-175	DA	08-Feb-12		76.2	84.1	15,000	-93	8.3
		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
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
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
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
MW-48	BR	08-Feb-12		ND (1.0)	1.6	17,000	150	7.2
		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
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
MW-50-200	DA	09-Feb-12		9,080	9,530	19,000	250	7.7

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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	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
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
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
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
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
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
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
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
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
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
MW-55-45	MA	03-Apr-12	ND (0.2)	ND (1.0)	---	-160	7.4
		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

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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-56S	SA	06-Dec-12	ND (0.2)	ND (1.0)	5,380	-120	7.1
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
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
MW-57-070	BR	15-Feb-12	454	520	2,800	92	6.4
		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
MW-57-185	BR	10-Feb-12	7.2	8.5	17,000	-170	8.2
		10-Feb-12 FD	7.3	8.9	17,000	FD	FD
		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
MW-58BR	BR	28-Feb-13	ND (1.0)	ND (1.0)	7,300	5.0	7.6
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-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-59-100	SA	22-Feb-12	4,070	4,690	9,100	180	7.0
		08-May-12	4,610	4,690	11,000	130	7.0
		02-Oct-12	4,510	4,640	9,700	310	6.6
		28-Nov-12	3,980	3,970	9,400	170	6.8
		27-Feb-13	3,920	4,030	9,800	170	6.8
MW-60-125	BR	15-Feb-12	918	1,100	19,000	110	7.4
		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

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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-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
MW-61-110	BR	15-Feb-12	634	680	29,000	-29	7.3
		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
MW-62-065	BR	17-Feb-12	452	530	6,500	R	R
		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
MW-62-110	BR	16-Feb-12	842	880	8,700	160	7.6
		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
MW-62-190	BR	16-Feb-12	ND (1.0)	ND (1.0)	16,000	-130	7.8
		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
MW-63-065	BR	13-Feb-12	ND (0.2)	1.4	7,200	28	7.1
		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
MW-64BR	BR	01-Mar-13	ND (1.0)	ND (1.0)	12,000	-19	7.2
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

Refer to table footnotes for data qualifier explanation.

Table 3-1

Groundwater Sampling Results, February 2012 through March 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-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-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
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
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
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
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
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
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
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

Refer to table footnotes for data qualifier explanation.

Table 3-1

Groundwater Sampling Results, February 2012 through March 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-67-260	DA	06-Dec-12	2,020	1,930	18,000	-100	8.3
		21-Feb-13	2,130	2,060	17,000	170	8.1
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
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
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
		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
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
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
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
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
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

Refer to table footnotes for data qualifier explanation.

Table 3-1

Groundwater Sampling Results, February 2012 through March 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-72-080	BR	05-Dec-12	150	150	16,000	89	7.8
		19-Feb-13	122	119	16,000	-46	8.2
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
MW-73-080	BR	02-May-12	32.9	38.0	11,000	15	7.2
		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
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
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	07-Feb-12	9.2	9.9	4,840	---	---
		06-Mar-12	7.9	9.0	4,910	---	---
		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	---	---
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

Refer to table footnotes for data qualifier explanation.

Table 3-1

Groundwater Sampling Results, February 2012 through March 2013
 First Quarter 2013 Interim Measures Performance Monitoring and Site-wide
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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
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	10-Feb-12	3,460	3,680	7,200	130	7.2
		16-May-12	3,090	3,400	7,100	41	7.3
		01-Oct-12	3,190	3,190	7,400	110	7.3
		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
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	07-Feb-12	987	1,040	8,650	---	---
		06-Mar-12	1,040	1,250	8,560	---	---
		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	---	---
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

Refer to table footnotes for data qualifier explanation.

Table 3-1

Groundwater Sampling Results, February 2012 through March 2013
*First Quarter 2013 Interim Measures Performance Monitoring and Site-wide
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PG&E Topock Compressor Station, Needles, California*

Notes:

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

FD = field duplicate sample.

J = concentration or RL estimated by laboratory or data validation.

mV = millivolts.

ND = not detected at listed reporting limit (RL).

ORP = oxidation-reduction potential.

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

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).

Table 3-2

Groundwater COPCs and In Situ Byproducts Sampling Results, First Quarter 2013
 First Quarter 2013 Interim Measures Performance Monitoring and Site-wide
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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-12	SA	26-Feb-13	46.5	---	8.8	14.6	ND (0.5)	12.5
		26-Feb-13 FD	45.9	---	11.2	14.0	ND (0.5)	12.7
MW-19	SA	12-Mar-13	1.0	---	4.9	ND (5.0)	ND (0.5)	---
MW-20-70	SA	12-Mar-13	2.4	---	35.9	6.5	ND (0.5)	---
MW-20-100	MA	13-Mar-13	2.0	---	3.8	6.5	ND (0.5)	6.27
MW-20-130	DA	14-Mar-13	5.2	---	35.6	21.8	ND (0.5)	6.32
MW-23-060	BR	18-Feb-13	5.5	---	---	---	ND (0.5)	---
MW-23-080	BR	18-Feb-13	3.1	---	---	---	ND (0.5)	---
MW-26	SA	12-Mar-13	1.7	---	26.8	42.8	ND (0.5)	---
MW-27-60	MA	04-Feb-13	7.2	0.81	3.9	ND (0.5)	130	ND (0.01)
		04-Feb-13 FD	7.3	0.79	3.8	ND (0.5)	130	ND (0.01)
MW-27-85	DA	04-Feb-13	1.4	ND (2.5)	22.0	ND (0.5)	48.0	ND (0.01)
MW-28-90	DA	05-Feb-13	1.6	ND (5.0)	19.0	ND (0.5)	120	ND (0.01)
MW-33-40	SA	25-Feb-13	14.0	12.0	160	ND (0.5)	ND (0.5)	0.0291
MW-33-90	MA	14-Feb-13	1.4	5.70	16.5	ND (5.0)	2.2	1.62
		14-Feb-13 FD	1.6	5.10	16.3	ND (5.0)	2.2	1.72
MW-33-150	DA	05-Feb-13	1.8	ND (5.0)	38.0	ND (2.5)	ND (0.5)	1.60
MW-33-210	DA	05-Feb-13	1.1	ND (5.0)	16.0	ND (2.5)	ND (0.5)	1.72
MW-34-80	DA	05-Feb-13	1.3	---	---	---	---	---
MW-34-100	DA	24-Jan-13	1.7	---	---	---	---	---
		26-Feb-13	1.6	---	---	---	---	---
		26-Feb-13 FD	1.5	---	---	---	---	---
MW-35-60	SA	19-Feb-13	1.0	---	8.7	0.89	ND (0.5)	2.04
MW-36-100	DA	11-Mar-13	7.3	---	30.3	ND (5.0)	59.6	---
MW-42-55	MA	04-Feb-13	12.0	---	---	---	---	---
MW-42-65	MA	04-Feb-13	2.3	---	---	---	1300	---
		04-Feb-13 FD	2.4	---	---	---	1300	---
MW-44-115	DA	26-Feb-13	5.9	---	69.1	ND (5.0)	4.2	0.374
MW-44-125	DA	13-Feb-13	4.1	---	126	ND (5.0)	368	0.259 J
		13-Feb-13 FD	3.9	---	134	ND (5.0)	406	0.441 J
MW-46-175	DA	25-Feb-13	2.4	---	179	ND (5.0)	8.9	1.08
MW-47-55	SA	11-Mar-13	1.2	---	8.5	ND (5.0)	ND (0.5)	---
MW-47-115	DA	27-Feb-13	2.3	---	17.1	ND (5.0)	1.6	2.32
MW-50-095	MA	14-Feb-13	2.7	---	16.2	ND (5.0)	ND (0.5)	1.58
MW-50-200	DA	27-Feb-13	4.1	---	38.4	5.3	ND (0.5)	5.94

Table 3-2

Groundwater COPCs and In Situ Byproducts Sampling Results, First Quarter 2013
 First Quarter 2013 Interim Measures Performance Monitoring and Site-wide
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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-51	MA	14-Mar-13	4.1	---	38.3	14.1	ND (0.5)	9.31
MW-57-185	BR	06-Feb-13	13.0	---	77.0	ND (0.5)	270	0.0119
MW-58BR	BR	28-Feb-13	1.1	---	---	---	---	---
MW-59-100	SA	27-Feb-13	2.6	---	3.8	ND (5.0)	ND (0.5)	4.02
MW-60-125	BR	20-Feb-13	1.6	---	19.0 J	6.1	ND (0.5)	4.26
MW-60BR-245	BR	14-Mar-13	7.5	---	46.0	1.7	ND (0.5)	---
		14-Mar-13 FD	7.1	---	47.0	1.8	ND (0.5)	---
MW-61-110	BR	25-Feb-13	3.4	---	24.0	ND (5.0)	133	0.999
MW-62-110	BR	26-Feb-13	10.0	---	47.0	3.0	83.0	4.26
MW-62-190	BR	26-Feb-13	5.9	---	81.0	ND (2.5)	620	ND (0.01)
MW-63-065	BR	06-Feb-13	1.6	---	22.0	0.81	3.4	1.07
MW-64BR	BR	01-Mar-13	2.9	---	---	---	---	---
MW-65-160	SA	19-Feb-13	0.83	---	28.0	7.7	26.0	10.8
MW-65-225	DA	19-Feb-13	2.4	---	33.0	7.2	5.8	9.82
MW-66-165	SA	20-Feb-13	1.3	---	6.7	39.0	ND (0.5)	39.1
MW-66-230	DA	21-Feb-13	6.6	---	87.0	11.0	ND (2.5)	14.1
MW-66BR-270	BR	12-Mar-13	0.32	---	21.0	ND (0.5)	ND (0.5)	---
MW-67-185	SA	21-Feb-13	1.7	---	17.0	110	ND (0.5)	19.0
		21-Feb-13 FD	1.6	---	17.0	110	ND (0.5)	22.5
MW-67-225	MA	21-Feb-13	3.2	---	36.0	75.0	ND (0.5)	23.1
MW-67-260	DA	21-Feb-13	11.0	---	85.0	1.6	88.0	1.49
MW-68-180	SA	21-Feb-13	2.5	---	47.0	14.0	ND (0.5)	27.3
MW-68-240	DA	20-Feb-13	1.9	---	22.0	4.6	82.0	4.58
MW-68BR-280	BR	18-Feb-13	2.3	---	88.0	ND (2.5)	180	ND (0.01)
MW-69-195	BR	20-Feb-13	2.2	---	65.0	13.0	ND (0.5)	22.4
MW-70-105	BR	19-Feb-13	5.8	---	110	2.6	210	2.55
MW-70BR-225	BR	26-Feb-13	1.9	---	19.0	2.6	ND (2.5)	4.13
MW-71-035	SA	07-Feb-13	1.5	---	59.0	2.2	51.0	1.63
MW-72-080	BR	19-Feb-13	11.0	---	73.0	ND (2.5)	81.0	1.15
MW-72BR-200	BR	07-Feb-13	14.0	---	65.0	ND (0.5)	9.1	0.141
MW-73-080	BR	19-Feb-13	2.1	---	23.0	4.0	ND (0.5)	4.01
MW-74-240	BR	01-Mar-13	8.8	---	68.0	1.7	ND (0.5)	0.159
TW-1	SA-MA-DA	21-Feb-13	---	---	15.0	21.0	---	24.9

Table 3-2

Groundwater COPCs and In Situ Byproducts Sampling Results, First Quarter 2013
*First 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 RL 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 N is 5.03 mg/L.

The USEPA and California MCL for nitrate as N 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).

BR-S = well completed in shallow portion of BR.

BR-M = well completed in middle portion of BR.

BR-D = well completed in deep portion of BR.

Table 3-3
Title 22 Metals Results, First Quarter 2013
First 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	02/26/2013	ND (2.0)	46.5	54.0	ND (0.5)	ND (1.0)	ND (5.0)	2,610 J	ND (5.0)	ND (1.0)	ND (0.2)	8.8	ND (2.0)	14.6	ND (5.0)	ND (1.0)	21.0	ND (20)
FD	02/26/2013	ND (2.0)	45.9	53.9	ND (0.5)	ND (1.0)	ND (5.0)	2,850 J	ND (5.0)	ND (1.0)	ND (0.2)	11.2	ND (2.0)	14.0	ND (5.0)	ND (1.0)	20.2	ND (20)

Notes:
* = Secondary USEPA MCL.
FD = field duplicate sample.
J = concentration or RL 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.

Table 3-4
 Surface Water Sampling Results, First Quarter 2013
*First 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	01/08/2013	ND (0.2)	ND (1.0)	855	8.3 J
C-BNS-D	03/04/2013	ND (0.2)	ND (1.0)	874	8.2 J
C-CON-S	01/09/2013	ND (0.2)	ND (1.0)	858	8.4 J
C-CON-S	03/05/2013	ND (0.2)	ND (1.0)	865	8.3 J
C-CON-D	01/09/2013	ND (0.2)	ND (1.0)	858	8.4 J
C-CON-D	03/05/2013	ND (0.2)	ND (1.0)	866	8.3 J
C-I-3-S	01/08/2013	ND (0.2)	ND (1.0)	853	8.3 J
C-I-3-S	03/04/2013	ND (0.2)	ND (1.0)	876	8.2 J
C-I-3-D	01/08/2013	ND (0.2)	ND (1.0)	860	8.3 J
C-I-3-D	03/04/2013	ND (0.2)	ND (1.0)	874	8.2 J
C-MAR-S	01/08/2013	ND (0.2)	ND (1.0)	916	8.2 J
C-MAR-S	03/04/2013	ND (0.2)	ND (1.0)	876	8.2 J
C-MAR-D	01/08/2013	ND (0.2)	ND (1.0)	943	8.1 J
C-MAR-D	03/04/2013	ND (0.2)	ND (1.0)	853	8.1 J
C-NR1-S	01/09/2013	ND (0.2)	ND (1.0)	842	8.3 J
C-NR1-S	03/05/2013	ND (0.2)	ND (1.0)	872	8.3 J
C-NR1-D	01/09/2013	ND (0.2)	ND (1.0)	861	8.4 J
C-NR1-D	03/05/2013	ND (0.2)	ND (1.0)	867	8.3 J
C-NR3-S	01/09/2013	ND (0.2)	ND (1.0)	849	8.3 J
C-NR3-S	03/05/2013	ND (0.2)	ND (1.0)	875	8.2 J
C-NR3-D	01/09/2013	ND (0.2)	ND (1.0)	852	8.4 J
C-NR3-D	03/05/2013	ND (0.2)	ND (1.0)	875	8.2 J
C-NR4-S	01/09/2013	ND (0.2)	ND (1.0)	848	8.3 J
C-NR4-S	03/05/2013	ND (0.2)	ND (1.0)	871	8.2 J
C-NR4-D	01/09/2013	ND (0.2)	ND (1.0)	860	8.3 J
C-NR4-D	03/05/2013	ND (0.2)	ND (1.0)	876	8.2 J
C-R22a-S	01/08/2013	ND (0.2)	ND (1.0)	847	8.3 J
C-R22a-S	03/04/2013	ND (0.2)	ND (1.0)	875	8.2 J
C-R22a-D	01/08/2013	ND (0.2)	ND (1.0)	863	8.3 J
C-R22a-D	03/04/2013	ND (0.2)	ND (1.0)	871	8.2 J
C-R27-S	01/08/2013	ND (0.2)	ND (1.0)	848	8.3 J
C-R27-S	03/04/2013	ND (0.2)	ND (1.0)	870	8.2 J
C-R27-D	01/08/2013	ND (0.2)	ND (1.0)	856	8.3 J
C-R27-D	03/04/2013	ND (0.2)	ND (1.0)	874	8.2 J
C-TAZ-S	01/08/2013	ND (0.2)	ND (1.0)	859	8.3 J
C-TAZ-S	03/04/2013	ND (0.2)	ND (1.0)	875	8.2 J

Table 3-4

Surface Water Sampling Results, First Quarter 2013
*First 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-TAZ-D	01/08/2013	ND (0.2)	ND (1.0)	856	8.3 J
C-TAZ-D	03/04/2013	ND (0.2)	ND (1.0)	875	8.2 J
Shoreline Samples					
R-19	01/09/2013	ND (0.2)	ND (1.0)	862	8.4 J
R-19	03/05/2013	ND (0.2)	ND (1.0)	873	8.3 J
R-28	01/09/2013	ND (0.2)	ND (1.0)	869	8.4 J
R-28	03/05/2013	ND (0.2)	ND (1.0)	874	8.3 J
R63	01/08/2013	ND (0.2)	ND (1.0)	864	8.3 J
R63	03/04/2013	ND (0.2)	ND (1.0)	874	8.3 J
RRB	01/09/2013	ND (0.2)	ND (1.0)	906	8.2 J
RRB	03/05/2013	ND (0.2)	ND (1.0)	876	8.2 J
Other Surface Water Monitoring Locations					
SW1	01/09/2013	ND (0.2)	ND (1.0)	1060	7.7 J
SW1	03/05/2013	ND (0.2)	ND (1.0)	920	7.5 J
SW2	01/09/2013	ND (0.2)	ND (1.0)	941	7.5 J
SW2	03/05/2013	ND (0.2)	ND (1.0)	891	7.6 J

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 EPA 218.6 (reporting limit 0.2 µg/L for undiluted samples).

Other analytical methods: dissolved chromium - method SW6020A, specific conductance - EPA 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, First Quarter 2013
First 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 as Nitrogen mg/L	Selenium, dissolved µg/L	Total suspended solids mg/L
In-channel Locations												
C-BNS-D	01/08/2013	123	ND (5.0)	123	2.5	26.3	ND (20.0)	0.71	4.4	ND (0.5)	ND (5.0)	ND (10.0)
C-BNS-D	03/04/2013	125	ND (5.0)	125	2.2	24.0	ND (20.0)	0.68	4.2	ND (0.5)	ND (5.0)	ND (10.0)
C-CON-S	01/09/2013	126	ND (5.0)	126	2.4	22.3	ND (20.0)	0.78	4.6	ND (0.5)	ND (5.0)	ND (10.0)
C-CON-S	03/05/2013	124	ND (5.0)	124	2.1	ND (20.0)	ND (20.0)	0.58	4.2	ND (0.5)	ND (5.0)	ND (10.0)
C-CON-D	01/09/2013	126	ND (5.0)	126	2.4	21.4	ND (20.0)	0.89	4.2	ND (0.5)	ND (5.0)	ND (10.0)
C-CON-D	03/05/2013	130	ND (5.0)	130	2.2	24.5	ND (20.0)	0.74	4.1	ND (0.5)	ND (5.0)	ND (10.0)
C-I-3-S	01/08/2013	121	ND (5.0)	121	2.4	21.1	ND (20.0)	0.68	4.6	ND (0.5)	ND (5.0)	ND (10.0)
C-I-3-S	03/04/2013	125	ND (5.0)	125	2.3	21.0	ND (20.0)	3.0	4.2	ND (0.5)	ND (5.0)	ND (10.0)
C-I-3-D	01/08/2013	120	ND (5.0)	120	2.6	22.2	ND (20.0)	1.3	4.6	ND (0.5)	ND (5.0)	ND (10.0)
C-I-3-D	03/04/2013	119	ND (5.0)	119	2.3	29.1	ND (20.0)	0.91	4.1	ND (0.5)	ND (5.0)	ND (10.0)
C-MAR-S	01/08/2013	120	ND (5.0)	120	2.4	490	61.0	19.7	4.4	ND (0.5)	ND (5.0)	14.8
C-MAR-S	03/04/2013	121	ND (5.0)	121	2.1	474	ND (20.0)	8.6	4.1	ND (0.5)	ND (5.0)	11.6
C-MAR-D	01/08/2013	129	ND (5.0)	129	2.4	940	ND (20.0)	23.2	4.9	ND (0.5)	ND (5.0)	40.8
C-MAR-D	03/04/2013	130	ND (5.0)	130	2.1	1220	28.1	14.3	4.7	ND (0.5)	ND (5.0)	28.4
C-NR1-S	01/09/2013	129	ND (5.0)	129	2.4	22.2	ND (20.0)	0.83	4.2	ND (0.5)	ND (5.0)	ND (10.0)
C-NR1-S	03/05/2013	124	ND (5.0)	124	2.2	ND (20.0)	ND (20.0)	0.56	4.1	ND (0.5)	ND (5.0)	ND (10.0)
C-NR1-D	01/09/2013	126	ND (5.0)	126	2.6	22.5	ND (20.0)	0.86	4.6	ND (0.5)	ND (5.0)	ND (10.0)
C-NR1-D	03/05/2013	127	ND (5.0)	127	2.3	ND (20.0)	ND (20.0)	0.57	4.2	ND (0.5)	ND (5.0)	ND (10.0)
C-NR3-S	01/09/2013	128	ND (5.0)	128	2.4	20.8	ND (20.0)	0.79	4.4	ND (0.5)	ND (5.0)	ND (10.0)
C-NR3-S	03/05/2013	123	ND (5.0)	123	2.2	ND (20.0)	ND (20.0)	0.54	3.9	ND (0.5)	ND (5.0)	ND (10.0)
C-NR3-D	01/09/2013	127	ND (5.0)	127	2.3	21.8	ND (20.0)	0.9	4.3	ND (0.5)	ND (5.0)	ND (10.0)
C-NR3-D	03/05/2013	126	ND (5.0)	126	2.1	21.7	ND (20.0)	0.53	4.2	ND (0.5)	ND (5.0)	ND (10.0)
C-NR4-S	01/09/2013	116	ND (5.0)	116	2.3	ND (20.0)	ND (20.0)	0.66	4.0	ND (0.5)	ND (5.0)	ND (10.0)
C-NR4-S	03/05/2013	125	ND (5.0)	125	2.2	ND (20.0)	ND (20.0)	0.52	4.2	ND (0.5)	ND (5.0)	ND (10.0)
C-NR4-D	01/09/2013	125	ND (5.0)	125	2.3	20.1	ND (20.0)	0.82	3.9	ND (0.5)	ND (5.0)	ND (10.0)
C-NR4-D	03/05/2013	123	ND (5.0)	123	2.2	22.4	ND (20.0)	0.56	4.2	ND (0.5)	ND (5.0)	ND (10.0)
C-R22a-S	01/08/2013	119	ND (5.0)	119	2.4	ND (20.0)	ND (20.0)	1.0	4.1	ND (0.5)	ND (5.0)	ND (10.0)
C-R22a-S	03/04/2013	126	ND (5.0)	126	2.3	27.7	ND (20.0)	0.72	4.4	ND (0.5)	ND (5.0)	ND (10.0)
C-R22a-D	01/08/2013	124	ND (5.0)	124	2.4	22.4	ND (20.0)	0.96	4.2	ND (0.5)	ND (5.0)	ND (10.0)
C-R22a-D	03/04/2013	124	ND (5.0)	124	2.2	36.6	ND (20.0)	0.55	4.1	ND (0.5)	ND (5.0)	ND (10.0)
C-R27-S	01/08/2013	129	ND (5.0)	129	2.4	ND (20.0)	ND (20.0)	0.81	4.1	ND (0.5)	ND (5.0)	ND (10.0)
C-R27-S	03/04/2013	120	ND (5.0)	120	2.3	21.0	ND (20.0)	0.68	4.6	ND (0.5)	ND (5.0)	ND (10.0)
C-R27-D	01/08/2013	120	ND (5.0)	120	2.5	ND (20.0)	ND (20.0)	1.0	4.2	ND (0.5)	ND (5.0)	ND (10.0)
C-R27-D	03/04/2013	125	ND (5.0)	125	2.4	23.6	ND (20.0)	0.5	4.2	ND (0.5)	ND (5.0)	ND (10.0)
C-TAZ-S	01/08/2013	113	ND (5.0)	113	2.5	24.2	ND (20.0)	1.0	4.2	ND (0.5)	ND (5.0)	ND (10.0)
C-TAZ-S	03/04/2013	118	ND (5.0)	118	2.2	22.3	ND (20.0)	0.51	4.1	ND (0.5)	ND (5.0)	ND (10.0)
C-TAZ-D	01/08/2013	124	ND (5.0)	124	2.4	23.3	ND (20.0)	0.84	4.0	ND (0.5)	ND (5.0)	ND (10.0)
C-TAZ-D	03/04/2013	121	ND (5.0)	121	2.3	29.0	ND (20.0)	ND (0.5)	4.2	ND (0.5)	ND (5.0)	ND (10.0)
Shoreline Samples												
R-19	01/09/2013	125	ND (5.0)	125	2.4	ND (20.0)	ND (20.0)	1.2	3.9	ND (0.5)	ND (5.0)	ND (10.0)
R-19	03/05/2013	121	ND (5.0)	121	2.3	ND (20.0)	ND (20.0)	0.64	4.2	ND (0.5)	ND (5.0)	ND (10.0)

Table 3-5
COPCs, In Situ Byproducts, and Geochemical Indicator Parameters in Surface Water Samples, First Quarter 2013
First 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 as Nitrogen mg/L	Selenium, dissolved µg/L	Total suspended solids mg/L
Shoreline Samples												
R-28	01/09/2013	130	ND (5.0)	130	2.3	ND (20.0)	ND (20.0)	1.2	3.9	ND (0.5)	ND (5.0)	ND (10.0)
R-28	03/05/2013	122	ND (5.0)	122	2.1	ND (20.0)	ND (20.0)	0.62	4.2	ND (0.5)	ND (5.0)	ND (10.0)
R63	01/08/2013	120	ND (5.0)	120	2.6	603	ND (20.0)	1.3	4.4	ND (0.5)	ND (5.0)	53.6
R63	03/04/2013	119	ND (5.0)	119	2.3	33.0	ND (20.0)	0.83	4.1	ND (0.5)	ND (5.0)	ND (10.0)
RRB	01/09/2013	131	ND (5.0)	131	2.4	112	34.5	7.2	3.9	ND (0.5)	ND (5.0)	ND (10.0)
RRB	03/05/2013	128	ND (5.0)	128	2.2	76.8	ND (20.0)	4.1	4.4	ND (0.5)	ND (5.0)	ND (10.0)

Notes:
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.

In Situ Byproducts (Arsenic, Iron and Manganese).
Geo chemical Indicator Parameters (TSS and alkalinity).

Methods:
Alkalinity - SM2320B.
Metals - SW6010B/SW6020A.
Nitrate - EPA 300.0.
Total Suspended Solids - SM2540D.

TABLE 4-1

Pumping Rate and Extracted Volume for IM System, First Quarter 2013
*First 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	January 2013		February 2013		March 2013		First 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	0.00	0	0.00	0	0.00	0	0.00	0
TW-03D	105.21	4,696,435	104.90	4,229,713	107.55	4,800,946	105.89	13,727,095
PE-01	26.50	1,183,120	26.50	1,068,417	27.28	1,217,768	26.76	3,469,305
TOTAL	131.7	5,879,555	131.4	5,298,130	134.8	6,018,714	132.6	17,196,399
Chromium Removed This Quarter (kg)								47.6
Chromium Removed Project to Date (kg)								3420
Chromium Removed This Quarter (lb)								105
Chromium Removed Project to Date (lb)								7530

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 this reporting period includes the period of January 1 through March 31, 2013. Following the *Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PGE Topock Compressor Station, Needles, California*, a revised reporting schedule for this report was implemented that included a revised IM-3 sample collection period from January 1 through March 31, 2013.

Table 4-2

Analytical Results for Extraction Wells, January 2012 through March 2013
 First 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-Jan-12	1,080 LF	938	5,040
	07-Feb-12	1,040 LF	987	5,240
	06-Mar-12	1,250 LF	1,040	5,300
	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
PE-1	03-Jan-12	12.3 LF	11.6	2,960
	07-Feb-12	9.90 LF	9.20	2,840
	06-Mar-12	9.00 LF	7.90	2,960
	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

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 EPA200.8 or EPA200.7, hexavalent chromium analyzed by Method SM3500-CrB or EPA218.6 and total dissolved solids were analyzed by Method SM2540C.

Table 4-3

Average Hydraulic Gradients Measured at Well Pairs, First Quarter 2013
*First 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	January	0.0055	NA
	February	0.0059	NA
	March	0.0064	NA
Northern Gradient Pair MW-31-135 / MW-33-150	January	0.0022	31 / 31
	February	0.0023	28 / 28
	March	0.0025	31 / 31
Central Gradient Pair MW-45-95 / MW-34-100	January	0.0104	21 / 31
	February	0.0115	25 / 28
	March	0.0124	27 / 31
Southern Gradient Pair MW-45-95 / MW-27-85	January	0.0038	31 / 31
	February	0.0039	28 / 28
	March	0.0044	31 / 31

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
*First 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			456.9		

Notes:

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

ft amsl = feet above mean sea level.

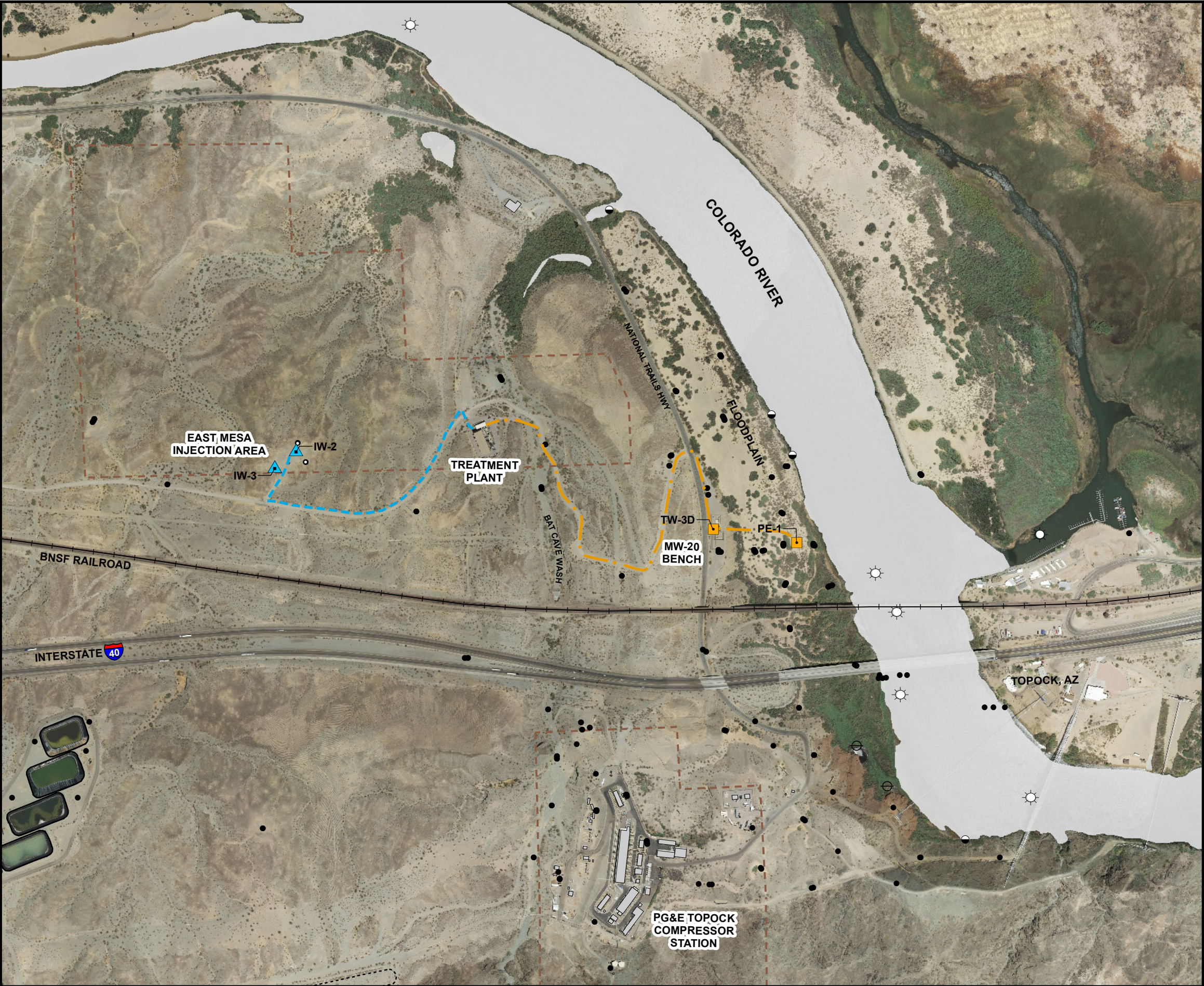
NA = Data unavailable during this time period.

Projected river level for each month in the past is calculated based on the preceding months USBR projections of Davis Dam release and stage in Lake Havasu. Future projections of river level at I-3 are based upon April 2013 USBR projections. These data are reported monthly by the US 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 BOR projections and actual dam releases/Havasu reservoir levels, rather than the multiple regression error.

For data prior to 2011 please 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, 2013).

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.

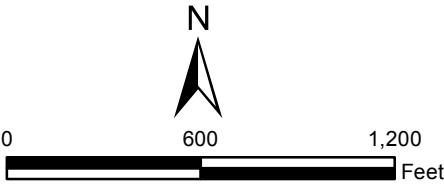
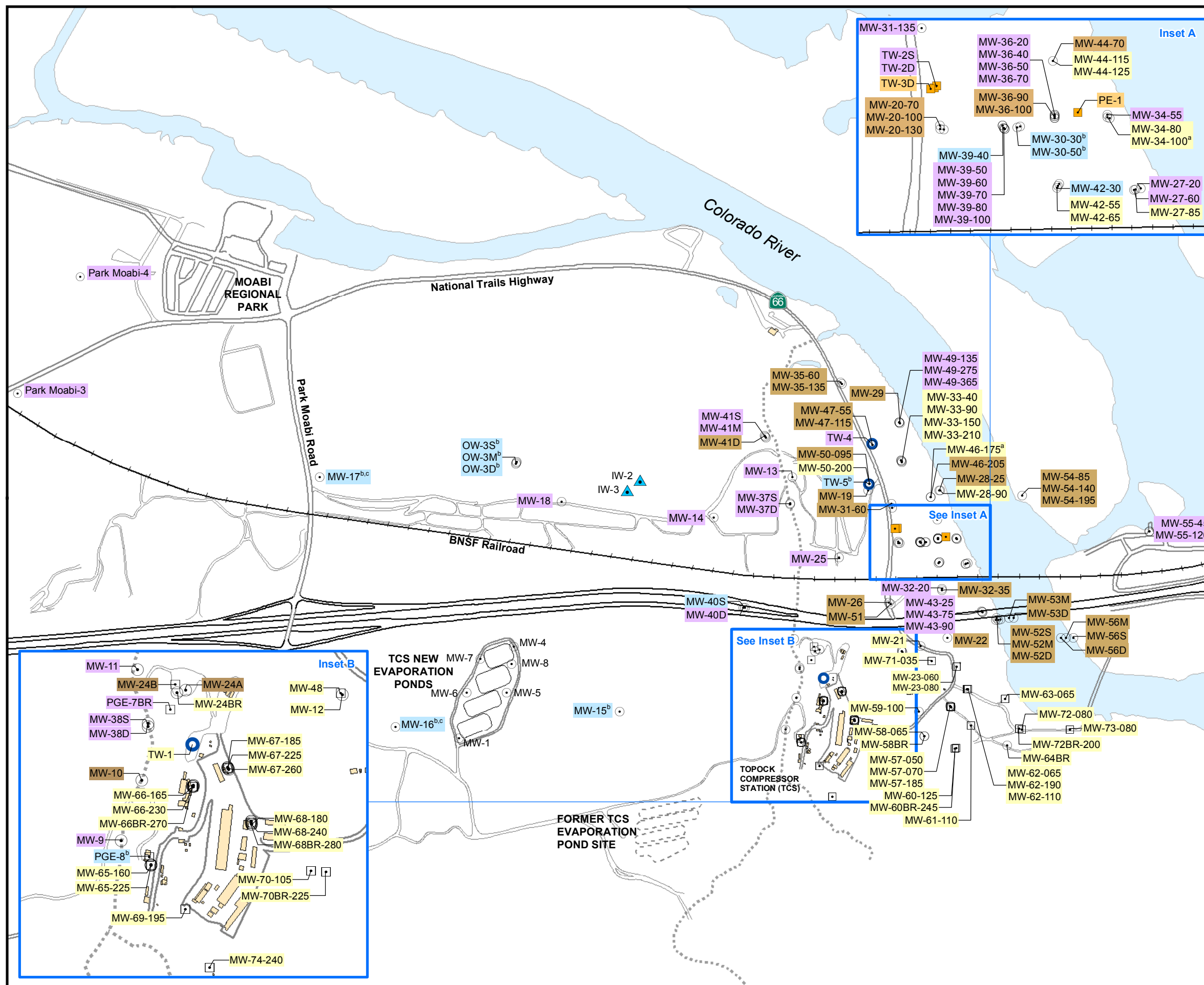


FIGURE 1-1
LOCATIONS OF IM-3 FACILITIES
AND MONITORING LOCATIONS
FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



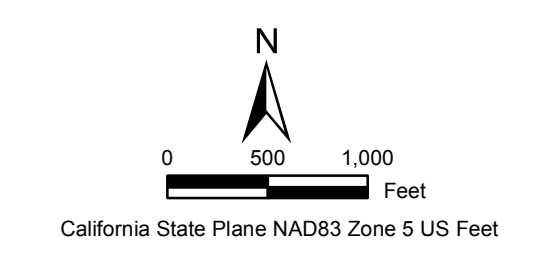
- LEGEND**
- Injection Well
 - Groundwater Monitoring Well
 - Test Well or Supply Well (inactive)
 - Extraction Well
 - Groundwater Well Completed in Bedrock

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

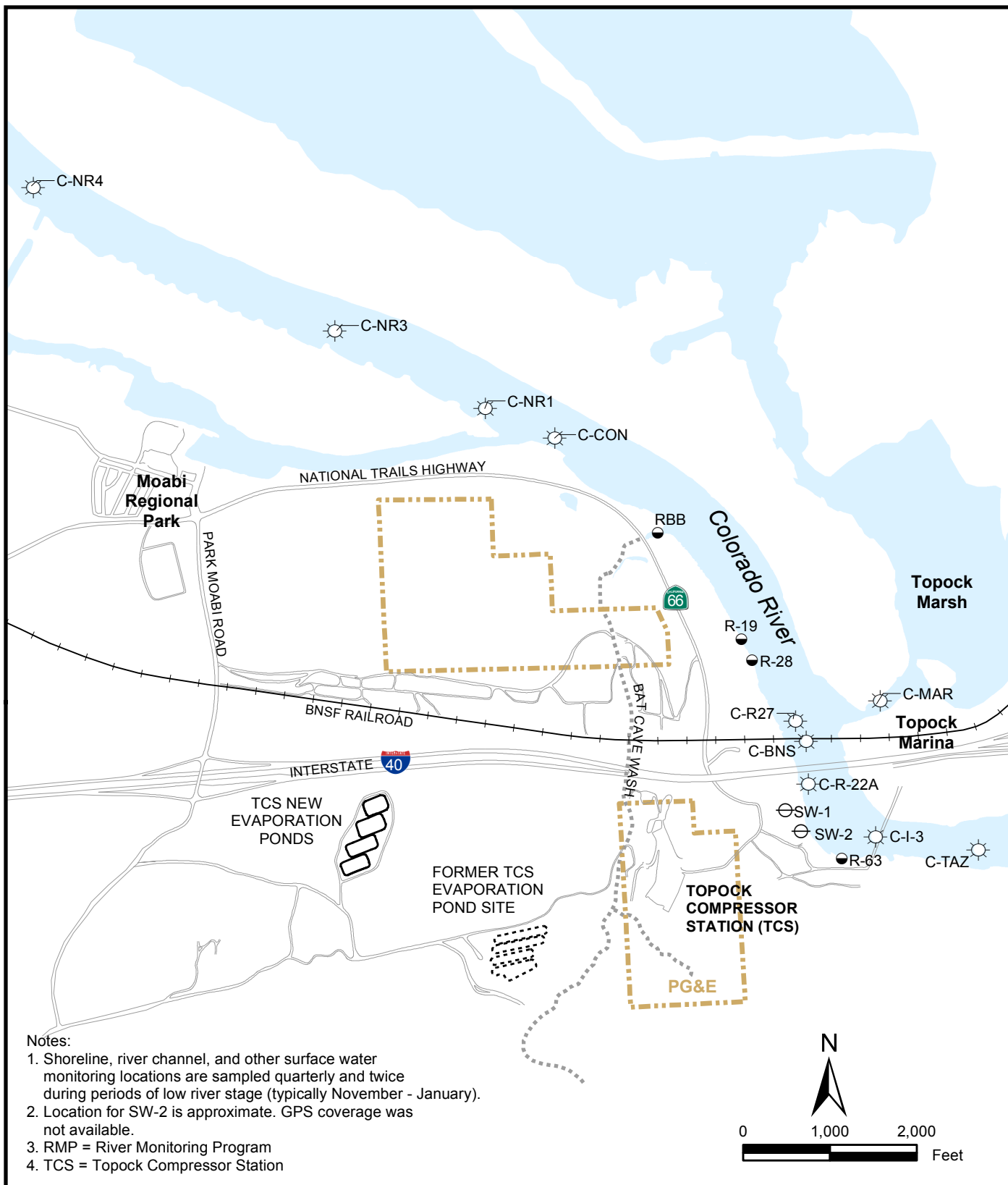
Notes:

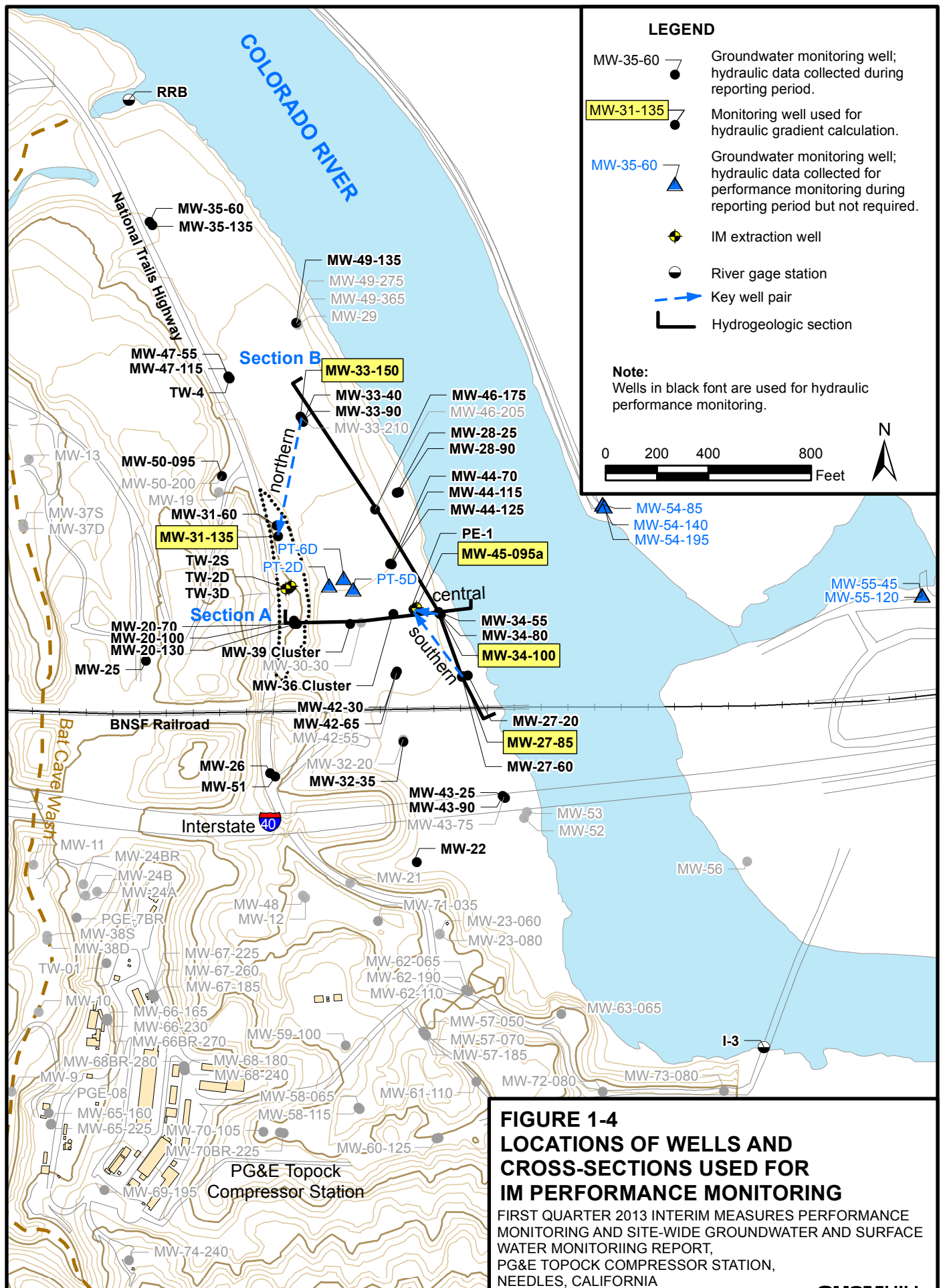
- ^a Monthly sampling November through February, otherwise quarterly.
- ^b These wells required to be sampled biennially, will be sampled annually for the water quality snapshot.
- ^c Background metals collected semiannually.

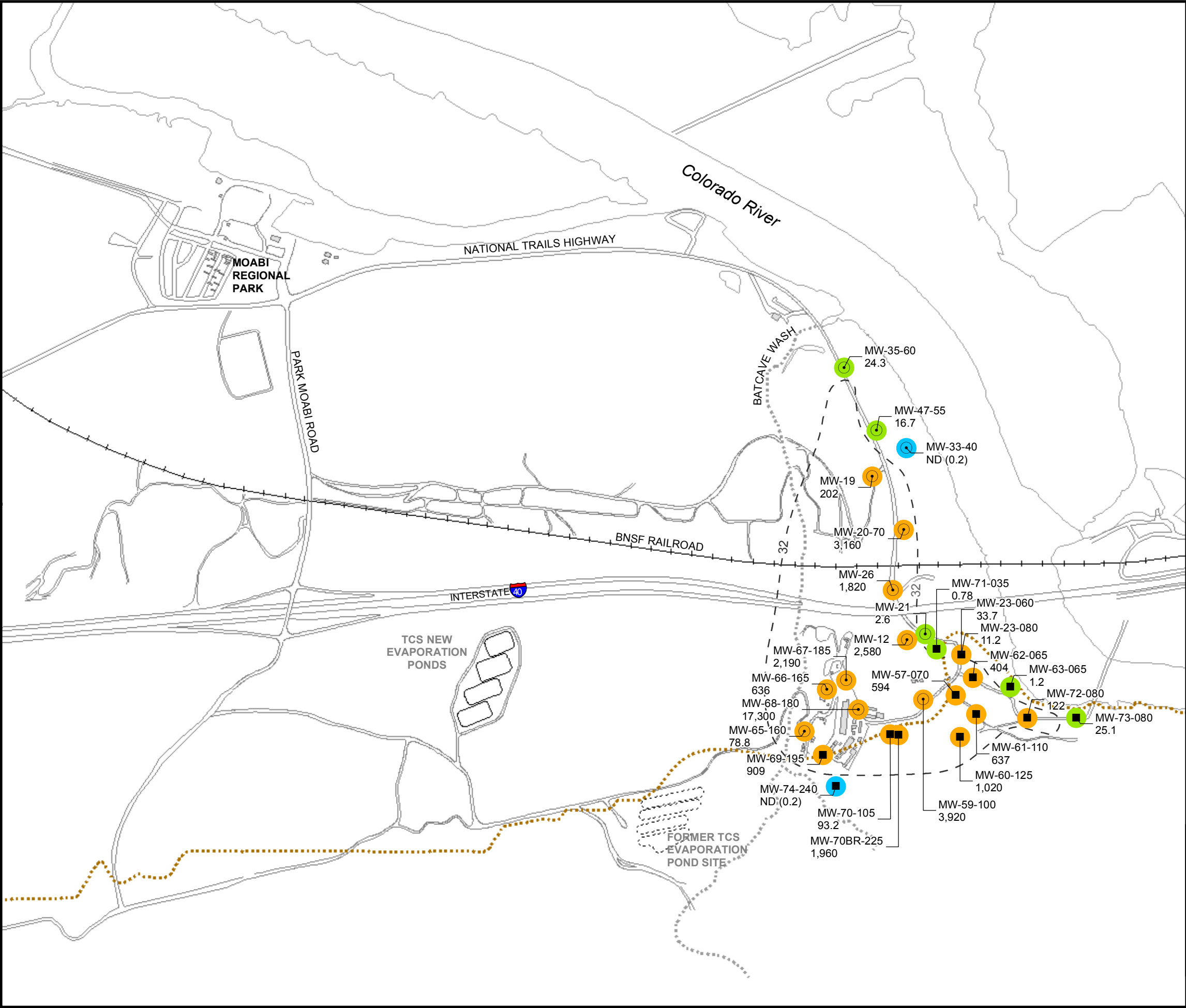


**FIGURE 1-2
MONITORING LOCATIONS AND
SAMPLING FREQUENCY FOR GMP**

FIRST 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 **Shallow zone** of Alluvial Aquifer and Bedrock.

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

Cr(VI) Concentrations - First 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 fourth quarter 2012, where a larger number of wells were sampled, and first quarter 2013 groundwater sampling results.

Approximate bedrock contact at 455 feet above mean sea level.

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

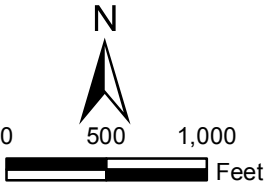
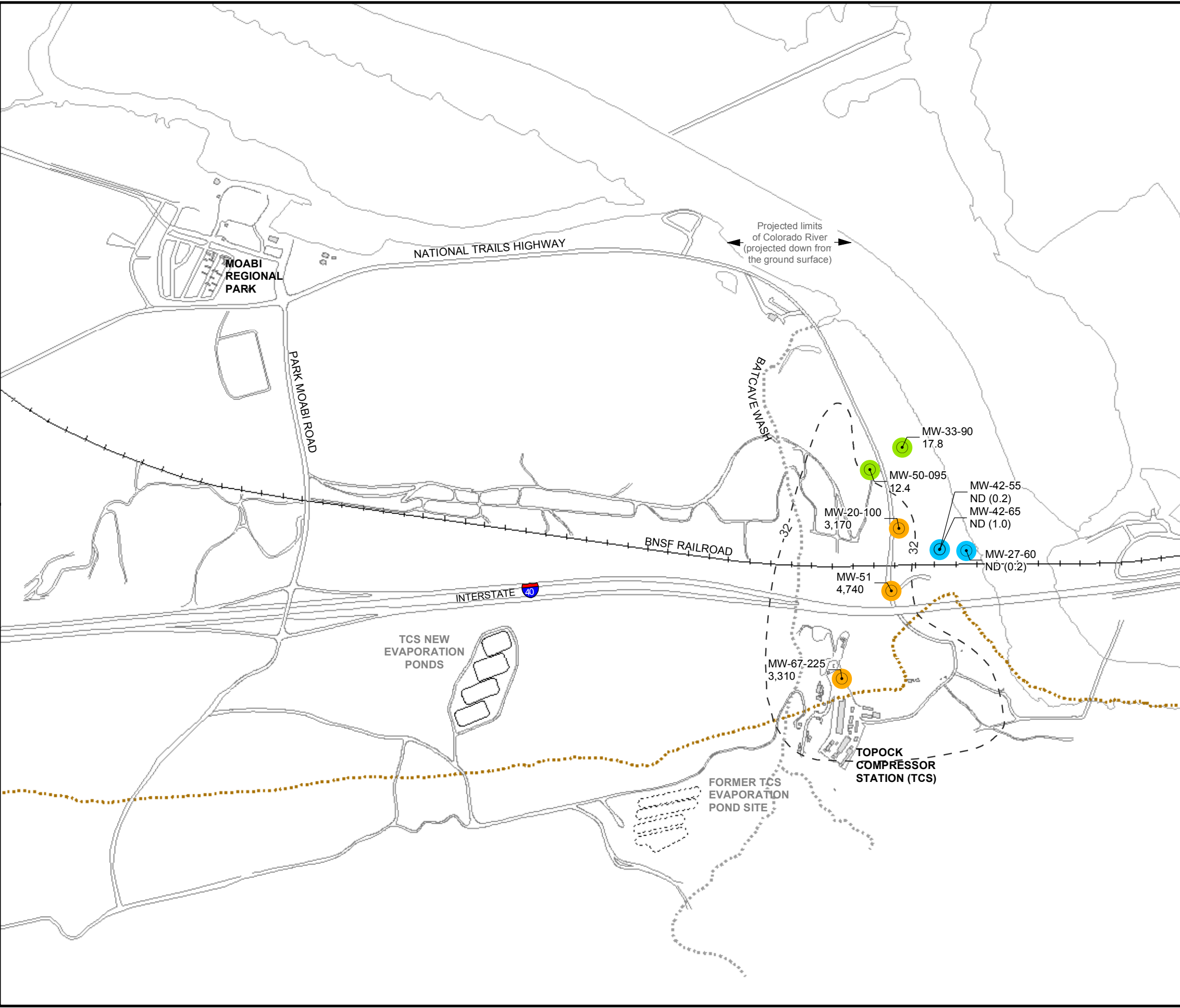


FIGURE 3-1a
Cr(VI) SAMPLING RESULTS,
SHALLOW WELLS IN ALLUVIAL AQUIFER
AND BEDROCK, FIRST QUARTER 2013
FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



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 - First 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 fourth quarter 2012, where a larger number of wells were sampled, and first quarter 2013 groundwater sampling results.

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.

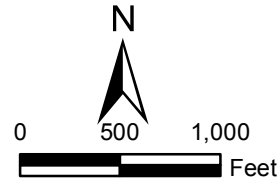
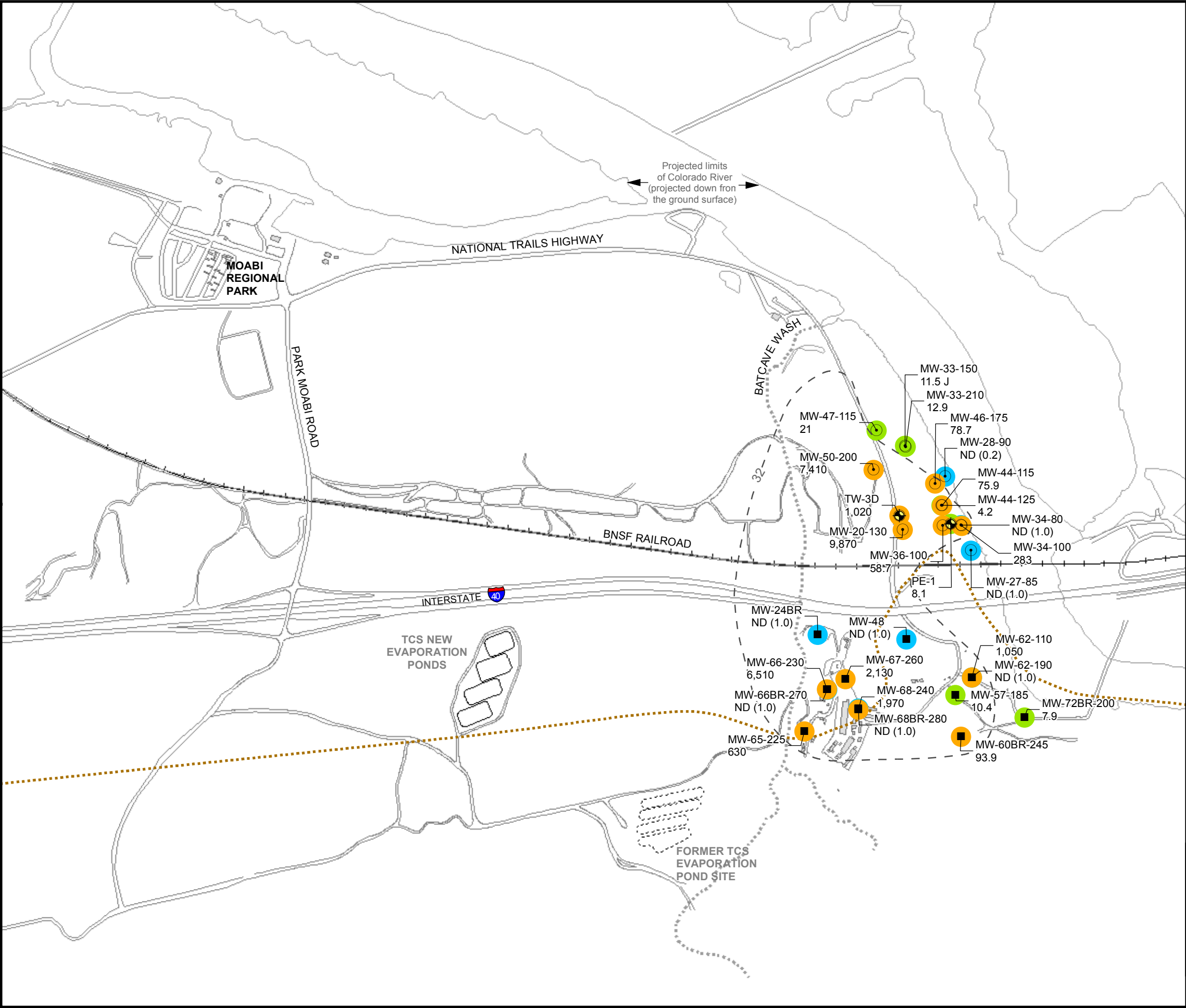


FIGURE 3-1b
Cr(VI) SAMPLING RESULTS
MID-DEPTH WELLS IN ALLUVIAL AQUIFER
AND BEDROCK, FIRST QUARTER 2013

FIRST 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 (µg/L)

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

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

Cr(VI) Concentrations - First 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 fourth quarter 2012, where a larger number of wells were sampled, and first quarter 2013 groundwater sampling results.

Approximate bedrock contact at 395 feet above mean sea level.

- Notes:**
- Results plotted are maximum concentration from primary and duplicate samples, see Table 3-1 for complete results.
 - In the floodplain area, the 32 µg/L line for Cr(VI) in deep zone (80-90 feet below Colorado River) is estimated based on available groundwater sampling, hydrogeologic and geochemical data. There are no data confirming the existence of Cr(VI) under the Colorado River.
 - 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.
 - TCS = Topock Compressor Station

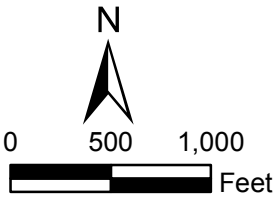
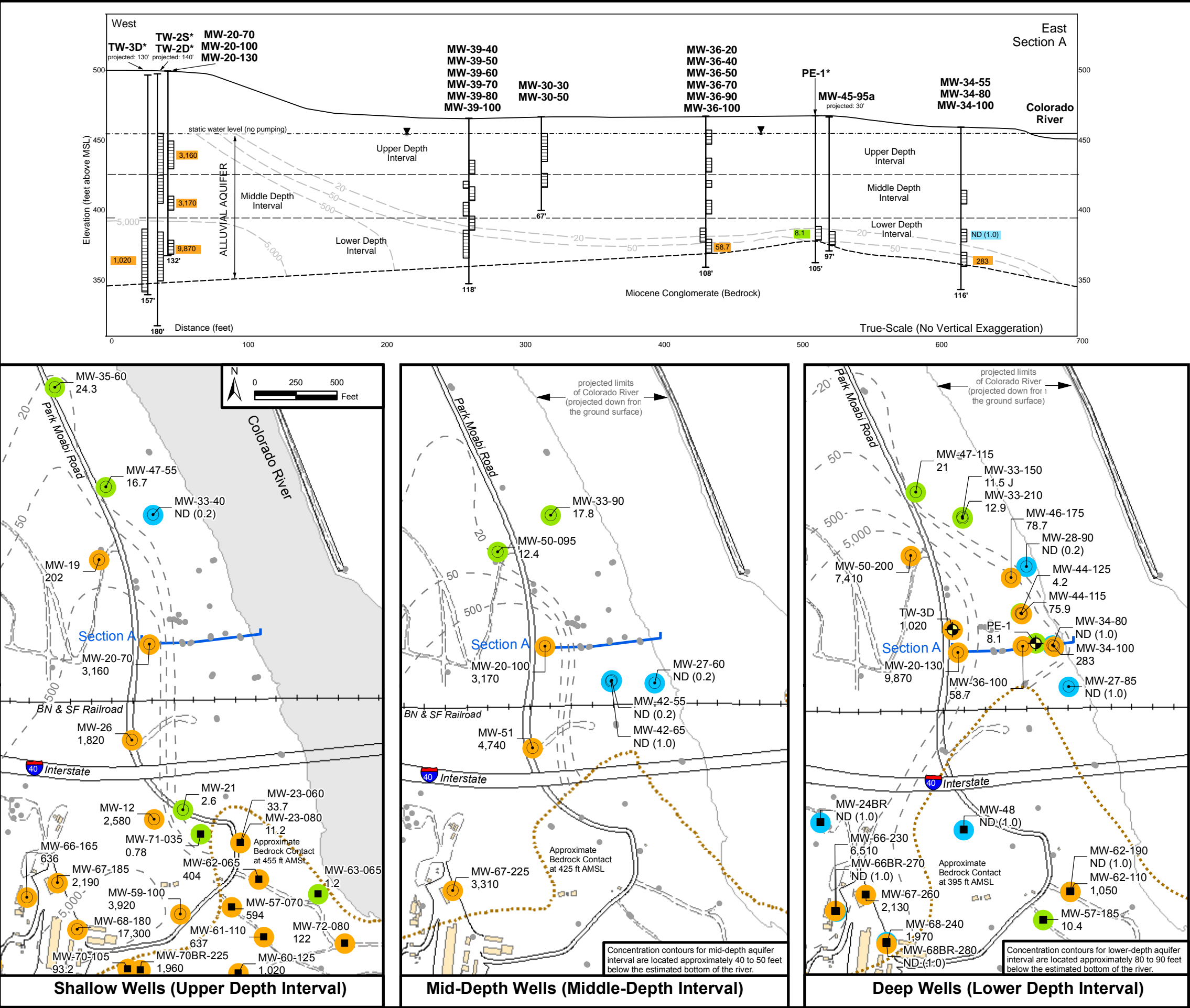


FIGURE 3-1c
Cr(VI) SAMPLING RESULTS,
DEEP WELLS IN ALLUVIAL AQUIFER
AND BEDROCK, FIRST QUARTER 2013

FIRST 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 - First Quarter 2013

- Not detected at analytical reporting limit
- Concentration between reporting limit and 32 µg/L
- Concentration ≥ 32 µg/L

50 Inferred Cr(VI) concentration contour within Alluvial aquifer depth interval based on fourth quarter 2012, where a larger number of wells were sampled, and first quarter 2013 groundwater sampling results.

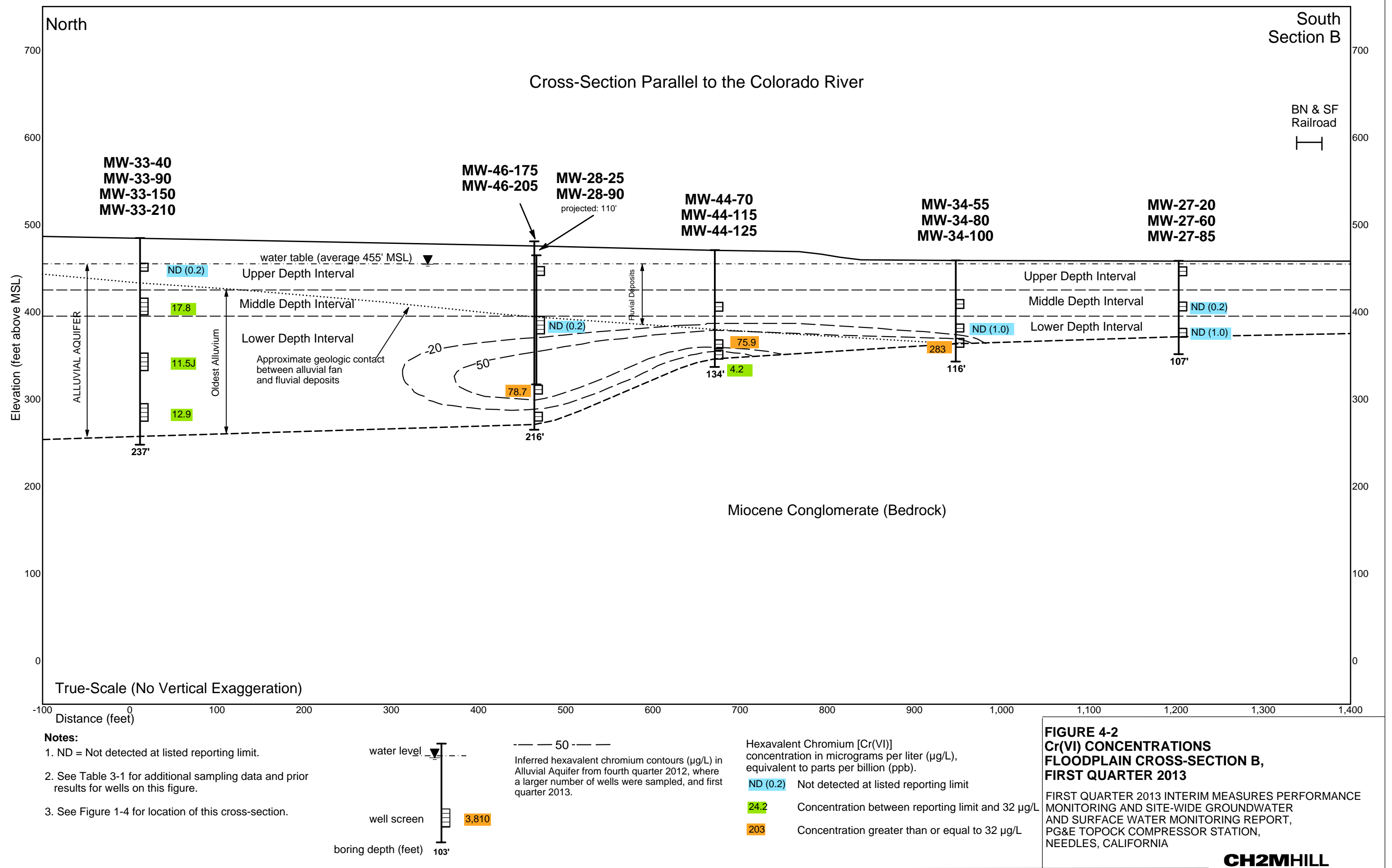
Hydrogeologic Section A

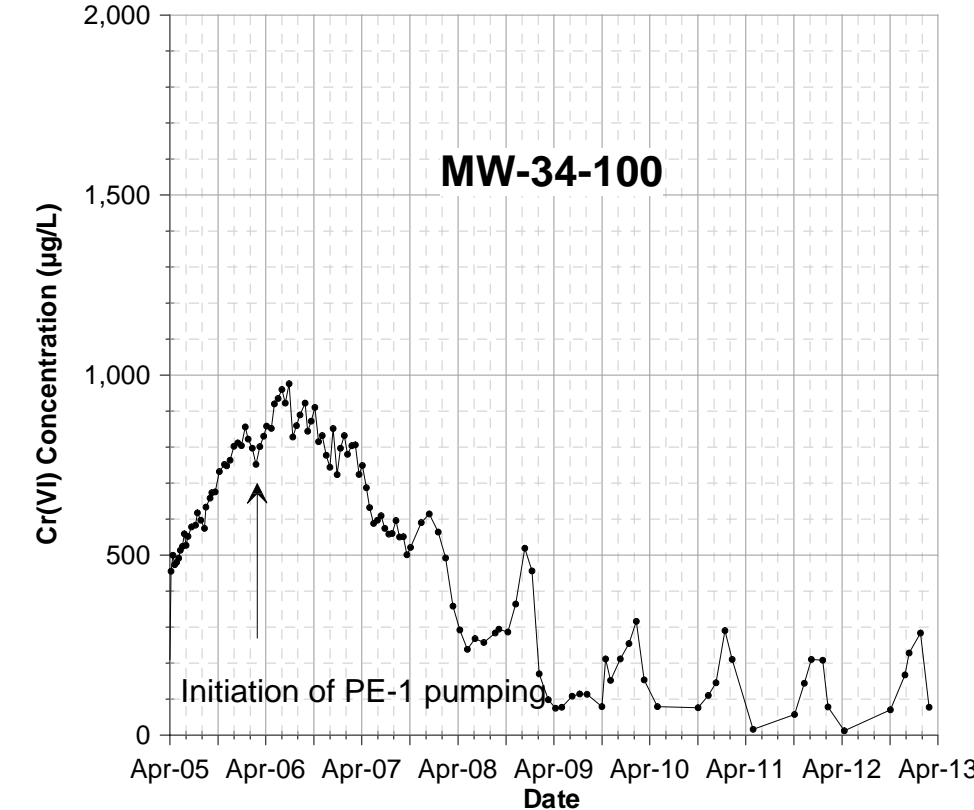
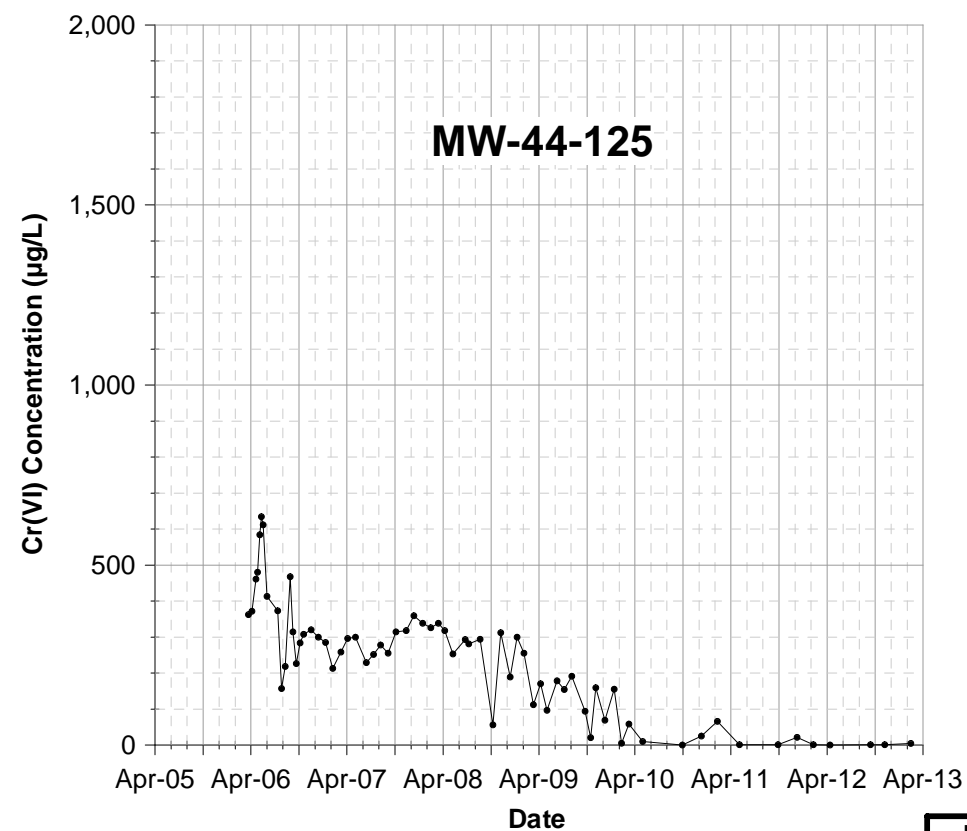
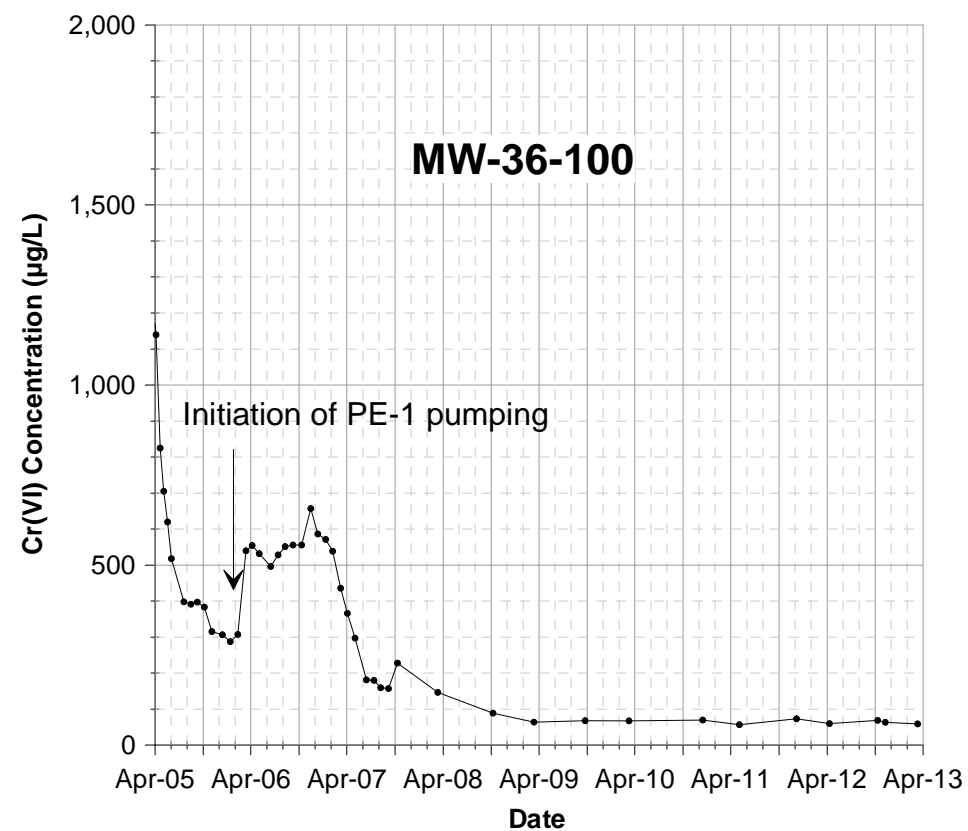
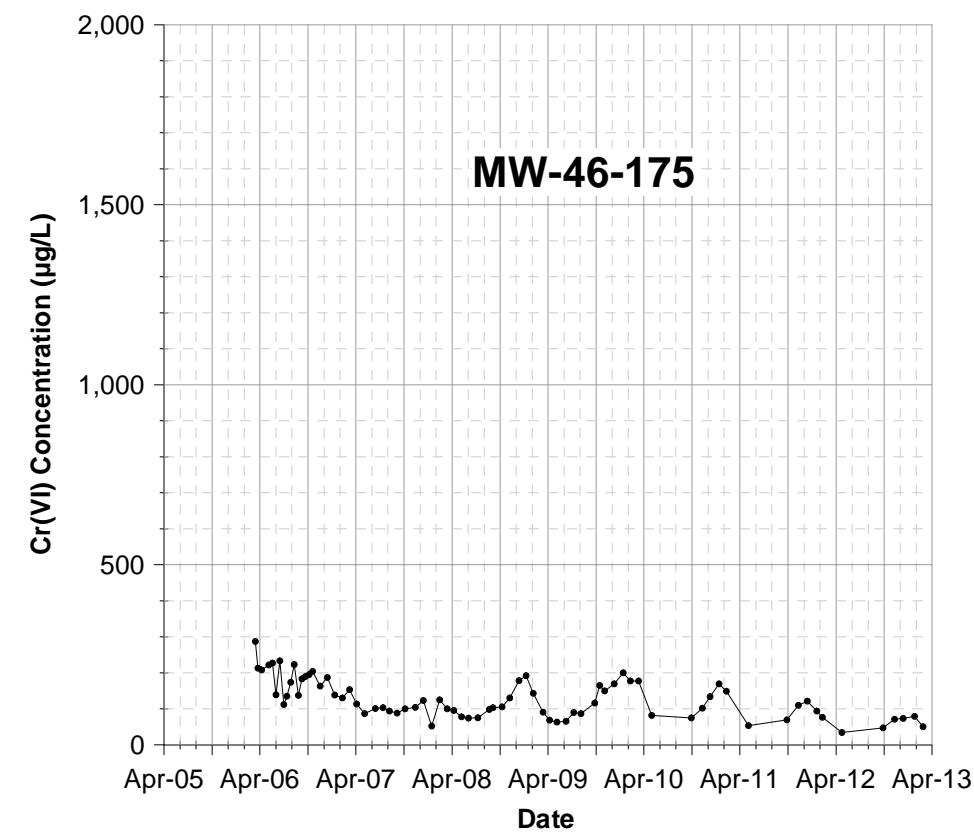
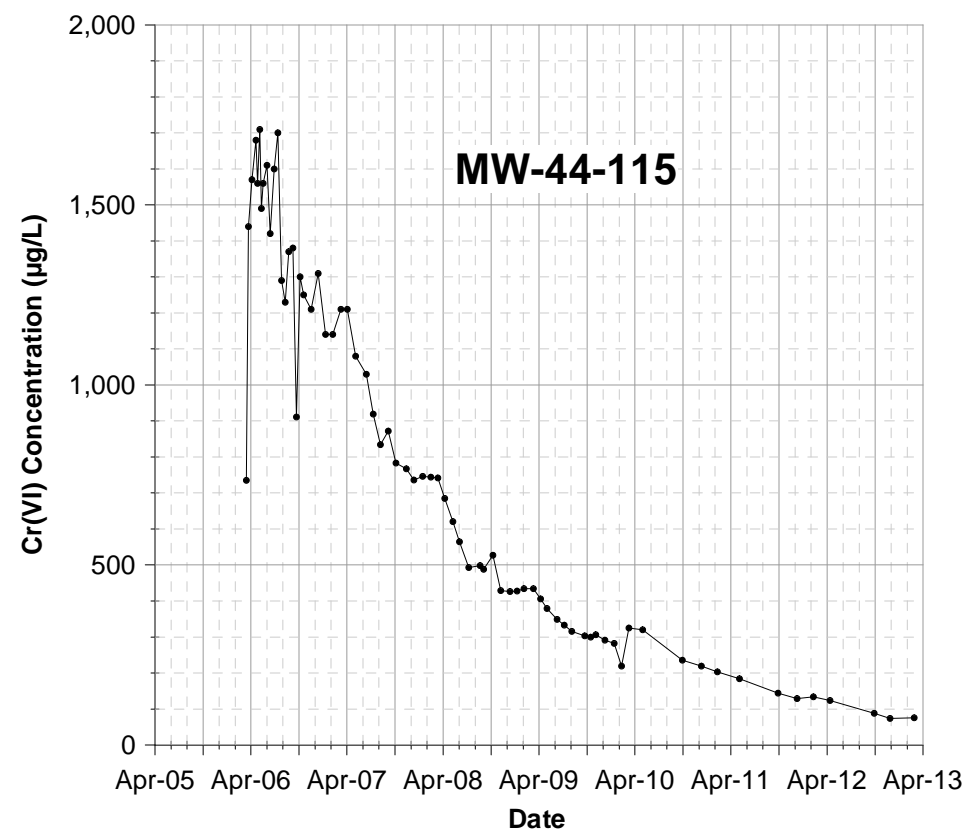
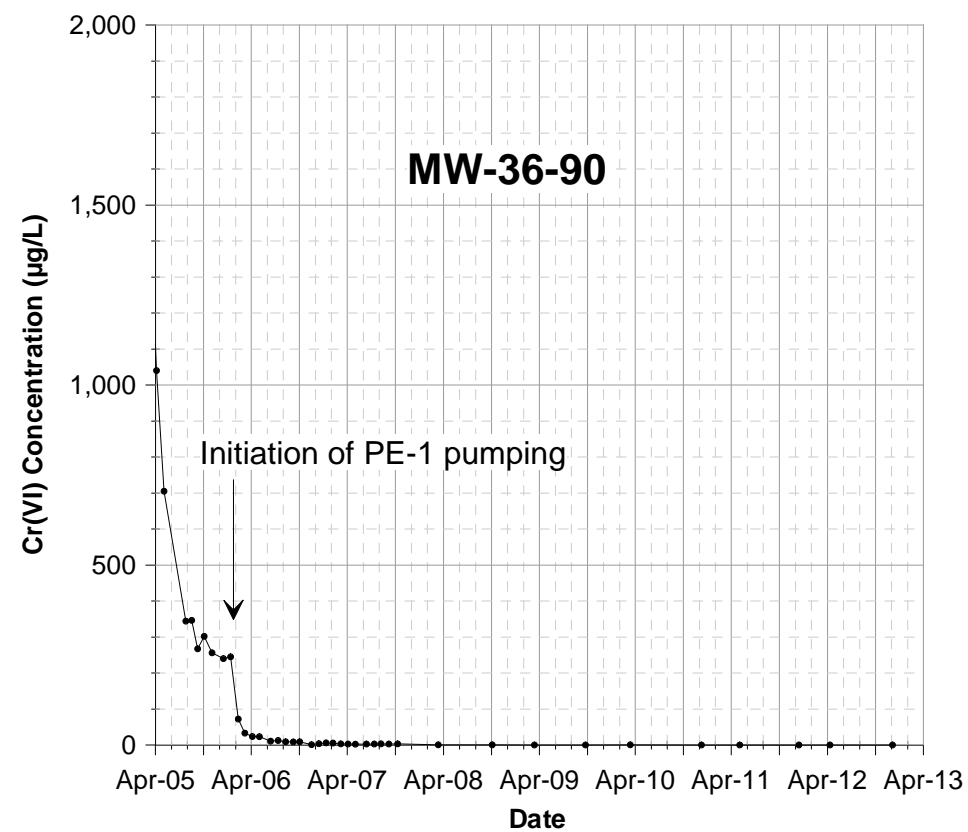
Approximate bedrock contact

- 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,
FIRST QUARTER 2013

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

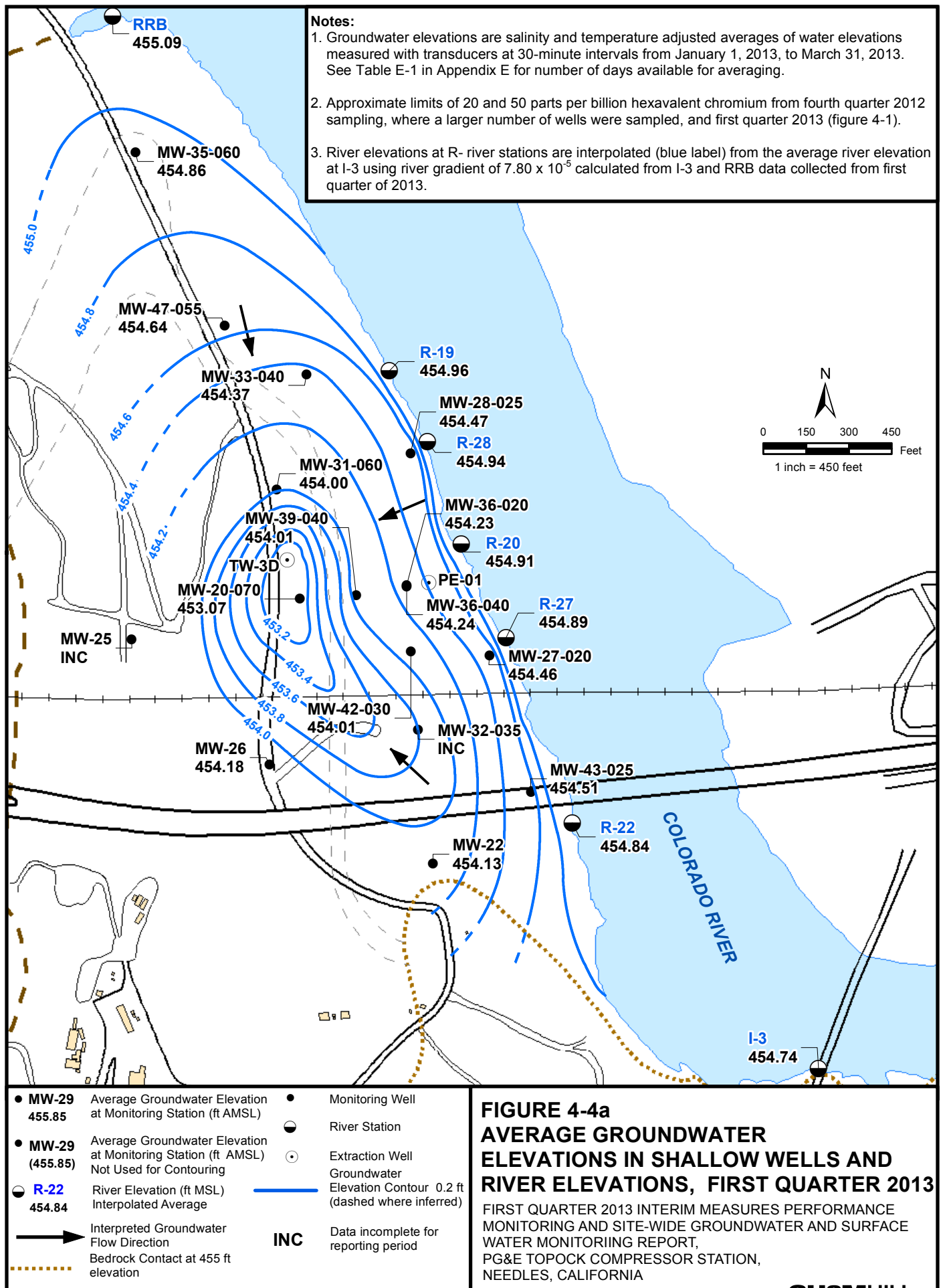




Notes:

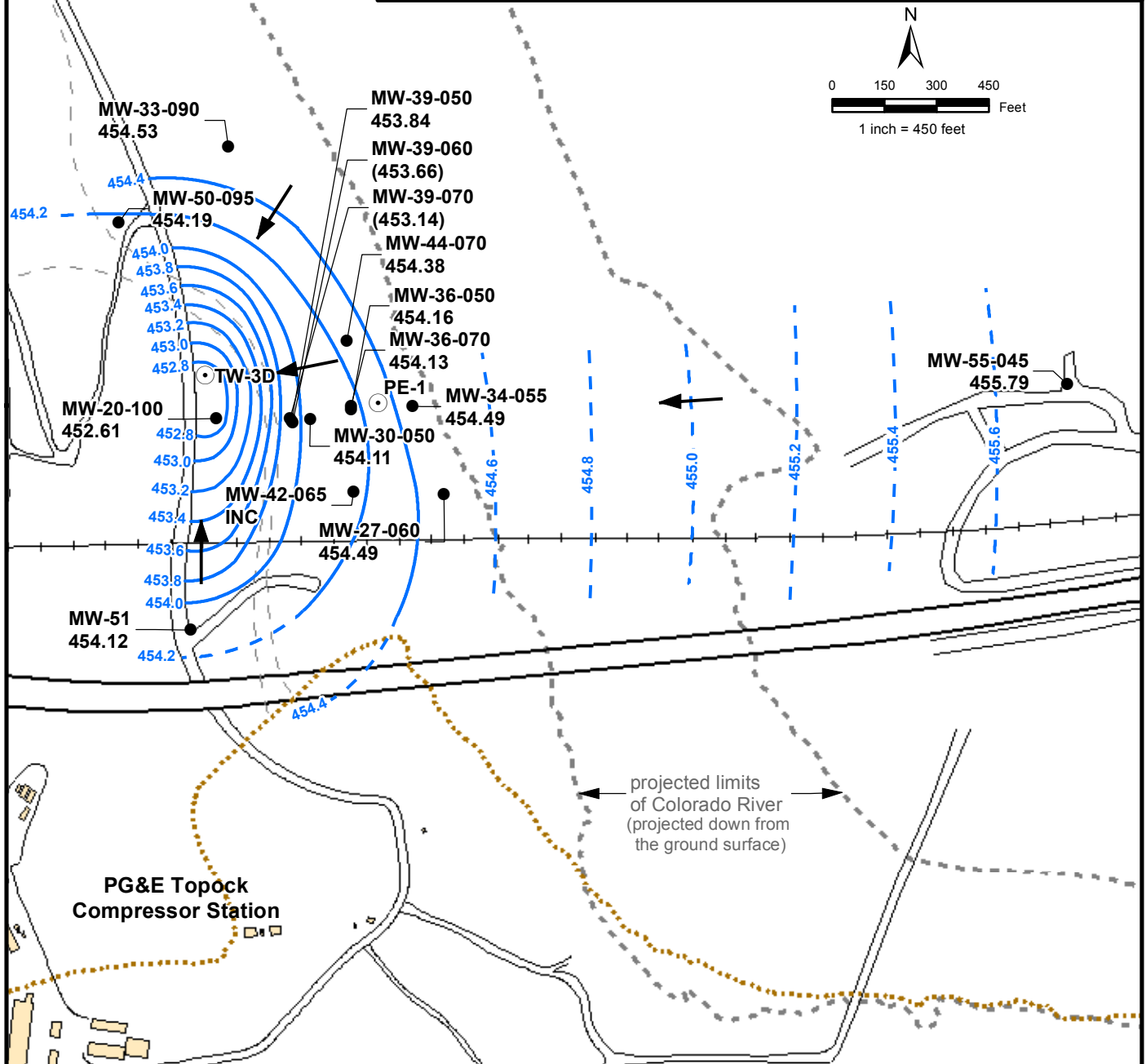
1. Hexavalent chromium [Cr(VI)] results in micrograms per liter (µg/L), equivalent to parts per billion (ppb).
2. Results plotted are maximum concentrations from primary and duplicate samples; see Table 3-1 for complete results.
3. MW-36 wells selected to monitor effects of PE-1 pumping on plume west 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 MARCH 2013
 FIRST 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 January 1, 2013, through March 31, 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 fourth quarter 2012 sampling, where a larger number of wells were sampled, and first quarter 2013. 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.

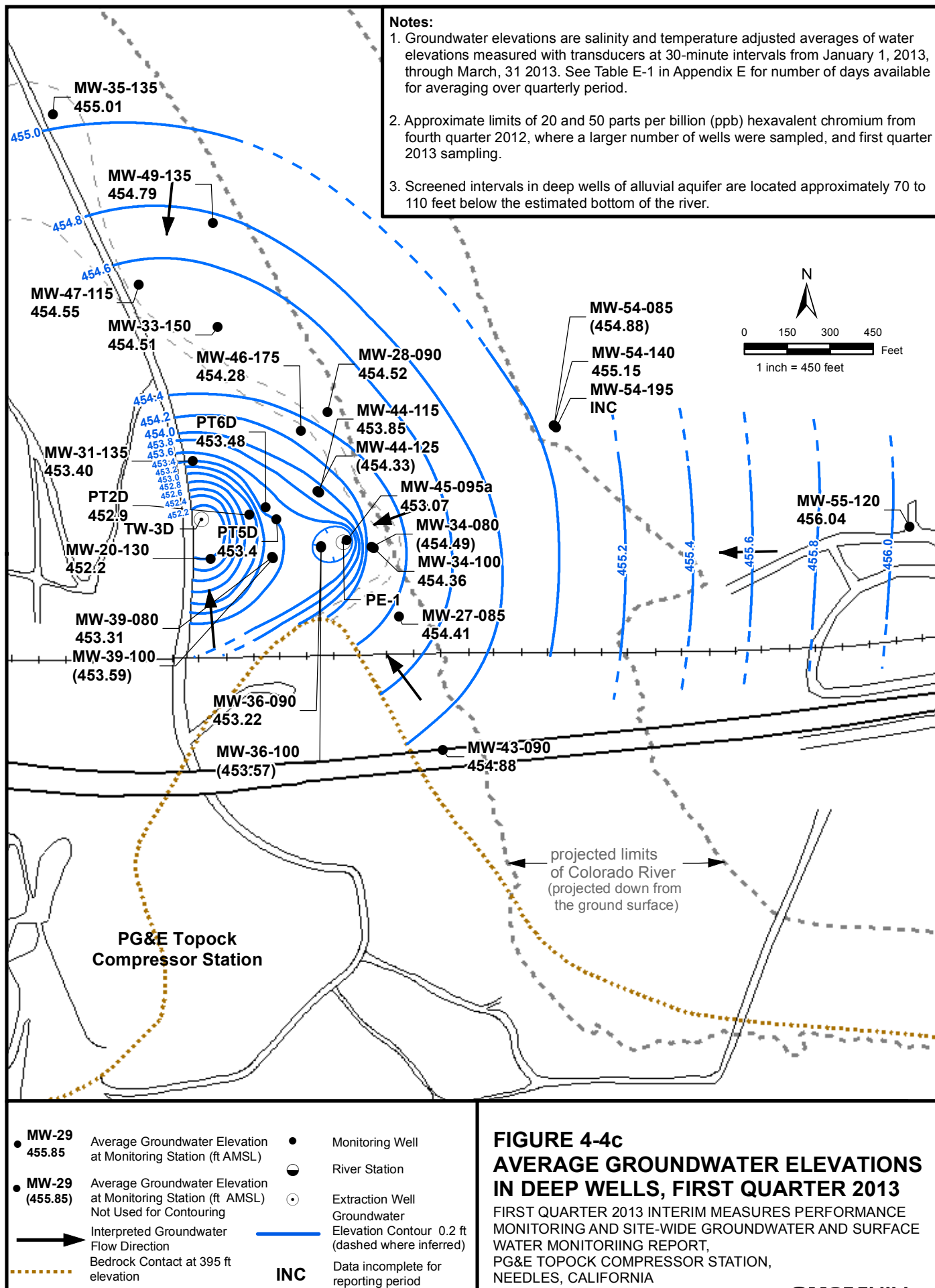


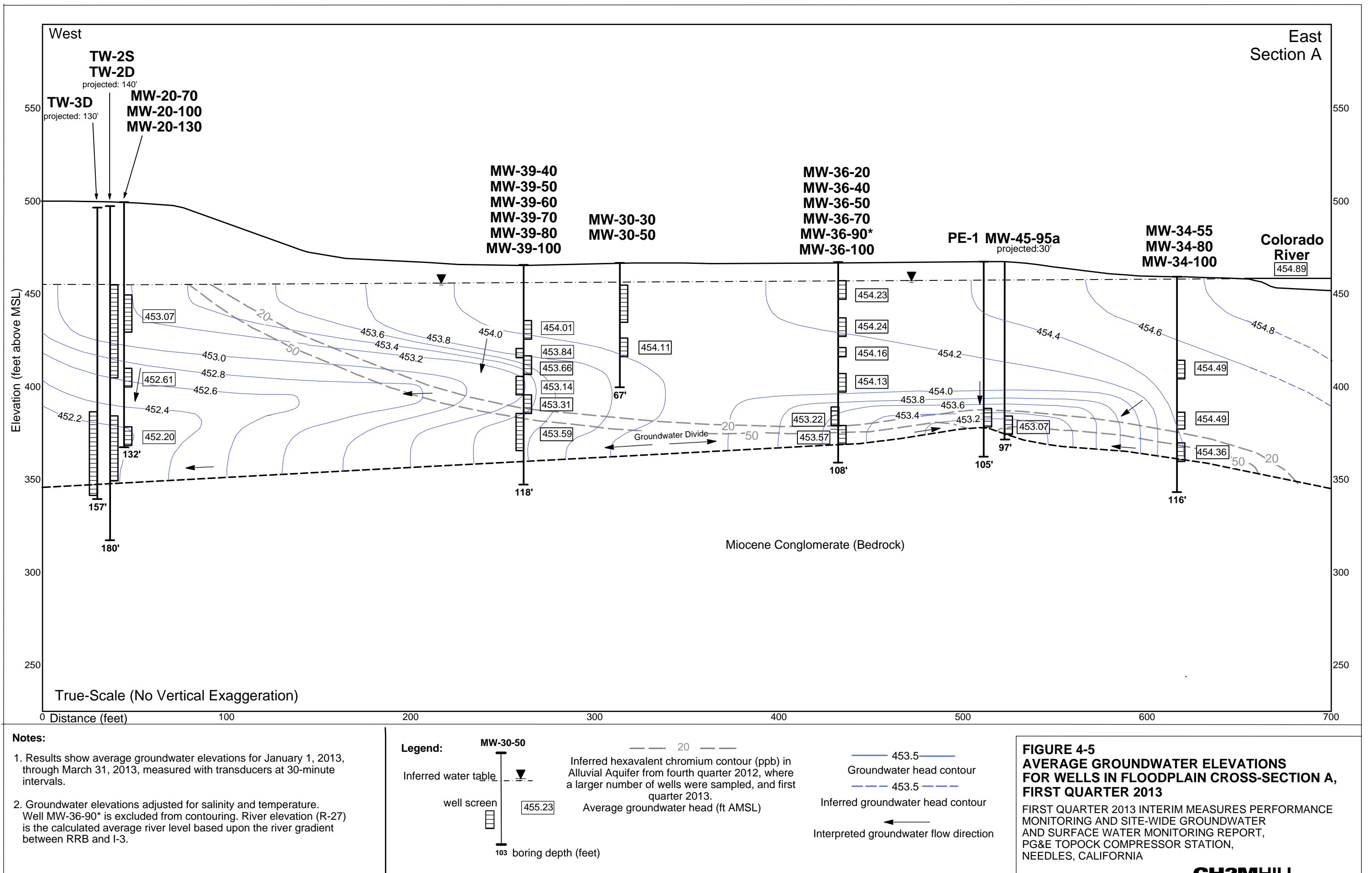
- MW-29 455.85 Average Groundwater Elevation at Monitoring Station (ft AMSL)
- MW-29 (455.85) Average Groundwater Elevation at Monitoring Station (ft AMSL) Not Used for Contouring
- Interpreted Groundwater Flow Direction
- Bedrock Contact at 425 ft elevation
- Monitoring Well
- River Station
- Extraction Well
- Elevation Contour 0.2 ft (dashed where inferred)

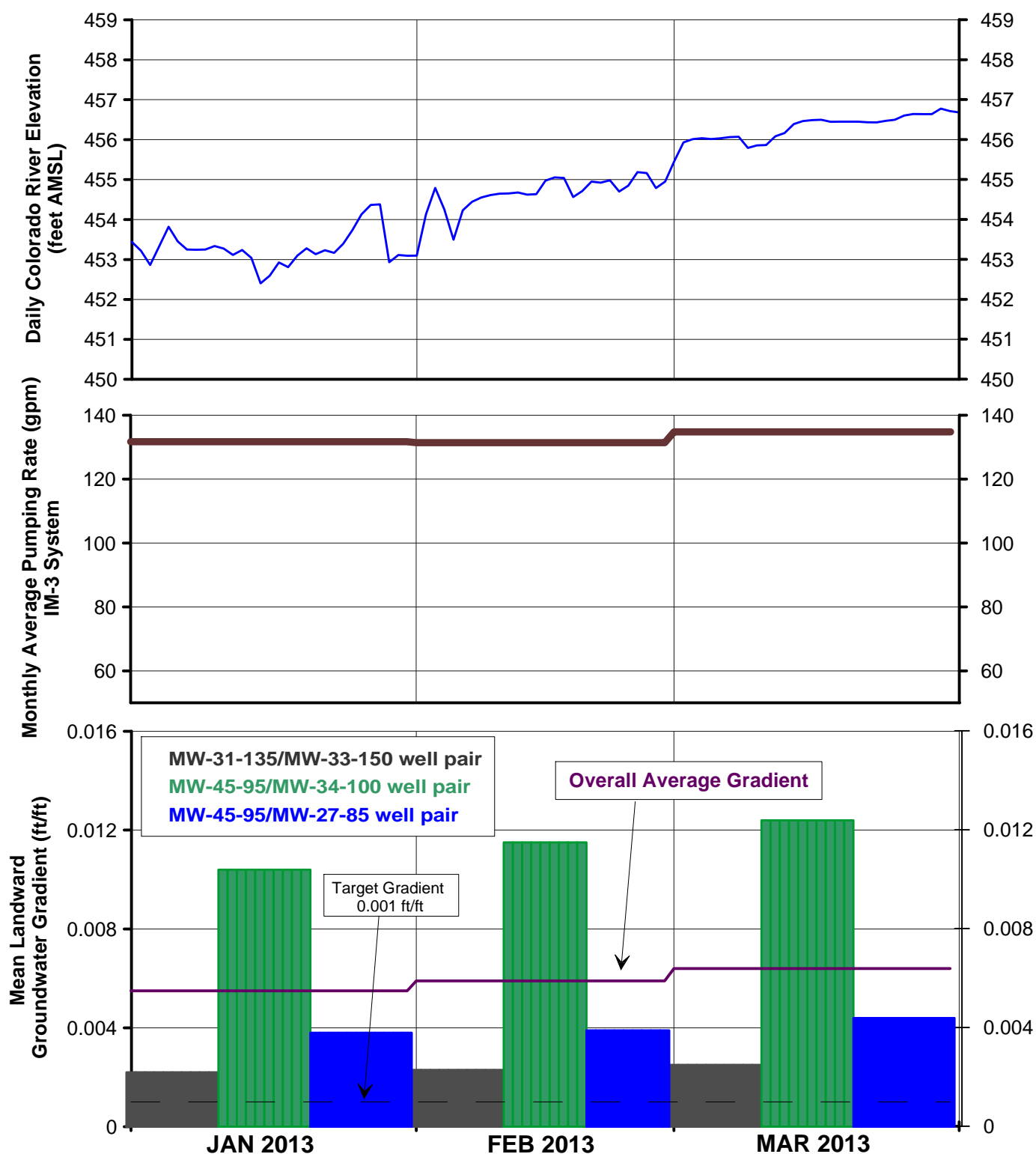
**FIGURE 4-4b
AVERAGE GROUNDWATER ELEVATIONS
IN MID-DEPTH WELLS,
FIRST QUARTER 2013**

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

CH2MHILL





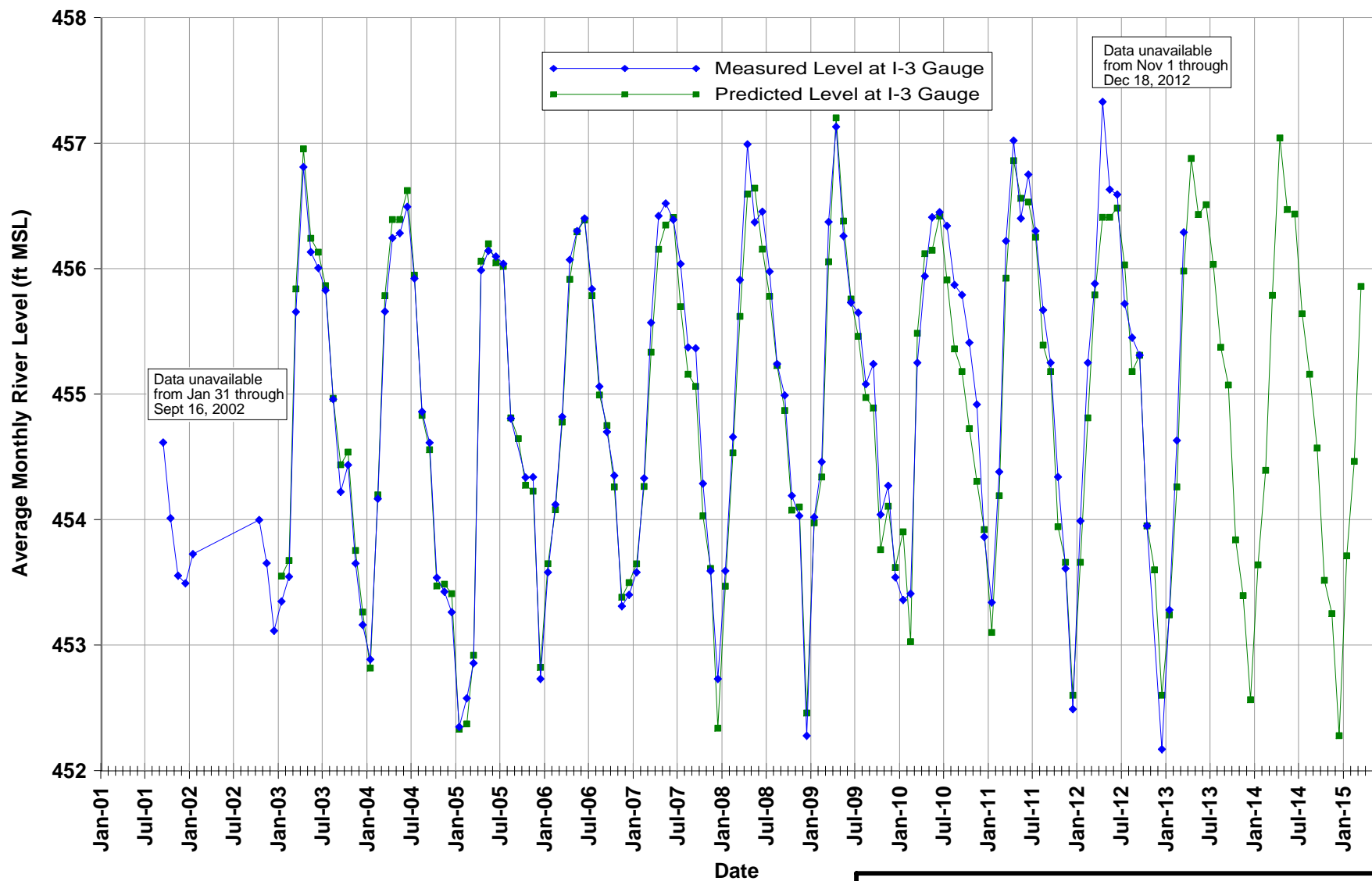


Notes:

- 1) 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.

**FIGURE 4-6
MEASURED HYDRAULIC GRADIENTS,
RIVER ELEVATIONS, AND PUMPING RATE,
FIRST QUARTER 2013**

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



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

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

FIRST 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, First Quarter 2013
(Provided on CD-ROM only with hardcopy submittal)

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

February 14, 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-190, GROUNDWATER MONITORING
PROJECT, TLI NO.: 806048


Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-190 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 January 28, 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

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

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

Laboratory No.: 806048
Date Received: January 28, 2013

Project Name: PG&E Topock Project

Project No.: 423575.MP.02.GM

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806048-001	MW-34-100-190	E218.6	FLDFLT	1/24/2013	10:30	Chromium, Hexavalent	283	ug/L	5.0
806048-001	MW-34-100-190	SW6020	FLDFLT	1/24/2013	10:30	Arsenic	1.7	ug/L	0.50
806048-001	MW-34-100-190	SW6020	FLDFLT	1/24/2013	10:30	Chromium	292	ug/L	2.0
806048-002	MW-46-175-190	E218.6	FLDFLT	1/24/2013	12:03	Chromium, Hexavalent	78.7	ug/L	1.0
806048-002	MW-46-175-190	SW6020	FLDFLT	1/24/2013	12:03	Chromium	79.3	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.02.GM

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

Release Number:

Laboratory No. 806048

Page 1 of 6

Printed 2/14/2013

Samples Received on 1/28/2013 8:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-34-100-190	806048-001	01/24/2013 10:30	Water
MW-46-175-190	806048-002	01/24/2013 12:03	Water

Chrome VI by EPA 218.6

Batch 02CrH13F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806048-001 Chromium, Hexavalent	ug/L	02/06/2013 09:21	25.0	0.230	5.0	283
806048-002 Chromium, Hexavalent	ug/L	02/06/2013 05:01	5.00	0.0460	1.0	78.7

Method Blank

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

Duplicate

Lab ID = 806049-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	34.7	35.2	1.37	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.175	0.200	87.4	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.92	5.00	98.5	90 - 110

Matrix Spike

Lab ID = 806048-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	656	658(375)	99.5	90 - 110

Matrix Spike

Lab ID = 806048-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	175	179(100)	96.5	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 4 of 6

Project Number: 423575.MP.02.GM

Printed 2/14/2013

Metals by EPA 6020A, Dissolved

Batch 020513B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806048-001 Arsenic	ug/L	02/06/2013 01:50	2.00	0.200	0.50	1.7
Chromium	ug/L	02/06/2013 01:56	5.00	0.460	2.0	292
806048-002 Chromium	ug/L	02/06/2013 02:02	2.00	0.184	1.0	79.3

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 806017-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	0.946	1.05	10.4	0 - 20
Chromium	ug/L	2.00	2.18	2.19	0.641	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.230	0.200	115	70 - 130
Chromium	ug/L	1.00	0.397	0.400	99.2	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.00	51.3	50.0	103	85 - 115
Chromium	ug/L	2.00	52.8	50.0	106	85 - 115

Matrix Spike

Lab ID = 806017-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	51.9	51.0(50.0)	102	75 - 125
Chromium	ug/L	2.00	50.9	52.2(50.0)	97.4	75 - 125

Matrix Spike Duplicate

Lab ID = 806017-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	54.8	51.0(50.0)	107	75 - 125
Chromium	ug/L	2.00	53.1	52.2(50.0)	102	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.8	20.0	99.2	90 - 110
Chromium	ug/L	1.00	19.7	20.0	98.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.1	20.0	101	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 6 of 6****Project Number: 423575.MP.02.GM****Printed 2/14/2013****Interference Check Standard A**

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	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 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
Arsenic	ug/L	1.00	20.1	20.0	100	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.2	20.0	101	80 - 120

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	21.0	20.0	105	80 - 120

Serial Dilution**Lab ID = 806047-005**

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	10.0	145	150	3.15	0 - 10

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for Mona Nassimi

Manager, Analytical Services

Project Name PG&E Topock				Container:	250 ml Poly	1x500 ml Poly	1x500 ml Poly	Number of Containers	COMMENTS					
Location Topock				Preservatives:	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C							
Project Manager Jay Piper														
Sample Manager Shawn Duffy				Filtered:	Field	Field	Field							
Holding Time:				28	180	180								
Project Number 423575.MP.02.GM.0					C/6 (E218.6) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Arsenic, Chromium							
Task Order														
Project 2013-GMP-190														
Turnaround Time 10 Days														
Shipping Date: 1/11/2013														
COC Number: GMP-190														
DATE					TIME					Matrix				
MW-34-100-190					1/24/2013	10:30	Water	X	X		2	pH = 2 6.220		
MW-46-175-190					1/24/2013	12:03	Water	X		X	2			
TOTAL NUMBER OF CONTAINERS													4	

For Sample Conditions
See Form Attached

ALERT !!
Level III QC

Approved by	Signatures	Date/Time	Shipping Details	ATTN: Sample Custody	Special Instructions:
Sampled by		1-28-13 1552	Method of Shipment: FedEx		Jan, 2013
Relinquished by			On Ice: yes / no		
Received by			Airbill No:		
Relinquished by			Lab Name: Truesdail Laboratories, Inc.		Report Copy to
Received by			Lab Phone: (714) 730-6239		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
1/25/13	805995-4	9.5	N/A	N/A	N/A	RB
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
↓	↓ -9	↓	↓	↓	↓	↓
↓	↓ -10	↓	↓	↓	↓	↓
1/25/13	805996-1	9.5	N/A	N/A	N/A	RB
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
↓	↓ -9	↓	↓	↓	↓	↓
↓	↓ -10	↓	↓	↓	↓	↓
1/25/13	806016-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
1/29/13	806047-1	9.5	N/A	N/A	N/A	RB
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
1/29/13	806048-1	9.5	N/A	N/A	N/A	RB
↓	↓ -2	↓	↓	↓	↓	↓
1/29/13	806049-1	9.5	N/A	N/A	N/A	RB
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓

M
2-11-13

HAV
02/08/13



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
8059154 (1-5)	<1	<2	01/30/13	DC	Yes			
8059193 (1-8,10)	<1	↓	1/30/13	↓	Yes			
8059194 (1,3-8)	<1	↓	↓	↓	Yes			
806073	<1	<2	1/30/13	BE	Yes			
806092 (1-12)	<1	>2	1/31/13	BE	No			
806094 (1-3)	↓	↓	↓	↓	↓			
806017 (1-4,7)	↓	<2	2-1-13	BE	Yes			
806047 (1-5)	↓	↓	↓	↓	↓			
806048 (1-2)	↓	↓	↓	↓	↓			
806049 (1-4)	↓	↓	↓	↓	↓			
806075 (1)	↓	>2	↓	↓	↓	2-1-13		
806050 (1-7)	<1	<2	↓	DC	Yes			
806076 (1-7)	↓	↓	↓	DC	Yes			
806098 (1,2)	↓	↓	↓	↓	↓			
806099 (1,2,3)	↓	↓	↓	↓	↓			
806113 (1-6)	↓	↓	↓	↓	↓			
806084	<1	>2	2/3/13	DC	Yes	13:30		
806116 (1-4,6)	<1	<2	↓	↓	↓			
806115 (1-8)	<1	<2	↓	↓	↓			
806114 (1-12)	↓	↓	↓	↓	↓			
806074 (1-4)	↓	↓	↓	↓	↓			
806097 (1-10)	↓	↓	↓	↓	↓			
806156 (1-3)	<1	>2	2/4/13	DC	No	15:40		
806150	<1	<2	↓	↓	Yes			
806155 (1,2,4)	<1	>2	↓	↓	No	15:50		
806172	<1	>2	2/5/13	DC	Yes	16:25		
806177	↓	<2	↓	↓	↓			
806178	↓	↓	↓	↓	↓			
806179	↓	↓	↓	↓	↓			
806180	↓	↓	↓	↓	↓			
806181	↓	↓	↓	↓	↓			
806182	↓	↓	↓	↓	↓			
806183	↓	↓	↓	↓	↓			
806166	↓	↓	↓	↓	↓			
806163 (16,23)	<1	>2	2/5/13	DC	No	16:30		
806165 (1-4)	<1	>2	↓	↓	↓	↓		
806187	<1	>2	2-6-13	BE	No	12:00		
806144 (1-7)	<1	<2	2/6/13	ES	Yes			
806145 (1-2)	↓	↓	↓	↓	↓			
806146 (1-6)	↓	↓	↓	↓	↓			
806148 (1-2)	↓	-2 <2	↓	↓	↓	11:30	11:	-1 pH >2
806147 (1-4)	<1	<2	2/6/13	ES	Yes			
Total 806201 (1-2)	<1	-1 <2	↓	↓	↓	2:00		-2 pH >2
Dissolved 806201-2	↓	>2	↓	↓	↓	2:00		Filtered then acidified

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

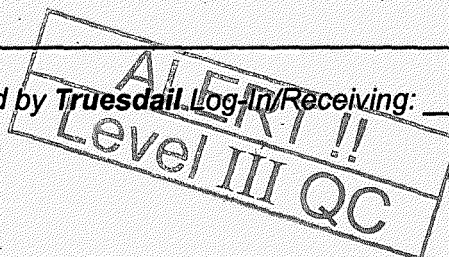
Lab # 806048

Date Delivered: 07/28/13 Time: 10:30 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)? 3.3 °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. e. ☒ 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: d. Stubbins



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www.truesdail.com

March 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-GMP-191-Q1, GROUNDWATER MONITORING
PROJECT, TLI No.: 806203

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-191-Q1 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.

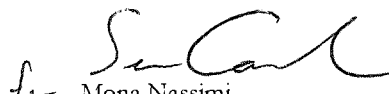
The samples were received and delivered with the chain of custody February 5, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.


Due to the discrepancy between the Total Dissolved Chromium (1.4 ug/L) and Hexavalent Chromium (ND<0.20 ug/L) results for sample MW-42-055-191, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were both 1.4 ug/L. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and yielded a result of 1.3 ug/L. The original results were reported.

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

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

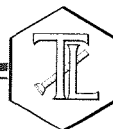
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi
Manager, Analytical Services


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

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

Laboratory No.: 806203
Date Received: February 5, 2013

Project Name: PG&E Topock Project

Project No.: 423575.MP.02.GM

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806203-001	MW-121-191	E218.6	FLDFLT	2/4/2013	7:02	Chromium, Hexavalent	ND	ug/L	0.20
806203-001	MW-121-191	SW6020	FLDFLT	2/4/2013	7:02	Chromium	ND	ug/L	1.0
806203-002	MW-123-191	E218.6	FLDFLT	2/4/2013	17:54	Chromium, Hexavalent	ND	ug/L	1.0
806203-002	MW-123-191	SW6020	FLDFLT	2/4/2013	17:54	Chromium	ND	ug/L	1.0
806203-003	MW-220-191	E218.6	FLDFLT	2/4/2013	16:00	Chromium, Hexavalent	ND	ug/L	0.20
806203-004	MW-221-191	E218.6	FLDFLT	2/4/2013	21:30	Chromium, Hexavalent	ND	ug/L	0.20
806203-005	MW-27-060-191	E218.6	FLDFLT	2/4/2013	11:26	Chromium, Hexavalent	ND	ug/L	0.20
806203-005	MW-27-060-191	SW6020	FLDFLT	2/4/2013	11:26	Chromium	ND	ug/L	1.0
806203-006	MW-27-085-191	E218.6	FLDFLT	2/4/2013	12:50	Chromium, Hexavalent	ND	ug/L	1.0
806203-006	MW-27-085-191	SW6020	FLDFLT	2/4/2013	12:50	Chromium	ND	ug/L	1.0
806203-007	MW-42-055-191	E218.6	FLDFLT	2/4/2013	15:37	Chromium, Hexavalent	ND	ug/L	0.20
806203-007	MW-42-055-191	SW6020	FLDFLT	2/4/2013	15:37	Chromium	1.4	ug/L	1.0
806203-008	MW-42-065-191	E218.6	FLDFLT	2/4/2013	14:39	Chromium, Hexavalent	ND	ug/L	1.0
806203-008	MW-42-065-191	SW6020	FLDFLT	2/4/2013	14:39	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.

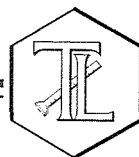
Result above or equal to 0.01ppm will have three (3) significant figures.

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

004

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.GM

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

Release Number:

Laboratory No. 806203

Page 1 of 9

Printed 3/5/2013

Samples Received on 2/5/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-121-191	806203-001	02/04/2013 07:02	Water
MW-123-191	806203-002	02/04/2013 17:54	Water
MW-220-191	806203-003	02/04/2013 16:00	Water
MW-221-191	806203-004	02/04/2013 21:30	Water
MW-27-060-191	806203-005	02/04/2013 11:26	Water
MW-27-085-191	806203-006	02/04/2013 12:50	Water
MW-42-055-191	806203-007	02/04/2013 15:37	Water
MW-42-065-191	806203-008	02/04/2013 14:39	Water

Chrome VI by EPA 218.6

Batch 02CrH13N

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806203-001 Chromium, Hexavalent	ug/L	02/14/2013 11:37	1.00	0.00920	0.20	ND
806203-003 Chromium, Hexavalent	ug/L	02/14/2013 12:29	1.00	0.00920	0.20	ND
806203-004 Chromium, Hexavalent	ug/L	02/14/2013 12:39	1.00	0.00920	0.20	ND
806203-005 Chromium, Hexavalent	ug/L	02/14/2013 12:49	1.00	0.00920	0.20	ND
806203-007 Chromium, Hexavalent	ug/L	02/14/2013 13:10	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate

Lab ID = 806147-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	11.4	11.6	2.06	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.202	0.200	101	70 - 130



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM

Printed 3/5/2013

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 = 806147-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	18.3	18.8(10.0)	94.6	90 - 110
Matrix Spike						Lab ID = 806147-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.48	7.66(5.00)	96.5	90 - 110
Matrix Spike						Lab ID = 806147-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.83	7.96(5.00)	97.4	90 - 110
Matrix Spike						Lab ID = 806147-005
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 = 806203-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.964	1.00(1.00)	96.4	90 - 110
Matrix Spike						Lab ID = 806203-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.768	1.00(1.00)	76.8	90 - 110
Matrix Spike						Lab ID = 806203-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.959	1.00(1.00)	95.9	90 - 110
Matrix Spike						Lab ID = 806203-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.971	1.00(1.00)	97.1	90 - 110
Matrix Spike						Lab ID = 806203-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.03(1.00)	99.3	90 - 110
Matrix Spike						Lab ID = 806203-006
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.663	1.53(1.00)	13.1	90 - 110
Matrix Spike						Lab ID = 806203-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.00(1.00)	106	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 3 of 9****Project Number: 423575.MP.02.GM****Printed 3/5/2013****Matrix Spike****Lab ID = 806203-008**

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.876	1.19(1.00)	68.8	90 - 110

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.91	5.00	98.1	90 - 110

MRCVS - Primary

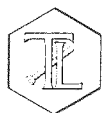
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.76	10.0	97.6	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.85	10.0	98.5	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



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM

Printed 3/5/2013

Chrome VI by EPA 218.6

Batch 02CrH13P

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806203-002 Chromium, Hexavalent	ug/L	02/15/2013 14:58	5.00	0.0460	1.0	ND
806203-006 Chromium, Hexavalent	ug/L	02/14/2013 15:09	5.00	0.0460	1.0	ND
806203-008 Chromium, Hexavalent	ug/L	02/14/2013 15:19	5.00	0.0460	1.0	ND

Method Blank

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

Duplicate

Lab ID = 806330-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	2.58	2.56	0.805	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.198	0.200	99.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.75	5.00	95.0	90 - 110

Matrix Spike

Lab ID = 806203-002

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

Matrix Spike

Lab ID = 806203-006

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 = 806203-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.88	5.00(5.00)	97.6	90 - 110

Matrix Spike

Lab ID = 806329-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.25	1.28(1.00)	97.3	90 - 110

Matrix Spike

Lab ID = 806330-001

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 = 806330-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	35.8	34.0(25.0)	107	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM

Printed 3/5/2013

Metals by EPA 6020A, Dissolved

Batch 020713A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806203-001 Chromium	ug/L	02/07/2013 12:59	2.00	0.184	1.0	ND
806203-002 Chromium	ug/L	02/07/2013 13:05	2.00	0.184	1.0	ND
806203-005 Chromium	ug/L	02/07/2013 13:11	2.00	0.184	1.0	ND
806203-006 Chromium	ug/L	02/07/2013 13:17	2.00	0.184	1.0	ND
806203-007 Chromium	ug/L	02/07/2013 13:23	2.00	0.184	1.0	1.4
806203-008 Chromium	ug/L	02/07/2013 13:29	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

Duplicate

Lab ID = 806147-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	1.17	0.994	16.3	0 - 20
Chromium	ug/L	2.00	16.9	16.0	5.41	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.225	0.200	112	70 - 130
Chromium	ug/L	1.00	0.255	0.200	128	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.00	52.4	50.0	105	85 - 115
Chromium	ug/L	2.00	52.6	50.0	105	85 - 115

Matrix Spike

Lab ID = 806147-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	53.8	51.0(50.0)	106	75 - 125
Chromium	ug/L	2.00	68.2	66.0(50.0)	104	75 - 125

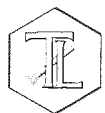
Matrix Spike Duplicate

Lab ID = 806147-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	52.5	51.0(50.0)	103	75 - 125
Chromium	ug/L	2.00	67.2	66.0(50.0)	102	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	18.9	20.0	94.4	90 - 110
Chromium	ug/L	1.00	19.3	20.0	96.6	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.02.GM

Printed 3/5/2013

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
Arsenic	ug/L	1.00	20.9	20.0	104	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.5	20.0	97.7	80 - 120

Interference Check Standard AB


Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.2	20.0	106	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

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services

Rec'd 02/05/13

S 806203

806203

CH2MHILL

CHAIN OF CUSTODY RECORD

2/5/2013 12:23:47 PM

Page 1 OF 1

Project Name PG&E Topock				Container:	250 ml Poly	2x250 ml Poly	2x500 ml Poly	1x500 ml Poly	<p>For Sample Conditions See Form Attached</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			
Project Manager Jay Piper				Filtered:	Field	Field	Field	Field			
Sample Manager Shawn Duffy				Holding Time:	28	28	180	180			
Project Number 423575.MP.02.GM.0					C6 (E218.6) Field Filtered	C6 (E218.6R) Field Filtered	Metals (6020AF) Field Filtered Chromium	Metals (6020AF) Field Filtered Chromium			
Task Order											
Project 2013-GMP-191-Q1											
Turnaround Time 10 Days											
Shipping Date: 2/5/2013											
COC Number: 1											
DATE	TIME	Matrix									
MW-121-191	2/4/2013	7:02	Water		X	X				4	} PH=2
MW-123-191	2/4/2013	17:54	Water		X	X				4	
MW-220-191	2/4/2013	16:00	Water	X						1	6020.4
MW-221-191	2/4/2013	21:30	Water	X						1	
MW-27-060-191	2/4/2013	11:26	Water		X	X				4	}
MW-27-060-191-EB	2/4/2013	10:12	Water	X			X			2	
MW-27-085-191	2/4/2013	12:50	Water		X	X				4	} PH=2 6030.4
MW-27-085-191-EB	2/4/2013	11:44	Water	X			X			2	
MW-42-055-191	2/4/2013	15:37	Water		X	X				4	
MW-42-055-191-EB	2/4/2013	14:50	Water	X			X			2	
MW-42-065-191	2/4/2013	14:39	Water		X	X				4	
TOTAL NUMBER OF CONTAINERS										32	

ALERT !!
Level III QC

Approved by	Signatures	Date/Time	Shipping Details
Sampled by	<i>[Signature]</i>	2-5-13	Method of Shipment: courier
Relinquished by	<i>[Signature]</i>	15:25	On Ice: yes / no
Received by	<i>Rafael Davila</i>	2-5-13	Airbill No:
Relinquished by	<i>Rafael Davila</i>	15:30	Lab Name: Truesdail Laboratories, Inc.
Received by	<i>David, TI, 2/5/13 21:30</i>	2-5-13 21:30	Lab Phone: (714) 730-6239

ATTN:

Special Instructions:

Feb 4 - Feb 28, 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
02/01/13	806148-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
02/06/13	806201-1	7	2 ml	9.5	10:00 AM	HAV
↓	↓ -2	↓	↓	↓	10:05 AM	HAV
02/06/13	806202-1	7	2 ml	9.5	10:10 AM	HAV
↓	↓ -2	↓	↓	↓	10:20 AM	HAV
02/06/13	806203-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
02/08/13	806237-1	9.5	N/A	N/A	N/A	RIB
02/13/13	806329	7	2 ml	9.5	9:30 AM	HAV
02/13/13	806330-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
↓	↓ -9	↓	↓	↓	↓	↓
↓	↓ -10	↓	↓	↓	↓	↓
↓	↓ -11	↓	↓	↓	↓	↓
↓	↓ -12	↓	↓	↓	↓	↓
↓	↓ -13	↓	↓	↓	↓	↓
↓	↓ -14	↓	↓	↓	↓	↓

[Signature]
02/21/13



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806202(1-2)	<1	>2	2/6/13	ES	yes	2:00		Filtered then digested
806212(11-13)	<1	>2	2/7/13	BE	no	8:00 AM		
806230(1-3)	<1	>2	2-8-13	BE	no	7:30 AM		
806219(1-2)	>1	<2			yes			
806221		>2 BE				7:30 AM		
806222		<2						
806224								
806234								
8062203(1-2)	<1	<2	2-6-13	BE	yes			
805996(1-10)			01/31-13					
805995(1-9)								
806243	<1	<2	2/8/13	BE	yes			
806244	<1	<2						
806265	<1	<2						
806267	<1	<2						
806268(1-4)	>1	<2	2-11-13	BE	yes			
806269(1-4)	>1							
806237	<1	<2						
806211	TTL	-						
806296(1-4)	<1	<2	2-12-13	BE				
806263	>2	<2	2/12/13	ES	yes			
806275(1-2)								
806282(1-8)								
806285								
806286(1-2)								
806287								
806291(1-4)								
806292								
806329	<1	>2	2-13-13	BE	yes	8:30 AM		
806330(1-4) (9-11) (13-15)	<1	<2			no			
806341(14-6)	<1	>2			no	13:30		
806322							2-15-13	PH < 2
806339	>1	>2	2/13/13	BE	yes	14:30		
806299	<1	<2						
806337(1-6)	<1	>2	2-14-13	BE	no	6:30	2-15-13	PH < 2
806341(1-12)								
806346(1-12)								
806347(1-3)								
806348(1-2941)								
806304	<1	<2	2/14/13	ES	yes			
806305								
806306								
806307								
806308								

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 # 806203

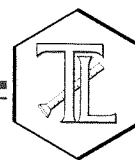
Date Delivered: 02/05/13 Time: 9:30 By: ☐ Mail ☒ Field Service ☐ Client

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)? 4.2°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 = Ill 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: Diana Hrabovska



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

March 14, 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-191-Q1, GROUNDWATER MONITORING
PROJECT, TLI NO.: 806330

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-191-Q1 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 February 12, 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 (12.5 ug/L) and Hexavalent Chromium (9.0 ug/L) results for sample MW-33-150-191, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 13.1 ug/L and 12.0 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and yielded a result of 12.4 ug/L. The Hexavalent Chromium was re-analyzed at a 5x dilution approximately 22 hours past the method specified holding time and yielded a result of 11.5 ug/L. The discrepancy between the original Hexavalent Chromium result and the re-analysis may have been the result of a dilution error during the original sample preparation. After discussing the results with Mr. Duffy, the original Total Dissolved Chromium and the Hexavalent Chromium re-analysis results were reported.

Due to the discrepancy between the Total Dissolved Chromium (4.6 ug/L) and Hexavalent Chromium (2.6 ug/L) results for sample MW-21-191, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 4.5 ug/L and 3.1 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and yielded a result of 5.0 ug/L. The Hexavalent Chromium was re-analyzed at a 5x dilution and yielded a result of 2.6 ug/L. The original results were reported.

Due to the discrepancy between the Total Dissolved Chromium (8.2 ug/L) and Hexavalent Chromium (6.1 ug/L) results for sample MW-72-200-191, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 8.9 ug/L and 8.2 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and yielded a result of 8.4 ug/L. The Hexavalent Chromium was re-analyzed at a 5x dilution and yielded a result of 7.9 ug/L. The discrepancy between the original Hexavalent Chromium result and the re-analysis may have been the result of a dilution error during the original sample preparation. After discussing the results with Mr. Duffy, the original Total Dissolved Chromium and the Hexavalent Chromium re-analysis results were reported.





On March 5, 2013, Mr. Duffy requested that sample I.D. MW-72-200-191 be changed to MW-72BR-200-191 and provided a revised chain-of-custody.

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.

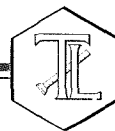
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

fo- 
Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

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

Attention: Shawn Duffy

Laboratory No.: 806330
Date Received: February 12, 2013

Project Name: PG&E Topock Project

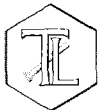
Project No.: 423575.MP.02.GM.03

P.O. No.: 423575.MP.02.GM.03

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806330-001	MW-28-090-191	E218.6	FLDFLT	2/5/2013	12:41	Chromium, Hexavalent	ND	ug/L	0.20
806330-001	MW-28-090-191	SW6020	FLDFLT	2/5/2013	12:41	Chromium	ND	ug/L	1.0
806330-002	MW-33-150-191	E218.6	FLDFLT	2/5/2013	14:44	Chromium, Hexavalent	11.5 J	ug/L	1.0
806330-002	MW-33-150-191	SW6020	FLDFLT	2/5/2013	14:44	Chromium	12.5	ug/L	1.0
806330-003	MW-33-210-191	E218.6	FLDFLT	2/5/2013	15:55	Chromium, Hexavalent	12.9	ug/L	1.0
806330-003	MW-33-210-191	SW6020	FLDFLT	2/5/2013	15:55	Chromium	14.0	ug/L	1.0
806330-004	MW-34-080-191	E218.6	FLDFLT	2/5/2013	11:03	Chromium, Hexavalent	ND	ug/L	1.0
806330-004	MW-34-080-191	SW6020	FLDFLT	2/5/2013	11:03	Chromium	ND	ug/L	1.0
806330-005	MW-222-191	E218.6	FLDFLT	2/6/2013	7:00	Chromium, Hexavalent	ND	ug/L	0.20
806330-006	MW-223-191	E218.6	FLDFLT	2/6/2013	7:15	Chromium, Hexavalent	ND	ug/L	0.20
806330-007	MW-224-191	E218.6	FLDFLT	2/6/2013	15:38	Chromium, Hexavalent	ND	ug/L	0.20
806330-008	MW-225-191	E218.6	FLDFLT	2/6/2013	15:30	Chromium, Hexavalent	ND	ug/L	0.20
806330-009	MW-57-185-191	E218.6	FLDFLT	2/6/2013	14:25	Chromium, Hexavalent	10.4	ug/L	1.0
806330-009	MW-57-185-191	SW6020	FLDFLT	2/6/2013	14:25	Chromium	11.4	ug/L	1.0
806330-010	MW-63-065-191	E218.6	FLDFLT	2/6/2013	10:58	Chromium, Hexavalent	1.2	ug/L	0.20
806330-010	MW-63-065-191	SW6020	FLDFLT	2/6/2013	10:58	Chromium	1.5	ug/L	1.0
806330-011	MW-21-191	E218.6	FLDFLT	2/7/2013	9:05	Chromium, Hexavalent	2.6	ug/L	0.20
806330-011	MW-21-191	SW6020	FLDFLT	2/7/2013	9:05	Chromium	4.6	ug/L	1.0
806330-012	MW-226-191	E218.6	FLDFLT	2/7/2013	15:40	Chromium, Hexavalent	ND	ug/L	0.20
806330-013	MW-48-191	E218.6	FLDFLT	2/7/2013	8:35	Chromium, Hexavalent	ND	ug/L	1.0
806330-013	MW-48-191	SW6020	FLDFLT	2/7/2013	8:35	Chromium	ND	ug/L	1.0
806330-014	MW-71-035-191	E218.6	FLDFLT	2/7/2013	8:05	Chromium, Hexavalent	0.78	ug/L	0.20
806330-014	MW-71-035-191	SW6020	FLDFLT	2/7/2013	8:05	Chromium	ND	ug/L	1.0

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
806330-015	MW-72BR-200-191	E218.6	FLDFLT	2/7/2013	15:10	Chromium, Hexavalent	7.9	ug/L	1.0
806330-015	MW-72BR-200-191	SW6020	FLDFLT	2/7/2013	15:10	Chromium	8.2	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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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.02.GM

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

Release Number:

Laboratory No. 806330

Page 1 of 11

Printed 3/14/2013

Samples Received on 2/12/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-28-090-191	806330-001	02/05/2013 12:41	Water
MW-33-150-191	806330-002	02/05/2013 14:44	Water
MW-33-210-191	806330-003	02/05/2013 15:55	Water
MW-34-080-191	806330-004	02/05/2013 11:03	Water
MW-222-191	806330-005	02/06/2013 07:00	Water
MW-223-191	806330-006	02/06/2013 07:15	Water
MW-224-191	806330-007	02/06/2013 15:38	Water
MW-225-191	806330-008	02/06/2013 15:30	Water
MW-57-185-191	806330-009	02/06/2013 14:25	Water
MW-63-065-191	806330-010	02/06/2013 10:58	Water
MW-21-191	806330-011	02/07/2013 09:05	Water
MW-226-191	806330-012	02/07/2013 15:40	Water
MW-48-191	806330-013	02/07/2013 08:35	Water
MW-71-035-191	806330-014	02/07/2013 08:05	Water
MW-72BR-200-191	806330-015	02/07/2013 15:10	Water

Chrome VI by EPA 218.6

Batch 02CrH13P

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806330-001 Chromium, Hexavalent	ug/L	02/15/2013 11:09	1.00	0.00920	0.20	ND
806330-003 Chromium, Hexavalent	ug/L	02/15/2013 18:16	5.00	0.0460	1.0	12.9
806330-005 Chromium, Hexavalent	ug/L	02/15/2013 11:51	1.00	0.00920	0.20	ND
806330-006 Chromium, Hexavalent	ug/L	02/15/2013 12:01	1.00	0.00920	0.20	ND
806330-007 Chromium, Hexavalent	ug/L	02/15/2013 13:04	1.00	0.00920	0.20	ND
806330-008 Chromium, Hexavalent	ug/L	02/15/2013 13:14	1.00	0.00920	0.20	ND
806330-009 Chromium, Hexavalent	ug/L	02/15/2013 18:26	5.00	0.0460	1.0	10.4
806330-010 Chromium, Hexavalent	ug/L	02/15/2013 13:35	1.00	0.00920	0.20	1.2
806330-011 Chromium, Hexavalent	ug/L	02/15/2013 13:45	1.00	0.00920	0.20	2.6
806330-012 Chromium, Hexavalent	ug/L	02/15/2013 13:56	1.00	0.00920	0.20	ND

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

010



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM

Printed 3/14/2013

806330-013 Chromium, Hexavalent	ug/L	02/15/2013 18:37	5.00	0.0460	1.0	ND
806330-014 Chromium, Hexavalent	ug/L	02/15/2013 14:17	1.00	0.00920	0.20	0.78

Method Blank

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

Duplicate

Lab ID = 806330-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	2.58	2.56	0.805	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.198	0.200	99.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.75	5.00	95.0	90 - 110

Matrix Spike

Lab ID = 806203-002

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

Matrix Spike

Lab ID = 806203-006

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 = 806203-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.88	5.00(5.00)	97.6	90 - 110

Matrix Spike

Lab ID = 806329-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.25	1.28(1.00)	97.3	90 - 110

Matrix Spike

Lab ID = 806330-001

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

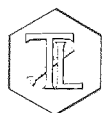
Lab ID = 806330-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	35.8	34.0(25.0)	107	90 - 110

Matrix Spike

Lab ID = 806330-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.0	10.9(1.00)	14.2	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM

Printed 3/14/2013

Matrix Spike						Lab ID = 806330-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	37.5	37.9(25.0)	98.5	90 - 110
Matrix Spike						Lab ID = 806330-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.974	1.00(1.00)	97.4	90 - 110
Matrix Spike						Lab ID = 806330-006
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 = 806330-007
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 = 806330-008
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 = 806330-009
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	34.6	35.4(25.0)	97.0	90 - 110
Matrix Spike						Lab ID = 806330-010
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.94	6.17(5.00)	95.4	90 - 110
Matrix Spike						Lab ID = 806330-011
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.38	7.56(5.00)	96.4	90 - 110
Matrix Spike						Lab ID = 806330-012
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.969	1.00(1.00)	96.9	90 - 110
Matrix Spike						Lab ID = 806330-013
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.21	5.24(5.00)	99.5	90 - 110
Matrix Spike						Lab ID = 806330-014
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.74	1.78(1.00)	96.0	90 - 110
Matrix Spike						Lab ID = 806330-015
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	32.4	31.1(25.0)	105	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM

Printed 3/14/2013

Chrome VI by EPA 218.6

Batch 02CrH13Q

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806330-004 Chromium, Hexavalent	ug/L	02/21/2013 16:08	5.00	0.0460	1.0	ND

Method Blank

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

Duplicate

Lab ID = 806432-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	18.3	18.7	1.98	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.188	0.200	94.2	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.91	5.00	98.2	90 - 110

Matrix Spike

Lab ID = 806330-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.74	5.00(5.00)	94.7	90 - 110

Matrix Spike

Lab ID = 806330-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.911	1.00(1.00)	91.1	90 - 110

Matrix Spike

Lab ID = 806431-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.92	1.98(1.00)	94.7	90 - 110

Matrix Spike

Lab ID = 806432-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.95	1.97(1.00)	97.8	90 - 110

Matrix Spike

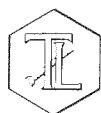
Lab ID = 806432-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.85	1.93(1.00)	92.0	90 - 110

Matrix Spike

Lab ID = 806432-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.36	1.40(1.00)	96.6	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM

Printed 3/14/2013

Chrome VI by EPA 218.6

Batch 03CrH13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806330-002 Chromium, Hexavalent	ug/L	03/06/2013 12:40	5.00	0.0460	1.0	11.5
806330-015 Chromium, Hexavalent	ug/L	03/06/2013 12:51	5.00	0.0460	1.0	7.9

Method Blank

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

Duplicate

Lab ID = 806330-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	2.56	2.58	0.653	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.210	0.200	105	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.85	5.00	97.0	90 - 110

Matrix Spike

Lab ID = 806330-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	36.3	36.5(25.0)	99.3	90 - 110

Matrix Spike

Lab ID = 806330-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.49	7.58(5.00)	98.2	90 - 110

Matrix Spike

Lab ID = 806330-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	31.9	32.9(25.0)	95.8	90 - 110

Matrix Spike

Lab ID = 806635-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.03(1.00)	97.7	90 - 110

Matrix Spike

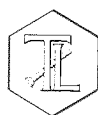
Lab ID = 806635-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.04(1.00)	96.2	90 - 110

Matrix Spike

Lab ID = 806635-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.993	1.02(1.00)	96.7	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM

Printed 3/14/2013

Metals by EPA 6020A, Dissolved

Batch 021313A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806330-001 Chromium	ug/L	02/13/2013 15:47	2.00	0.184	1.0	ND
806330-002 Chromium	ug/L	02/13/2013 15:53	2.00	0.184	1.0	12.5
806330-003 Chromium	ug/L	02/13/2013 15:59	2.00	0.184	1.0	14.0
806330-004 Chromium	ug/L	02/13/2013 16:05	2.00	0.184	1.0	ND
806330-009 Chromium	ug/L	02/13/2013 16:11	2.00	0.184	1.0	11.4
806330-010 Chromium	ug/L	02/13/2013 15:23	2.00	0.184	1.0	1.5
806330-011 Chromium	ug/L	02/13/2013 16:17	2.00	0.184	1.0	4.6
806330-013 Chromium	ug/L	02/13/2013 16:35	2.00	0.184	1.0	ND
806330-014 Chromium	ug/L	02/13/2013 16:41	2.00	0.184	1.0	ND
806330-015 Chromium	ug/L	02/13/2013 16:47	2.00	0.184	1.0	8.2

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 806330-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	1.42	1.48	3.86	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.198	0.200	99.0	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

Matrix Spike

Lab ID = 806330-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	51.1	51.5(50.0)	99.2	75 - 125

Matrix Spike Duplicate

Lab ID = 806330-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	51.6	51.5(50.0)	100	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.3	20.0	96.7	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 11 of 11****Project Number: 423575.MP.02.GM****Printed 3/14/2013****MRCVS - Primary**

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	95.6	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	96.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.7	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	20.0	20.0	100	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.2	20.0	95.9	80 - 120

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services

806330

CH2MHILL

CHAIN OF CUSTODY RECORD

2/7/2013 1:14:58 PM

Page 1 OF 2

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy				Container: 250 ml Poly (NH4)2S O4/NH4O H, 4°C	2x250 ml Poly (NH4)2S O4/NH4O H, 4°C	2x500 ml Poly HNO3, 4°C	1x500 ml Poly HNO3, 4°C	Rec'd 02/12/13 806330		Number of Containers	COMMENTS
Project Number 423575.MP.02.GM.03 Task Order Project 2013-GMP-191-Q1 Turnaround Time 10 Days Shipping Date: 2/5/2013 COC Number: 4				Preservatives:	Filtered:	Holding Time:					
DATE	TIME	Matrix		Field	Field	Field	Field				
MW-28-090-191	2/5/2013	12:41	Water		X	X				4	MW-2
MW-28-090-191-EB	2/5/2013	11:50	Water	X			X			2	
MW-33-150-191	2/5/2013	14:44	Water	X			X			2	
MW-33-210-191	2/5/2013	15:55	Water	X			X			2	MW-2
MW-34-080-191	2/5/2013	11:03	Water		X	X				4	
MW-34-080-191-EB	2/5/2013	9:30	Water	X			X			2	
MW-21-191-EB	2/6/2013	9:00	Water	X			X			2	
MW-222-191	2/6/2013	7:00	Water	X						1	
MW-223-191	2/6/2013	7:15	Water	X						1	
MW-224-191	2/6/2013	15:38	Water	X						1	
MW-225-191	2/6/2013	15:30	Water	X						1	
MW-57-185-191	2/6/2013	14:25	Water	X			X			2	
MW-53-065-191	2/6/2013	10:58	Water	X			X			2	MW-2
MW-21-191	2/7/2013	9:05	Water		X	X				4	

ALERT!!
Level III QC

Approved by	Signatures	Date/Time	Shipping Details		ATTN: Sample Custody	Special Instructions:
Sampled by	<i>[Signature]</i>	2-12-13	Method of Shipment: courier			Feb 4 - Feb 28, 2013
Relinquished by	<i>[Signature]</i>	1400	On Ice: yes / no			
Received by	<i>[Signature]</i>	2-12-13 15:30	Airbill No:			
Relinquished by	<i>[Signature]</i>	2-12-13 21:30	Lab Name: Truesdail Laboratories, Inc.			Report Copy to
Received by	<i>[Signature]</i>	2/12/13 21:30	Lab Phone: (714) 730-6239			Shawn Duffy (530) 229-3303

FROM: TRUESDAIL LABORATORIES

02/20/2013 16:18

#501 P.003/008

006

CH2MHILL

CHAIN OF CUSTODY RECORD

2/7/2013 1:14:59 PM

Page 2 OF 2

806330

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.02.GM.03 Task Order Project 2013-GMP-191-Q1 Turnaround Time 10 Days Shipping Date: 2/5/2013 COC Number: 4			Container: 250 ml Poly Preservatives: (NH4)2S O4/NH4O H, 4°C				Container: 2x250 ml Poly Preservatives: (NH4)2S O4/NH4O H, 4°C				Container: 2x500 ml Poly Preservatives: HNO3, 4°C				Container: 1x500 ml Poly Preservatives: HNO3, 4°C				Please change sample ID MW-72-200-191 to MW-72BR-200-191 <div style="text-align: center; border: 2px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> ALERT !! Level III QC </div>												Number of Containers	COMMENTS
			Filtered: Field				Filtered: Field				Filtered: Field				Filtered: Field																	
			Holding Time: 28				Holding Time: 28				Holding Time: 180				Holding Time: 180																	
			C16 (E218.6) Field Filtered				C16 (E218.6R) Field Filtered				Metals (6020AFF) Field Filtered Chromium				Metals (6020AFF) Field Filtered Chromium																	
DATE		TIME		Matrix																												
2/7/2013		15:40		Water		X																										
2/7/2013		8:35		Water		X								X																		
2/7/2013		8:05		Water		X								X																		
2-7-13		1510		Water		X								X																		
TOTAL NUMBER OF CONTAINERS																						37	2									

SPD

37

Approved by Sampled by Relinquished by Received by Relinquished by Received by		Signatures 		Date/Time 2-12-13 1400 2-12-13 15:30 2-12-13 21:30 2/12/13 21:30		Shipping Details Method of Shipment: courier On Ice: yes / no Airbill No: Lab Name: Truesdail Laboratories, Inc. Lab Phone: (714) 730-6239		ATTN: Sample Custody		Special Instructions: Feb 4 - Feb 28, 2013 Report Copy to Shawn Duffy (530) 229-3303	
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067

806330

CH2MHILL

CHAIN OF CUSTODY RECORD

2/7/2013 1:14:58 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.GM.03 Task Order Project 2013-GMP-191-Q1 Turnaround Time 10 Days Shipping Date: 2/5/2013 COC Number: 4				Container: 250 ml Poly Preservatives: (NH4)2S O4/NH4O H, 4°C Filtered: Field Holding Time: 28	2x250 ml Poly (NH4)2S O4/NH4O H, 4°C Field 28	2x500 ml Poly (NH4)2S O4/NH4O H, 4°C Field 180	1x500 ml Poly HNO3, 4°C Field 180	Rec'd 02/12/13 806330 <div style="border: 2px solid black; padding: 5px; transform: rotate(-5deg); display: inline-block;"> ALERT !! Level III QC </div>	Number of Containers	COMMENTS
Cr6 (E218.6) Field Filtered Cr6 (E218.6F) Field Filtered Metals (6020AFF) Field Filtered Chromium Metals (6020AFF) Field Filtered Chromium										
DATE	TIME	Matrix								
1 MW-28-090-191	2/5/2013	12:41	Water		X	X				
MW-28-090-191-EB	2/5/2013	11:50	Water	X			X			
2 MW-33-150-191	2/5/2013	14:44	Water	X			X			
3 MW-33-210-191	2/5/2013	15:55	Water	X			X			
4 MW-34-080-191	2/5/2013	11:03	Water		X	X				
MW-34-080-191-EB	2/5/2013	9:30	Water	X			X			
MW-21-191-EB	2/6/2013	9:00	Water	X			X			
5 MW-222-191	2/6/2013	7:00	Water	X						
6 MW-223-191	2/6/2013	7:15	Water	X						
7 MW-224-191	2/6/2013	15:38	Water	X						
8 MW-225-191	2/6/2013	15:30	Water	X						
9 MW-57-185-191	2/6/2013	14:25	Water	X			X			
10 MW-63-065-191	2/6/2013	10:58	Water	X			X			
11 MW-21-191	2/7/2013	9:05	Water		X	X				

Approved by Sampled by Relinquished by Received by Relinquished by Received by	Signatures 	Date/Time 2-12-13 1400 2-12-13 15:30 2-12-13 21:30 2/12/13 21:30	Shipping Details Method of Shipment: courier On Ice: yes / no Airbill No: Lab Name: Truesdail Laboratories, Inc. Lab Phone: (714) 730-6239	ATTN: Sample Custody	Special Instructions: Feb 4 - Feb 28, 2013 Report Copy to Shawn Duffy (530) 229-3303
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CH2MHILL

CHAIN OF CUSTODY RECORD

806330

2/7/2013 1:14:59 PM

Page 2 OF 2

Project Name PG&E Topock		Container:		250 ml Poly	2x250 ml Poly	2x500 ml Poly	1x500 ml Poly	<div style="border: 2px solid black; padding: 10px; text-align: center;"> ALERT !! Level III QC </div>		
Location Topock		Preservatives:		(NH4)2S 04/NH4O H, 4°C	(NH4)2S 04/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.02.GM.03				C/6 (E218.6) Field Filtered	C/6 (E218.6H) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium			
Task Order										
Project 2013-GMP-191-Q1										
Turnaround Time 10 Days										
Shipping Date: 2/5/2013										
COC Number: 4										
DATE		TIME		Matrix						
12	MW-226-191	2/7/2013	1540	Water	X					1
13	MW-46-191	2/7/2013	8:35	Water	X			X		2
14	MW-71-035-191	2/7/2013	8:05	Water	X			X		2
15	MW-71-035-191	2-7-13	1510	Water	X			X		2
TOTAL NUMBER OF CONTAINERS									37	260204

Number of Containers

COMMENTS

Signatures		Date/Time	Shipping Details
Approved by	<i>[Signature]</i>	2-12-13	Method of Shipment: courier
Sampled by	<i>[Signature]</i>	1400	On Ice: yes / no
Relinquished by	<i>[Signature]</i>	2-12-13 15:30	Airbill No:
Received by	<i>Rafael Davila</i>	2-12-13 21:30	Lab Name: Truesdail Laboratories, Inc.
Relinquished by	<i>Rafael Davila</i>	2/12/13 21:30	Lab Phone: (714) 730-6239
Received by	<i>Amela, RE</i>	2/12/13 21:30	

ATTN:

Special Instructions:

Feb 4 - Feb 28, 2013

Sample Custody

Report Copy to

Shawn Duffy
(530) 229-3303

Sample Conditions
Form Attached

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
02/01/13	806148-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
02/06/13	806201-1	7	2 ml	9.5	10:00 AM	HAV
↓	↓ -2	↓	↓	↓	10:05 AM	HAV
02/06/13	806202-1	7	2 ml	9.5	10:10 AM	HAV
↓	↓ -2	↓	↓	↓	10:20 AM	HAV
02/06/13	806203-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
02/08/13	806237-1	9.5	N/A	N/A	N/A	RB
02/13/13	806329	7	2 ml	9.5	9:30 AM	HAV
02/13/13	806330-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
↓	↓ -9	↓	↓	↓	↓	↓
↓	↓ -10	↓	↓	↓	↓	↓
↓	↓ -11	↓	↓	↓	↓	↓
↓	↓ -12	↓	↓	↓	↓	↓
↓	↓ -13	↓	↓	↓	↓	↓
↓	↓ -14	↓	↓	↓	↓	↓

[Signature]
02/21/13

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
02/13/13	806330-15	9.5	N/A	N/A	N/A	HAV
02/14/14	806352-1	8.5	1 ml / 100ml	9.5	6:10 AM	HAV
	-2	↓	↓	9.5	6:15 AM	↓
	-3	8	2 ml / 100ml	9.5	6:20 AM	↓
	-4	7	2 ml / 100ml	9.5	6:25 AM	HAV
	-5	↓	↓	↓	6:30 AM	↓
	-6	↓	↓	↓	6:35 AM	↓
	-7	↓	↓	↓	6:40 AM	↓
	-8	↓	↓	↓	6:45 AM	↓
	-9	↓	↓	↓	6:50 AM	↓
02/15/14	806378-1	7	2 ml	9.5	6:10 AM	HAV
	-2	↓	↓	↓	6:15 AM	↓
	-3	↓	↓	↓	6:20 AM	↓
	-4	↓	↓	↓	6:25 AM	↓
	-5	↓	↓	↓	6:30 AM	↓
	-6	↓	↓	↓	6:35 AM	↓
	-7	↓	↓	↓	6:40 AM	↓
	-8	↓	↓	↓	6:45 AM	↓
TM 2/19/13	806432-1	9.5	N/A	N/A	N/A	TM
	-2	↓	↓	↓	↓	↓
	-3	↓	↓	↓	↓	↓
	-4	↓	↓	↓	↓	↓
	-5	↓	↓	↓	↓	↓
2/19/13	806433-1	9.5	N/A	N/A	N/A	TM
	-2	↓	↓	↓	↓	↓
	-3	↓	↓	↓	↓	↓
	-4	↓	↓	↓	↓	↓
2/19/13	806431-10	7.0	2 mL / 100 mL	9.5	10:00 AM	TM
↓	-11	↓	↓	↓	↓	TM

02/21/13

TM
2/20/13



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806202(1-2)	<1	72	2/6/13	ES	yes	2:00		Filtered then acidified
806212(11-13)	<1	72	2/7/13	BE	no	8:00 AM		
806230(4-3)	<1	72	2-8-13	BE	no	7:30 AM		
806219(1-2)	>1	<2			yes			
806221		72/BE				7:30 AM		
806222		<2						
806224								
806234								
806220(3 ^{1/2} 2)	<1	<2	2-6-13	BE	yes			
805996(11-10)			01/31-13					
805995(1-9)								
806243	<1	<2	2/8/13	BE	yes			
806244	<1	<2						
806265	<1	<2						
806267 BE	<1	<2						
806268(4-4)	>1	<2	2-11-13	BE	yes			
806269(1-4)	>1							
806237	<1	<2						
806211	TTL	-						
806296(1-4)	<1	<2	2-12-13	BE				
806263	72	72	2/12/13	ES	yes			
806275(1-2)								
806282(1-8)								
806285								
806286(1-2)								
806287								
806291(1-4)								
806292								
806329	<1	72	2-13-13	BE	yes	8:30 AM		
806330(1-4, 9-11, 13-15)	<1	<2			no			
806341(4-6)	<1	72			no	13:30		
806322							2-15-13	PH < 2
806339	71	72	2/13/13	BE	yes	14:30		
806299	<1	<2						
806337(1-6)	<1	>2	2-14-13	BE	no	6:30	2-15-13	PH < 2
806341(8-8)								
806346(10-12)								
806347(1-3)								
806348(1-2, 4)								
806304	<1	<2	2/14/13	ES	yes			
806305								
806306								
806307								
806308								

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 # 806330

Date Delivered: 02/12/13 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)? 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 Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: L. Shabunsky



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

March 6, 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-191-Q1, GROUNDWATER MONITORING
PROJECT, TLI NO.: 806463


Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-191-Q1 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 February 20, 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.

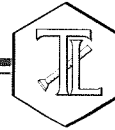
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


for Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

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

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

Laboratory No.: 806463
Date Received: February 20, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.03
P.O. No.: 423575.MP.02.GM.03

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806463-001	MW-23-060-191	E218.6	FLDFLT	2/18/2013	13:46	Chromium, Hexavalent	33.7	ug/L	1.0
806463-001	MW-23-060-191	SW6020	FLDFLT	2/18/2013	13:46	Chromium	34.8	ug/L	1.0
806463-002	MW-23-080-191	E218.6	FLDFLT	2/18/2013	15:26	Chromium, Hexavalent	11.2	ug/L	1.0
806463-002	MW-23-080-191	SW6020	FLDFLT	2/18/2013	15:26	Chromium	10.6	ug/L	1.0
806463-003	MW-68BR-280-191	E218.6	FLDFLT	2/18/2013	11:41	Chromium, Hexavalent	ND	ug/L	1.0
806463-003	MW-68BR-280-191	SW6020	FLDFLT	2/18/2013	11:41	Chromium	ND	ug/L	1.0
806463-004	MW-227-191	E218.6	FLDFLT	2/19/2013	6:30	Chromium, Hexavalent	ND	ug/L	0.20
806463-005	MW-228-191	E218.6	FLDFLT	2/19/2013	6:35	Chromium, Hexavalent	ND	ug/L	0.20
806463-006	MW-229-191	E218.6	FLDFLT	2/19/2013	15:10	Chromium, Hexavalent	ND	ug/L	0.20
806463-007	MW-230-191	E218.6	FLDFLT	2/19/2013	15:15	Chromium, Hexavalent	ND	ug/L	0.20
806463-008	MW-35-060-191	E218.6	FLDFLT	2/19/2013	8:27	Chromium, Hexavalent	24.3	ug/L	0.20
806463-008	MW-35-060-191	SW6020	FLDFLT	2/19/2013	8:27	Chromium	25.3	ug/L	1.0
806463-009	MW-62-065-191	E218.6	FLDFLT	2/19/2013	14:52	Chromium, Hexavalent	404	ug/L	5.0
806463-009	MW-62-065-191	SW6020	FLDFLT	2/19/2013	14:52	Chromium	406	ug/L	1.0
806463-010	MW-65-160-191	E218.6	FLDFLT	2/19/2013	9:57	Chromium, Hexavalent	78.8	ug/L	1.0
806463-010	MW-65-160-191	SW6020	FLDFLT	2/19/2013	9:57	Chromium	77.1	ug/L	1.0
806463-011	MW-65-225-191	E218.6	FLDFLT	2/19/2013	13:23	Chromium, Hexavalent	630	ug/L	5.0
806463-011	MW-65-225-191	SW6020	FLDFLT	2/19/2013	13:23	Chromium	627	ug/L	2.0
806463-012	MW-70-105-191	E218.6	FLDFLT	2/19/2013	11:09	Chromium, Hexavalent	93.2	ug/L	1.0
806463-012	MW-70-105-191	SW6020	FLDFLT	2/19/2013	11:09	Chromium	91.7	ug/L	1.0
806463-013	MW-72-080-191	E218.6	FLDFLT	2/19/2013	12:21	Chromium, Hexavalent	122	ug/L	1.0
806463-013	MW-72-080-191	SW6020	FLDFLT	2/19/2013	12:21	Chromium	119	ug/L	1.0

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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
806463-014	MW-73-080-191	E218.6	FLDFLT	2/19/2013	8:52	Chromium, Hexavalent	25.1	ug/L	0.20
806463-014	MW-73-080-191	SW6020	FLDFLT	2/19/2013	8:52	Chromium	25.8	ug/L	1.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

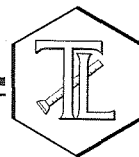
Results below 0.01ppm will have two (2) significant figures.

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

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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.02.GM

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

Release Number:

Laboratory No. 806463

Page 1 of 8

Printed 3/6/2013

Samples Received on 2/20/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-23-060-191	806463-001	02/18/2013 13:46	Water
MW-23-080-191	806463-002	02/18/2013 15:26	Water
MW-68BR-280-191	806463-003	02/18/2013 11:41	Water
MW-227-191	806463-004	02/19/2013 06:30	Water
MW-228-191	806463-005	02/19/2013 06:35	Water
MW-229-191	806463-006	02/19/2013 15:10	Water
MW-230-191	806463-007	02/19/2013 15:15	Water
MW-35-060-191	806463-008	02/19/2013 08:27	Water
MW-62-065-191	806463-009	02/19/2013 14:52	Water
MW-65-160-191	806463-010	02/19/2013 09:57	Water
MW-65-225-191	806463-011	02/19/2013 13:23	Water
MW-70-105-191	806463-012	02/19/2013 11:09	Water
MW-72-080-191	806463-013	02/19/2013 12:21	Water
MW-73-080-191	806463-014	02/19/2013 08:52	Water

Chrome VI by EPA 218.6

Batch 02CrH13S

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806463-001 Chromium, Hexavalent	ug/L	02/25/2013 17:23	5.00	0.0460	1.0	33.7
806463-002 Chromium, Hexavalent	ug/L	02/25/2013 17:33	5.00	0.0460	1.0	11.2
806463-003 Chromium, Hexavalent	ug/L	02/25/2013 17:54	5.00	0.0460	1.0	ND
806463-004 Chromium, Hexavalent	ug/L	02/25/2013 14:36	1.00	0.00920	0.20	ND
806463-005 Chromium, Hexavalent	ug/L	02/25/2013 14:47	1.00	0.00920	0.20	ND
806463-007 Chromium, Hexavalent	ug/L	02/25/2013 15:28	1.00	0.00920	0.20	ND
806463-008 Chromium, Hexavalent	ug/L	02/25/2013 15:39	1.00	0.00920	0.20	24.3
806463-009 Chromium, Hexavalent	ug/L	02/25/2013 15:49	25.0	0.230	5.0	404
806463-011 Chromium, Hexavalent	ug/L	02/25/2013 16:10	25.0	0.230	5.0	630
806463-014 Chromium, Hexavalent	ug/L	02/25/2013 16:41	1.00	0.00920	0.20	25.1

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 8****Project Number: 423575.MP.02.GM****Printed 3/6/2013****Method Blank**

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

Duplicate

Lab ID = 806463-008

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	24.6	24.3	1.29	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.203	0.200	101	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.93	5.00	98.7	90 - 110

Matrix Spike

Lab ID = 806431-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.56	9.70(5.00)	97.1	90 - 110

Matrix Spike

Lab ID = 806463-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	84.6	83.7(50.0)	102	90 - 110

Matrix Spike

Lab ID = 806463-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	36.3	36.2(25.0)	100	90 - 110

Matrix Spike

Lab ID = 806463-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.04	5.00(5.00)	101	90 - 110

Matrix Spike

Lab ID = 806463-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0	1.00(1.00)	0	90 - 110

Matrix Spike

Lab ID = 806463-004

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 = 806463-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.00(1.00)	106	90 - 110

Matrix Spike

Lab ID = 806463-007

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

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 3 of 8****Project Number: 423575.MP.02.GM****Printed 3/6/2013****Matrix Spike**

Lab ID = 806463-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	48.5	49.3(25.0)	97.0	90 - 110

Matrix Spike

Lab ID = 806463-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	924	904(500)	104	90 - 110

Matrix Spike

Lab ID = 806463-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	1270	1260(625)	102	90 - 110

Matrix Spike

Lab ID = 806463-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	49.5	50.1(25.0)	97.5	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.96	5.00	99.2	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

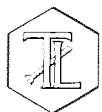
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.97	10.0	99.7	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.86	10.0	98.6	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.76	10.0	97.6	95 - 105



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM

Printed 3/6/2013

Chrome VI by EPA 218.6

Batch 02CrH13T

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806463-006 Chromium, Hexavalent	ug/L	02/26/2013 14:03	1.00	0.00920	0.20	ND
806463-010 Chromium, Hexavalent	ug/L	02/26/2013 15:23	5.00	0.0460	1.0	78.8
806463-012 Chromium, Hexavalent	ug/L	02/26/2013 15:23	5.00	0.0460	1.0	93.2
806463-013 Chromium, Hexavalent	ug/L	02/26/2013 15:44	5.00	0.0460	1.0	122

Method Blank

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

Duplicate

Lab ID = 806463-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	95.0	93.2	1.89	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.213	0.200	106	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.05	5.00	101	90 - 110

Matrix Spike

Lab ID = 806463-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.19	1.15(1.00)	104	90 - 110

Matrix Spike

Lab ID = 806463-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	153	154(75.0)	99.5	90 - 110

Matrix Spike

Lab ID = 806463-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	193	193(100)	99.6	90 - 110

Matrix Spike

Lab ID = 806463-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	247	247(125)	99.9	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.98	5.00	99.6	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM

Printed 3/6/2013

Metals by EPA 6020A, Dissolved

Batch 022513A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806463-001 Chromium	ug/L	02/25/2013 15:04	2.00	0.184	1.0	34.8
806463-002 Chromium	ug/L	02/25/2013 15:59	2.00	0.184	1.0	10.6
806463-003 Chromium	ug/L	02/25/2013 16:05	2.00	0.184	1.0	ND
806463-008 Chromium	ug/L	02/25/2013 16:11	2.00	0.184	1.0	25.3
806463-009 Chromium	ug/L	02/25/2013 16:23	5.00	0.460	1.0	406
806463-010 Chromium	ug/L	02/25/2013 16:29	2.00	0.184	1.0	77.1
806463-011 Chromium	ug/L	02/25/2013 16:47	10.0	0.920	2.0	627
806463-012 Chromium	ug/L	02/25/2013 17:05	2.00	0.184	1.0	91.7
806463-013 Chromium	ug/L	02/25/2013 17:12	2.00	0.184	1.0	119
806463-014 Chromium	ug/L	02/25/2013 17:24	2.00	0.184	1.0	25.8

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 806463-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	35.0	34.8	0.719	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.232	0.200	116	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	50.3	50.0	100	85 - 115

Matrix Spike

Lab ID = 806463-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	86.8	84.8(50.0)	104	75 - 125

Matrix Spike Duplicate

Lab ID = 806463-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	86.0	84.8(50.0)	102	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.8	20.0	104	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.GM

Printed 3/6/2013

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.7	20.0	98.7	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

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	20.5	20.0	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.3	20.0	96.7	90 - 110

MRCVS - Primary

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	19.3	20.0	96.4	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	19.6	20.0	98.1	80 - 120

Interference Check Standard AB

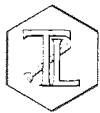
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.2	20.0	96.1	80 - 120

Serial Dilution

Lab ID = 806463-013

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	10.0	120	119	0.555	0 - 10

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.



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 8 of 8

Project Number: 423575.MP.02.GM

Printed 3/6/2013

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 

Mona Nassimi

Manager, Analytical Services

CH2MHILL

CHAIN OF CUSTODY RECORD

2/19/2013 3:56:42 PM

Page 1 OF 1

806463

Project Name PG&E Topock				Container:	250 ml Poly	1x500 ml Poly	<p>For Sample Conditions See Form Attached</p> <p>ALERT !! Level III QC</p>	Number of Containers	COMMENTS
Location Topock				Preservatives:	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C			
Project Manager Jay Piper				Filtered:	Field	Field			
Sample Manager Shawn Duffy				Holding Time:	28	180			
Project Number 423575.MP.02.GM.03									
Task Order									
Project 2013-GMP-191-Q1									
Turnaround Time 10 Days									
Shipping Date: 2/20/2013									
COC Number: 7									
DATE	TIME	Matrix							
1 MW-23-060-191	2/18/2013	13:46	Water	X	X			2	
2 MW-23-080-191	2/18/2013	15:26	Water	X	X			2	} pH=2 6020.4
3 MW-68BR-280-191	2/18/2013	11:41	Water	X	X			2	
4 MW-227-191	2/19/2013	6:30	Water	X				1	
5 MW-228-191	2/19/2013	6:35	Water	X				1	
6 MW-229-191	2/19/2013	15:10	Water	X				1	
7 MW-230-191	2/19/2013	15:15	Water	X				1	
8 MW-35-060-191	2/19/2013	8:27	Water	X	X			2	} pH=2 6020.4
9 MW-62-065-191	2/19/2013	14:52	Water	X	X			2	
10 MW-65-160-191	2/19/2013	9:57	Water	X	X			2	
11 MW-65-225-191	2/19/2013	13:23	Water	X	X			2	} pH=2 6020.4
12 MW-70-105-191	2/19/2013	11:09	Water	X	X			2	
13 MW-72-080-191	2/19/2013	12:21	Water	X	X			2	
14 MW-73-080-191	2/19/2013	8:52	Water	X	X			2	

Approved by	Signatures	Date/Time	Shipping Details
Sampled by		2-20-13	Method of Shipment: courier
Relinquished by		15:35	On Ice: yes / no
Received by	Rafael Davila	2-20-13	Airbill No:
Relinquished by	Rafael Davila	2-20-13 21:30	Lab Name: Truesdail Laboratories, Inc.
Received by	duaa, TCI	2/20/13 21:30	Lab Phone: (714) 730-6239

ATTN:

Sample Custody

Special Instructions:

Feb 4 - Feb 28, 2013

Report Copy to

Shawn Duffy
(530) 229-3303

24

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
2/21/13	806461-4	7	2mL/100mL	9.5	9:00 AM	TM
	-5	7			9:00 AM	TM
	-6				9:05 AM	TM
	-7				9:05 AM	TM
	-8				9:05 AM	TM
	-9				9:10 AM	TM
	-10				9:10 AM	TM
	-11				9:15 AM	TM
	-12				9:15 AM	TM
	-13				9:19 AM	TM
	-14				9:20 AM	TM
	-15				9:20 AM	TM
2/21/13	806462	7	2mL/100mL	9.5	N/A 9:20 AM	TM
2/21/13	806463-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
2/21/13	806464-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					

TM

2/26/13

TM
02/26/13



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806309	<1	<2	2/14/13	ES	yes			
806312	↓	↓	↓	↓	↓			
806313	↓	↓	↓	↓	↓			
806314	↓	↓	↓	↓	↓			
806315	↓	↓	↓	↓	↓			
806369	>1	<2	2-19-13	BL	yes			
806370	↓	↓	↓	↓	↓			
806371	↓	↓	↓	↓	↓			
806372	↓	↓	↓	↓	↓			
806373	↓	↓	↓	↓	↓			
806374	↓	↓	↓	↓	↓			
806375	↓	↓	↓	↓	↓			
806376	↓	↓	↓	↓	↓			
8063900 (1,2)	↓	↓	↓	↓	↓			
8063405	↓	↓	↓	↓	↓			
8063406	↓	↓	↓	↓	↓			
8063401	↓	>2	↓	↓	↓	10 AM		
806411	>1	<2	↓	↓	↓			
806416 (1,2,4)	<1	>2	↓	↓	NO	1300		
806422 (1,3,4)	<1	>2	2-20-13	BL	NO	8:00		
806433 (1-4)	<1	<2	↓	↓	yes			
806431 (10-11)	↓	>2	↓	↓	↓	11:00		Acidified metal part
806432 (1-5)	↓	<2	↓	↓	↓			
806461 (4-15)	<1	>2	2-21-13	BL	yes			Acid after filter
806462 (+ 38-14)	↓	>2	↓	↓	↓	13:AM		
806463 (1-3, 8-14)	↓	<2	↓	↓	↓			
806464 (1-8)	↓	↓	↓	↓	↓			
806465 (1-10)	↓	↓	↓	↓	↓			
806467 (1-5)	↓	↓	↓	↓	↓			
806440	<1	>2	2/21/13	DC	yes			
806456 (10-12)	<1	>2	2/21/13	ES	NO	15:00		
806454 (1-3)	↓	↓	↓	↓	↓	↓		
806438 (1-4)	>1	<2	↓	↓	yes			
806441	↓	↓	↓	↓	↓			
806442	↓	↓	↓	↓	↓			
806443	↓	↓	↓	↓	↓			
806444	↓	↓	↓	↓	↓			
806445	↓	↓	↓	↓	↓			
806468	↓	↓	↓	↓	↓			
806474	↓	↓	↓	↓	↓			
806469-2	SLUDGE	↓	↓	↓	↓			
806482 (1,2)	>1	<2	2/25/13	DC	yes			
806486	>1	<2	↓	↓	↓			
806522 (1-4)	<1	>2	↓	↓	NO	14:15	2-26-13	pH < 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 # 806463

Date Delivered: 12/29/13 Time: 2:30 By: ☐ Mail ☒ Field Service ☐ Client

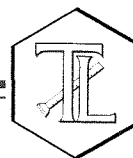
1. Was a Chain of Custody received and signed? ☒ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☐ No ☒ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☐ No ☒ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☒ N/A
5. Were all requested analyses understood and acceptable? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 3.9 °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

March 14, 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-191-Q1, GROUNDWATER MONITORING
PROJECT, TLI No.: 806555

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-191-Q1 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 26, 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 (376 ug/L) and Hexavalent Chromium (268 ug/L) results for sample MW-124-191, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 397 ug/L and 299 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 362 ug/L. Solids were observed in both the Hexavalent Chromium and Total Dissolved Chromium sample containers; Mr. Duffy was informed. After discussing the results with Mr. Duffy, the original results were reported.


Due to the discrepancy between the Total Dissolved Chromium (338 ug/L) and Hexavalent Chromium (272 ug/L) results for sample MW-57-070-191, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 385 ug/L and 315 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 416 ug/L. Solids were observed in both the Hexavalent Chromium and Total Dissolved Chromium sample containers; Mr. Duffy was informed. After discussing the results with Mr. Duffy, 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.

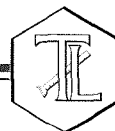
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


f. Mona Nassimi
Manager, Analytical Services


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

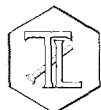
Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.03
P.O. No.: 423575.MP.02.GM.03

Laboratory No.: 806555
Date Received: February 26, 2013

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806555-001	MW-124-191	E218.6	FLDFLT	2/20/2013	10:10	Chromium, Hexavalent	268	ug/L	5.0
806555-001	MW-124-191	SW6020	FLDFLT	2/20/2013	10:10	Chromium	376	ug/L	1.0
806555-002	MW-231-191	E218.6	FLDFLT	2/20/2013	14:35	Chromium, Hexavalent	ND	ug/L	0.20
806555-003	MW-232-191	E218.6	FLDFLT	2/20/2013	14:30	Chromium, Hexavalent	ND	ug/L	0.20
806555-004	MW-57-070-191	E218.6	FLDFLT	2/20/2013	9:01	Chromium, Hexavalent	272	ug/L	5.0
806555-004	MW-57-070-191	SW6020	FLDFLT	2/20/2013	9:01	Chromium	338	ug/L	1.0
806555-005	MW-60-125-191	E218.6	FLDFLT	2/20/2013	13:06	Chromium, Hexavalent	1020	ug/L	10.0
806555-005	MW-60-125-191	SW6020	FLDFLT	2/20/2013	13:06	Chromium	1000	ug/L	4.0
806555-006	MW-66-165-191	E218.6	FLDFLT	2/20/2013	10:23	Chromium, Hexavalent	636	ug/L	10.0
806555-006	MW-66-165-191	SW6020	FLDFLT	2/20/2013	10:23	Chromium	613	ug/L	2.0
806555-007	MW-68-240-191	E218.6	FLDFLT	2/20/2013	14:11	Chromium, Hexavalent	1970	ug/L	20.0
806555-007	MW-68-240-191	SW6020	FLDFLT	2/20/2013	14:11	Chromium	2020	ug/L	10.0
806555-008	MW-69-195-191	E218.6	FLDFLT	2/20/2013	11:14	Chromium, Hexavalent	909	ug/L	10.0
806555-008	MW-69-195-191	SW6020	FLDFLT	2/20/2013	11:14	Chromium	852	ug/L	2.0
806555-009	MW-125-191	E218.6	FLDFLT	2/21/2013	9:30	Chromium, Hexavalent	2180	ug/L	20.0
806555-009	MW-125-191	SW6020	FLDFLT	2/21/2013	9:30	Chromium	2110	ug/L	10.0
806555-010	MW-233-191	E218.6	FLDFLT	2/21/2013	16:10	Chromium, Hexavalent	1.2	ug/L	0.20
806555-011	MW-66-230-191	E218.6	FLDFLT	2/21/2013	11:35	Chromium, Hexavalent	6510	ug/L	100
806555-011	MW-66-230-191	SW6020	FLDFLT	2/21/2013	11:35	Chromium	6400	ug/L	20.0
806555-012	MW-67-185-191	E218.6	FLDFLT	2/21/2013	9:25	Chromium, Hexavalent	2190	ug/L	20.0
806555-012	MW-67-185-191	SW6020	FLDFLT	2/21/2013	9:25	Chromium	2100	ug/L	10.0
806555-013	MW-67-225-191	E218.6	FLDFLT	2/21/2013	10:25	Chromium, Hexavalent	3310	ug/L	40.0
806555-013	MW-67-225-191	SW6020	FLDFLT	2/21/2013	10:25	Chromium	3110	ug/L	10.0

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
806555-014	MW-67-260-191	E218.6	FLDFLT	2/21/2013	8:39	Chromium, Hexavalent	2130	ug/L	20.0
806555-014	MW-67-260-191	SW6020	FLDFLT	2/21/2013	8:39	Chromium	2060	ug/L	10.0
806555-015	MW-68-180-191	E218.6	FLDFLT	2/21/2013	14:06	Chromium, Hexavalent	17300	ug/L	200
806555-015	MW-68-180-191	SW6020	FLDFLT	2/21/2013	14:06	Chromium	15600	ug/L	40.0
806555-016	TW-01-191	SM3500-CrB	FLDFLT	2/21/2013	16:05	Chromium, Hexavalent	2830	ug/L	250
806555-016	TW-01-191	SW6020	FLDFLT	2/21/2013	16:05	Chromium	3060	ug/L	10.0
806555-017	MW-33-040-191	E218.6	FLDFLT	2/25/2013	10:47	Chromium, Hexavalent	ND	ug/L	0.20
806555-017	MW-33-040-191	SW6020	FLDFLT	2/25/2013	10:47	Chromium	ND	ug/L	1.0
806555-018	MW-234-191	E218.6	FLDFLT	2/26/2013	7:40	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:

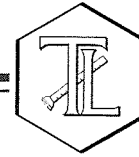
Results below 0.01ppm will have two (2) significant figures.

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.02.GM.03

P.O. Number: 423575.MP.02.GM.03

Release Number:

Laboratory No. 806555

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Printed 3/14/2013

Samples Received on 2/26/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-124-191	806555-001	02/20/2013 10:10	Water
MW-231-191	806555-002	02/20/2013 14:35	Water
MW-232-191	806555-003	02/20/2013 14:30	Water
MW-57-070-191	806555-004	02/20/2013 09:01	Water
MW-60-125-191	806555-005	02/20/2013 13:06	Water
MW-66-165-191	806555-006	02/20/2013 10:23	Water
MW-68-240-191	806555-007	02/20/2013 14:11	Water
MW-69-195-191	806555-008	02/20/2013 11:14	Water
MW-125-191	806555-009	02/21/2013 09:30	Water
MW-233-191	806555-010	02/21/2013 16:10	Water
MW-66-230-191	806555-011	02/21/2013 11:35	Water
MW-67-185-191	806555-012	02/21/2013 09:25	Water
MW-67-225-191	806555-013	02/21/2013 10:25	Water
MW-67-260-191	806555-014	02/21/2013 08:39	Water
MW-68-180-191	806555-015	02/21/2013 14:06	Water
TW-01-191	806555-016	02/21/2013 16:05	Water
MW-33-040-191	806555-017	02/25/2013 10:47	Water
MW-234-191	806555-018	02/26/2013 07:40	Water

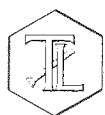
Chrome VI by EPA 218.6

Batch 03CrH13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806555-001 Chromium, Hexavalent	ug/L	03/04/2013 13:20	25.0	0.230	5.0	268
806555-002 Chromium, Hexavalent	ug/L	03/04/2013 11:26	1.00	0.00920	0.20	ND
806555-003 Chromium, Hexavalent	ug/L	03/04/2013 11:36	1.00	0.00920	0.20	ND
806555-004 Chromium, Hexavalent	ug/L	03/04/2013 11:47	25.0	0.230	5.0	272
806555-005 Chromium, Hexavalent	ug/L	03/04/2013 13:31	50.0	0.460	10.0	1020
806555-006 Chromium, Hexavalent	ug/L	03/04/2013 13:41	50.0	0.460	10.0	636
806555-007 Chromium, Hexavalent	ug/L	03/04/2013 13:51	100	0.920	20.0	1970
806555-009 Chromium, Hexavalent	ug/L	03/04/2013 14:39	100	0.920	20.0	2180

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009



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/14/2013

806555-010 Chromium, Hexavalent	ug/L	03/04/2013 13:10	1.00	0.00920	0.20	1.2
806555-011 Chromium, Hexavalent	ug/L	03/04/2013 14:12	500	4.60	100	6510
806555-012 Chromium, Hexavalent	ug/L	03/04/2013 14:28	100	0.920	20.0	2190
806555-013 Chromium, Hexavalent	ug/L	03/04/2013 15:10	200	1.84	40.0	3310
806555-014 Chromium, Hexavalent	ug/L	03/04/2013 15:20	100	0.920	20.0	2130
806555-018 Chromium, Hexavalent	ug/L	03/04/2013 15:52	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate

Lab ID = 806555-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	500	6540	6510	0.440	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.195	0.200	97.4	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.84	5.00	96.8	90 - 110

Matrix Spike

Lab ID = 806555-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	647	643(375)	101	90 - 110

Matrix Spike

Lab ID = 806555-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.11	1.15(1.00)	95.5	90 - 110

Matrix Spike

Lab ID = 806555-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.988	1.00(1.00)	98.8	90 - 110

Matrix Spike

Lab ID = 806555-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	631	647(375)	95.8	90 - 110

Matrix Spike

Lab ID = 806555-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	2240	2270(1250)	97.6	90 - 110

Matrix Spike

Lab ID = 806555-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1330	1390(750)	93.0	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

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Matrix Spike						Lab ID = 806555-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	3920	3970(2000)	97.4	90 - 110
Matrix Spike						Lab ID = 806555-009
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4590	4680(2500)	96.4	90 - 110
Matrix Spike						Lab ID = 806555-010
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.99	6.17(5.00)	96.4	90 - 110
Matrix Spike						Lab ID = 806555-011
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	500	13700	14000(7500)	95.4	90 - 110
Matrix Spike						Lab ID = 806555-012
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4600	4690(2500)	96.6	90 - 110
Matrix Spike						Lab ID = 806555-013
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	200	7290	7310(4000)	99.4	90 - 110
Matrix Spike						Lab ID = 806555-014
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4630	4630(2500)	100	90 - 110
Matrix Spike						Lab ID = 806555-018
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.09(1.00)	93.4	90 - 110
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.86	5.00	97.2	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
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



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/14/2013

Chrome VI by EPA 218.6

Batch 03CrH13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806555-008 Chromium, Hexavalent	ug/L	03/05/2013 12:22	50.0	0.460	10.0	909
806555-015 Chromium, Hexavalent	ug/L	03/05/2013 12:33	1000	9.20	200	17300
806555-017 Chromium, Hexavalent	ug/L	03/05/2013 12:12	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate

Lab ID = 806555-015

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1000	17200	17300	0.314	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.196	0.200	98.2	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.87	5.00	97.3	90 - 110

Matrix Spike

Lab ID = 806555-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1890	1910(1000)	97.8	90 - 110

Matrix Spike

Lab ID = 806555-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1000	35700	37300(20000)	91.8	90 - 110

Matrix Spike

Lab ID = 806555-017

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.09	1.10(1.00)	98.2	90 - 110

MRCCS - Secondary

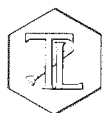
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.87	5.00	97.4	90 - 110

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



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/14/2013

Metals by EPA 6020A, Dissolved

Batch 030413A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806555-001 Chromium	ug/L	03/04/2013 13:39	5.00	0.0950	1.0	376
806555-004 Chromium	ug/L	03/04/2013 13:45	5.00	0.0950	1.0	338
806555-005 Chromium	ug/L	03/04/2013 12:38	20.0	0.380	4.0	1000
806555-006 Chromium	ug/L	03/04/2013 13:57	10.0	0.190	2.0	613
806555-007 Chromium	ug/L	03/04/2013 14:03	50.0	0.950	10.0	2020
806555-008 Chromium	ug/L	03/04/2013 14:27	10.0	0.190	2.0	852
806555-009 Chromium	ug/L	03/04/2013 14:33	50.0	0.950	10.0	2110
806555-011 Chromium	ug/L	03/04/2013 14:39	100	1.90	20.0	6400
806555-012 Chromium	ug/L	03/04/2013 14:46	50.0	0.950	10.0	2100
806555-013 Chromium	ug/L	03/04/2013 14:52	50.0	0.950	10.0	3110
806555-014 Chromium	ug/L	03/04/2013 14:58	50.0	0.950	10.0	2060
806555-015 Chromium	ug/L	03/04/2013 15:04	200	3.80	40.0	15600
806555-016 Chromium	ug/L	03/04/2013 15:10	50.0	0.950	10.0	3060
806555-017 Chromium	ug/L	03/04/2013 15:22	1.00	0.0190	1.0	ND

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	0.180	0.200	90.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	52.7	50.0	105	85 - 115

Matrix Spike

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	20.0	1430	1500(500)	85.8	75 - 125

Matrix Spike Duplicate

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	20.0	1440	1500(500)	87.3	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.9	20.0	94.7	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 7 of 8****Project Number: 423575.MP.02.GM.03****Printed 3/14/2013****MRCVS - Primary**

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.2	20.0	91.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.0	20.0	90.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.8	20.0	94.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.4	20.0	91.8	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	18.9	20.0	94.5	80 - 120

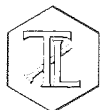
Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.8	20.0	94.1	80 - 120

Serial Dilution

Lab ID = 806555-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	100	1020	1000	1.92	0 - 10



Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 8 of 8

Project Number: 423575.MP.02.GM.03

Printed 3/14/2013

Chromium, Hexavalent by SM 3500-Cr B

Batch 03CrH13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806555-016 Chromium, Hexavalent	ug/L	03/01/2013 15:34	25.0	110	250	2830

Method Blank

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

Duplicate

Lab ID = 806202-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	1040	1020	2.48	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	107	100	107	90 - 110

Matrix Spike

Lab ID = 806202-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3390	3520(2500)	94.9	85 - 115

MRCCS - Secondary


Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	107	100	107	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	63.2	60.0	105	90 - 110

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services

806555

CH2MHILL

CHAIN OF CUSTODY RECORD

2/26/2013 2:31:30 PM

Page 1 OF 2

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy				Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 ml Poly	1x500 ml Poly	Number of Containers	COMMENTS
Preservatives:				(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C			
Filtered:				Field	Field	Field	Field	Field			
Holding Time:				28	28	28	180	180			
Project Number 423575.MP.02.GM.03 Task Order Project 2013-GMP-191-Q1 Turnaround Time 10 Days Shipping Date: 2/26/2013 COC Number: 12				Cr6 (E218.6) Field Filtered	Cr6 (E218.6r) Field Filtered	Cr6 (Si13500B) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium			
DATE	TIME	Matrix									
1 MW-124-191	2/20/2013	10:10	Water	X				X		2	pH=2
2 MW-231-191	2/20/2013	14:35	Water	X						1	60204
3 MW-232-191	2/20/2013	14:30	Water	X						1	
4 MW-57-070-191	2/20/2013	9:01	Water	X				X		2	
5 MW-60-125-191	2/20/2013	13:06	Water	X				X		2	
6 MW-66-165-191	2/20/2013	10:23	Water	X				X		2	pH=2
7 MW-68-240-191	2/20/2013	14:11	Water	X				X		2	60204
8 MW-69-195-191	2/20/2013	11:14	Water	X				X		2	
9 MW-125-191	2/21/2013	9:30	Water	X				X		2	
10 MW-233-191	2/21/2013	16:10	Water	X						1	
11 MW-66-230-191	2/21/2013	11:35	Water	X				X		2	
12 MW-67-185-191	2/21/2013	9:25	Water	X				X		2	
13 MW-67-225-191	2/21/2013	10:25	Water	X				X		2	pH=2
14 MW-67-260-191	2/21/2013	8:39	Water	X				X		2	60204

ALERT !!

Level III QC

Approved by

Signatures

Date/Time

Sampled by

Relinquished by

Received by

Relinquished by

Received by

Shipping Details

Method of Shipment: courier

On Ice: yes / no

Airbill No:

Lab Name: Truesdail Laboratories, Inc.

Lab Phone: (714) 730-6239

ATTN:

Special Instructions:

Feb 4 - Feb 28, 2013

Sample Custody

Report Copy to

Shawn Duffy
(530) 229-3303

Rafael Davila 2/26/13 15:30
Rafael Davila 2-26-13 21:30
avila, RL 2/26/13 21:30

Project Name PG&E Topock				Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 ml Poly	1x500 ml Poly	<div style="text-align: center; font-size: 2em; font-weight: bold;">806555</div> <p>* Where provided w/multiple Cr⁶ + diss. metals bottles, please analyze 1 + hold 1</p> <div style="border: 1px solid black; padding: 5px; text-align: center; font-weight: bold; font-size: 1.2em;"> 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	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C			
Project Manager Jay Piper				Filtered:	Field	Field	Field	Field	Field			
Sample Manager Shawn Duffy				Holding Time:	28	28	28	180	180			
Project Number 423575.MP.02.GM.03					Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium			
Task Order												
Project 2013-GMP-191-Q1												
Turnaround Time 10 Days												
Shipping Date: 2/26/2013												
COC Number: 12												
DATE TIME Matrix												
15	MW-68-180-191	2/21/2013	14:06	Water	X				X		2	?
16	TW-01-191	2/21/2013	16:05	Water			X		X		2	phi=2
17	MW-33-040-191	2/25/2013	10:47	Water		X		X			4	* 60204
	MW-33-040-191-EB	2/25/2013	8:09	Water	X				X		2	
18	MW-234-191	2/26/2013	7:40	Water	X						1	
TOTAL NUMBER OF CONTAINERS											36	

Approved by	Signatures	Date/Time	Shipping Details
Sampled by	<i>[Signature]</i>	2-26-13	Method of Shipment: courier
Relinquished by	<i>[Signature]</i>	1530	On Ice: yes / no
Received by	<i>Rafael Davila</i>	2-26-13 15:28	Airbill No:
Relinquished by	<i>Rafael Davila</i>	2-26-13 21:30	Lab Name: Truesdail Laboratories, Inc.
Received by	<i>Linda, etc</i>	2/26/13 21:30	Lab Phone: (714) 730-6239

ATTN:

Special Instructions:

Feb 4 - Feb 28, 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
2/21/13	806464-5	9.5	N/A	N/A	N/A	TM
	-6	↓	↓	↓	↓	↓
	-7	↓	↓	↓	↓	↓
	-8	↓	↓	↓	↓	↓
2/21/13	806465-1	9.5	N/A	N/A	N/A	TM
	-2	↓	↓	↓	↓	↓
	-3	↓	↓	↓	↓	↓
	-4	↓	↓	↓	↓	↓
	-5	↓	↓	↓	↓	↓
	-6	↓	↓	↓	↓	↓
	-7	↓	↓	↓	↓	↓
	-8	↓	↓	↓	↓	↓
	-9	↓	↓	↓	↓	↓
	-10	↓	↓	↓	↓	↓
2/27/13	806552-	7	2 mL	9.5	10:15	RB
2/27/13	806553-1	9.5	N/A	N/A	N/A	RB
	-2	↓	↓	↓	↓	↓
	-3	↓	↓	↓	↓	↓
	-4	↓	↓	↓	↓	↓
2/27/13	806554-1	9.5	N/A	N/A	N/A	RB
	-2	↓	↓	↓	↓	↓
	-3	↓	↓	↓	↓	↓
	-4	↓	↓	↓	↓	↓
2/27/13	806555-1	9.5	N/A	N/A	N/A	RB
	-2	↓	↓	↓	↓	↓
	-3	↓	↓	↓	↓	↓
	-4	↓	↓	↓	↓	↓
	-5	↓	↓	↓	↓	↓
	-6	↓	↓	↓	↓	↓
	-7	↓	↓	↓	↓	↓
	-8	↓	↓	↓	↓	↓


TM
3/7/13


03/13/13

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
2/27/13	806555-9	9.5	N/A	N/A	N/A	RB
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
	-17					
	-18					
2/27/13	806573-1	7.0	1 mL / 50 mL	9.5	4:30 16:30	TM
	-2	7.0	1 mL / 50 mL	9.5	16:30	TM
2/28/13	806591-1	7.0	2 mL / 100 mL	9.5	15:00	TM
	-2	↓	↓	↓	15:00	TM
3/4/13	806624-1	7.0	2 mL / 100 mL	9.5	17:00	TM
	-2	↓	↓	↓	17:00	TM
3/5/13	806632-1	9.5	N/A	N/A	N/A	RB
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
3/5/13	806633-1	9.5	N/A	N/A	N/A	RB
	-2	↓	↓	↓	↓	↓


 03/13/13 TM
 3/7/13



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806497(1,2)	<1	<2	2/25/13	DC	yes			
806520	71	<2						
806493(1-5)	71	<2						
806494(1-5)	71	<2						
806552	<1	>2	2-27-13	BE	yes	11:00		
806553(1-4)		<2						
806554(1-4)								
806555(1-4-7)								
806542(1-3)		>2			no	12:00	2/28/13 2 15:35	
806545								
806537	<1	<2		DC	yes			
806565	<1	>2			yes	14:00	2/28/13 2 15:30	
806562(1-14)	<1	>2	2/28/13	ES	no	9:30	3/1/13 2 16:00	pH < 2
806567(10-12)								
806570(1-2)	71	<2			yes			
806572(1-2)	71	<2			yes			
806586(1,2)	<1	>2		DC	yes	15:30		
806617	71	<2	3/4/13	DC	yes			
806632(1-12)	<1		3-5-13	BE				
806633(1-12)								
806634(1-12)								
806635(1-5, 8-14)								
806620(1-2, 4)	<1	>2	3/5/13	ES	no	12:00		
806627(16, 23)								
806625		<2			yes			
806626								
806686(1-2, 5, 14-16)	<1	<2	3-6-13	BE	yes			
806669(1-2)		>2						Lab pH Adjusted
806670(1-2)								
806679(1-5)		<2						
806643	71	<2		DC	yes			
806651	<1							
806688	71	>2				12:30		
806667	<1	>2		BE	no	14:00		
806663(1-3)						15:00		
806694(1-12)								
806682(4-6)								
806650	<1	<2	3/4/13	DC	yes			
806649								
806648								
806647								
806646								
806652								
806671								

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 # 806555

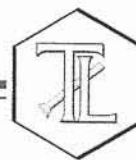
Date Delivered: 02/26/13 Time: 21:30 By: ☐ Mail ☒ Field Service ☐ Client

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)? 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: L. Stralbeccus

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

March 15, 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-191-Q1, GROUNDWATER MONITORING
PROJECT, TLI NO.: 806634


Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-191-Q1 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 March 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.

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.

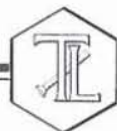
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

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

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

Laboratory No.: 806634
Date Received: March 4, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.03
P.O. No.: 423575.MP.02.GM.03

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806634-001	MW-122-191	E218.6	FLDFLT	2/26/2013	17:12	Chromium, Hexavalent	77.1	ug/L	1.0
806634-001	MW-122-191	SW6020	FLDFLT	2/26/2013	17:12	Chromium	71.2	ug/L	1.0
806634-002	MW-235-191	E218.6	FLDFLT	2/26/2013	15:45	Chromium, Hexavalent	ND	ug/L	0.20
806634-003	MW-34-100-191	E218.6	FLDFLT	2/26/2013	14:52	Chromium, Hexavalent	76.8	ug/L	1.0
806634-003	MW-34-100-191	SW6020	FLDFLT	2/26/2013	14:52	Chromium	71.9	ug/L	1.0
806634-004	MW-62-110-191	E218.6	FLDFLT	2/26/2013	15:59	Chromium, Hexavalent	1050	ug/L	1.0
806634-004	MW-62-110-191	SW6020	FLDFLT	2/26/2013	15:59	Chromium	969	ug/L	10.0
806634-005	MW-62-190-191	E218.6	FLDFLT	2/26/2013	16:05	Chromium, Hexavalent	ND	ug/L	1.0
806634-005	MW-62-190-191	SW6020	FLDFLT	2/26/2013	16:05	Chromium	ND	ug/L	1.0
806634-006	MW-70BR-225-191	E218.6	FLDFLT	2/26/2013	11:16	Chromium, Hexavalent	1960	ug/L	20.0
806634-006	MW-70BR-225-191	SW6020	FLDFLT	2/26/2013	11:16	Chromium	1880	ug/L	12.5
806634-007	MW-236-191	E218.6	FLDFLT	2/27/2013	10:16	Chromium, Hexavalent	ND	ug/L	0.20
806634-008	MW-237-191	E218.6	FLDFLT	3/1/2013	9:10	Chromium, Hexavalent	ND	ug/L	0.20
806634-009	MW-238-191	E218.6	FLDFLT	3/1/2013	13:10	Chromium, Hexavalent	ND	ug/L	0.20
806634-010	MW-74-240-191	E218.6	FLDFLT	3/1/2013	8:15	Chromium, Hexavalent	ND	ug/L	0.20
806634-010	MW-74-240-191	SW6020	FLDFLT	3/1/2013	8:15	Chromium	ND	ug/L	1.0
806634-011	MW-239-191	E218.6	FLDFLT	3/4/2013	16:00	Chromium, Hexavalent	ND	ug/L	0.20
806634-012	MW-58BR- 165MD -191	E218.6	FLDFLT	2/28/2013	15:52	Chromium, Hexavalent	ND	ug/L	1.0
806634-012	MW-58BR- 165MD -191	SW6020	FLDFLT	2/28/2013	15:52	Chromium	ND	ug/L	1.0
806634-013	MW-64BR- 255MD -191	E218.6	FLDFLT	3/1/2013	15:05	Chromium, Hexavalent	ND	ug/L	1.0
806634-013	MW-64BR- 255MD -191	SW6020	FLDFLT	3/1/2013	15:05	Chromium	ND	ug/L	1.0

SPD

ND: Non Detected (below reporting limit)

04-19-13 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.

Note the sample IDs were changed for MW-58BR and MW-64BR after the data was received from the laboratory to correct for the changes that had occurred to the well build prior to sample collection.

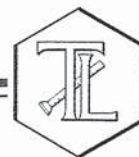
04/19/13

Shawn P. Duffy

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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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.02.GM.03

P.O. Number: 423575.MP.02.GM.03

Release Number:

Laboratory No. 806634

Page 1 of 12

Printed 3/15/2013

Samples Received on 3/4/2013 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-122-191	806634-001	02/26/2013 17:12	Water
MW-235-191	806634-002	02/26/2013 15:45	Water
MW-34-100-191	806634-003	02/26/2013 14:52	Water
MW-62-110-191	806634-004	02/26/2013 15:59	Water
MW-62-190-191	806634-005	02/26/2013 16:05	Water
MW-70BR-225-191	806634-006	02/26/2013 11:16	Water
MW-236-191	806634-007	02/27/2013 10:16	Water
MW-237-191	806634-008	03/01/2013 09:10	Water
MW-238-191	806634-009	03/01/2013 13:10	Water
MW-74-240-191	806634-010	03/01/2013 08:15	Water
MW-239-191	806634-011	03/04/2013 16:00	Water
MW-58BR- 165MD -191	806634-012	02/28/2013 15:52	Water
MW-64BR- 255MD -191	806634-013	03/01/2013 15:05	Water

MW-58BR-191

MW-64BR-191

SPD

04-19-13

Chrome VI by EPA 218.6

Batch 03CrH13F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806634-001 Chromium, Hexavalent	ug/L	03/11/2013 17:07	5.00	0.0460	1.0	77.1
806634-002 Chromium, Hexavalent	ug/L	03/11/2013 14:06	1.00	0.00920	0.20	ND
806634-004 Chromium, Hexavalent	ug/L	03/11/2013 14:37	5.00	0.0460	1.0	1050
806634-005 Chromium, Hexavalent	ug/L	03/11/2013 17:59	5.00	0.0460	1.0	ND
806634-006 Chromium, Hexavalent	ug/L	03/11/2013 18:09	100	0.920	20.0	1960
806634-007 Chromium, Hexavalent	ug/L	03/11/2013 15:44	1.00	0.00920	0.20	ND
806634-008 Chromium, Hexavalent	ug/L	03/11/2013 15:54	1.00	0.00920	0.20	ND
806634-009 Chromium, Hexavalent	ug/L	03/11/2013 16:04	1.00	0.00920	0.20	ND
806634-010 Chromium, Hexavalent	ug/L	03/11/2013 16:15	1.00	0.00920	0.20	ND
806634-011 Chromium, Hexavalent	ug/L	03/11/2013 16:25	1.00	0.00920	0.20	ND
806634-012 Chromium, Hexavalent	ug/L	03/11/2013 16:46	5.00	0.0460	1.0	ND
806634-013 Chromium, Hexavalent	ug/L	03/11/2013 18:30	5.00	0.0460	1.0	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.

007



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/15/2013

Method Blank

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

Duplicate

Lab ID = 806634-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	100	1980	1960	0.809	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	4.81	5.00	96.2	90 - 110

Matrix Spike

Lab ID = 806634-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	176	177(100)	99.5	90 - 110

Matrix Spike

Lab ID = 806634-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.980	1.04(1.00)	93.8	90 - 110

Matrix Spike

Lab ID = 806634-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	2260	2300(1250)	96.5	90 - 110

Matrix Spike

Lab ID = 806634-005

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

Matrix Spike

Lab ID = 806634-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.70	5.00(5.00)	94.0	90 - 110

Matrix Spike

Lab ID = 806634-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	3890	3960(2000)	96.7	90 - 110

Matrix Spike

Lab ID = 806634-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.16	1.19(1.00)	97.1	90 - 110

Matrix Spike

Lab ID = 806634-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.965	1.01(1.00)	95.4	90 - 110



Client: E2 Consulting Engineers, Inc.

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Project Number: 423575.MP.02.GM.03

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Matrix Spike						Lab ID = 806634-009
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 = 806634-010
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.04(1.00)	95.9	90 - 110
Matrix Spike						Lab ID = 806634-011
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.983	1.02(1.00)	96.8	90 - 110
Matrix Spike						Lab ID = 806634-012
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.87	5.00(5.00)	97.5	90 - 110
Matrix Spike						Lab ID = 806634-012
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.911	1.00(1.00)	91.1	90 - 110
Matrix Spike						Lab ID = 806634-013
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.96	5.00(5.00)	99.3	90 - 110
Matrix Spike						Lab ID = 806634-013
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.834	1.00(1.00)	83.4	90 - 110
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.84	5.00	96.7	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	9.99	10.0	99.9	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



Client: E2 Consulting Engineers, Inc.

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Project Number: 423575.MP.02.GM.03

Printed 3/15/2013

Chrome VI by EPA 218.6

Batch 03CrH13H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806634-003 Chromium, Hexavalent	ug/L	03/13/2013 06:54	5.00	0.0460	1.0	76.8

Method Blank

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

Duplicate

Lab ID = 806632-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	100	2590	2570	0.635	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.211	0.200	105	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.89	5.00	97.8	90 - 110

Matrix Spike

Lab ID = 806632-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4460	4570(2000)	94.6	90 - 110

Matrix Spike

Lab ID = 806632-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	175	176(100)	99.4	90 - 110

Matrix Spike

Lab ID = 806632-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	45.4	46.0(25.0)	97.7	90 - 110

Matrix Spike

Lab ID = 806632-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	8830	8920(5000)	98.1	90 - 110

Matrix Spike

Lab ID = 806633-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4500	4560(2000)	97.1	90 - 110

Matrix Spike

Lab ID = 806633-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4640	4660(2000)	98.9	90 - 110



Client: E2 Consulting Engineers, Inc.

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Matrix Spike						Lab ID = 806633-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4380	4560(2000)	91.0	90 - 110
Matrix Spike						Lab ID = 806633-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4590	4650(2000)	97.2	90 - 110
Matrix Spike						Lab ID = 806633-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	239	245(125)	95.0	90 - 110
Matrix Spike						Lab ID = 806633-006
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	188	194(100)	94.7	90 - 110
Matrix Spike						Lab ID = 806633-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	41.9	43.3(25.0)	94.6	90 - 110
Matrix Spike						Lab ID = 806633-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	45.1	46.6(25.0)	93.9	90 - 110
Matrix Spike						Lab ID = 806633-009
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	500	22400	23100(12500)	94.4	90 - 110
Matrix Spike						Lab ID = 806633-010
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	500	21900	22700(12500)	93.7	90 - 110
Matrix Spike						Lab ID = 806633-011
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	10500	11000(6250)	91.5	90 - 110
Matrix Spike						Lab ID = 806633-012
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	8840	8980(5000)	97.2	90 - 110
Matrix Spike						Lab ID = 806634-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	175	177(100)	98.1	90 - 110
Matrix Spike						Lab ID = 806670-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.07	5.11(5.00)	99.1	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/15/2013

Metals by EPA 6020A, Dissolved

Batch 030613A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806634-001 Chromium	ug/L	03/06/2013 14:03	1.00	0.0920	1.0	71.2
806634-003 Chromium	ug/L	03/06/2013 14:09	1.00	0.0920	1.0	71.9
806634-004 Chromium	ug/L	03/06/2013 15:30	20.0	1.84	10.0	969
806634-005 Chromium	ug/L	03/06/2013 14:21	1.00	0.0920	1.0	ND
806634-006 Chromium	ug/L	03/06/2013 15:10	25.0	2.30	12.5	1880
806634-010 Chromium	ug/L	03/06/2013 14:46	1.00	0.0920	1.0	ND
806634-012 Chromium	ug/L	03/06/2013 14:52	1.00	0.0920	1.0	ND
806634-013 Chromium	ug/L	03/06/2013 14:58	1.00	0.0920	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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.200	0.200	100	70 - 130
Chromium	ug/L	1.00	0.243	0.200	122	70 - 130
Selenium	ug/L	1.00	4.88	5.00	97.5	70 - 130
Manganese	ug/L	1.00	0.442	0.500	88.4	70 - 130
Molybdenum	ug/L	1.00	0.534	0.500	107	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	45.8	50.0	91.6	85 - 115
Chromium	ug/L	1.00	46.2	50.0	92.4	85 - 115
Selenium	ug/L	1.00	44.8	50.0	89.5	85 - 115
Manganese	ug/L	1.00	46.3	50.0	92.5	85 - 115
Molybdenum	ug/L	1.00	49.6	50.0	99.2	85 - 115



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.GM.03

Printed 3/15/2013

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.5	20.0	92.4	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.7	20.0	98.6	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	19.1	20.0	95.6	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.7	20.0	98.3	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 = 806634-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	74.9	71.2	5.12	0 - 10

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.



Mona Nassimi

Manager, Analytical Services

CH2MHILL

CHAIN OF CUSTODY RECORD

3/4/2013 3:02:33 PM

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806634

Project Name PG&E Topock	Container:	250 ml Poly	1x500 ml Poly
Location Topock	Preservatives:	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C
Project Manager Jay Piper	Filtered:	Field	Field
Sample Manager Shawn Duffy	Holding Time:	28	180
Project Number 423575.MP.02.GM.03			
Task Order			
Project 2013-GMP-191-Q1			
Turnaround Time 10 Days			
Shipping Date: 2/26/2013			
COC Number: 15			

Note the sample IDs were changed for MW-58BR and MW-64BR after the data was received from the laboratory to correct for the changes that had occurred to the well build prior to sample collection.

Shawn P. Duffy
04-19-13

For Sample Conditions
See Form Attached

DATE TIME Matrix

Number of Containers

COMMENTS

1 MW-122-191	2/26/2013	17:12	Water	X	X		2	pH = 2
2 MW-235-191	2/26/2013	15:45	Water	X			1	
3 MW-34-100-191	2/26/2013	14:52	Water	X	X		2	
4 MW-62-110-191	2/26/2013	15:59	Water	X	X		2	
5 MW-62-190-191	2/26/2013	16:05	Water	X	X		2	pH = 2
6 MW-70BR-225-191	2/26/2013	11:16	Water	X	X		2	
7 MW-236-191	2/27/2013	10:16	Water	X			1	
8 MW-237-191	3/1/2013	9:10	Water	X			1	
9 MW-238-191	3/1/2013	13:10	Water	X			1	
10 MW-74-240-191	3/1/2013	8:15	Water	X	X		2	pH = 2
11 MW-239-191	3/4/2013	16:00	Water	X			1	
12 MW-58BR-191 2-28-13 1552 Water				X	X	MW-58BR-191	2	pH = 2
13 MW-64BR-191 3-4-13 1505 Water				X	X	MW-64BR-191	2	pH = 2
TOTAL NUMBER OF CONTAINERS							21	

ALERT !!
Level III QC

SPD
04-19-13

Approved by *[Signature]* Signatures Date/Time 3-4-13 1630
 Sampled by *[Signature]*
 Relinquished by *[Signature]*
 Received by *Rafael Davila* 3-4-13 16:30
 Relinquished by *Rafael Davila* 3-4-13 22:30
 Received by *Linda, TII* 3/4/13 22:30

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:

Feb 4 - Feb 28, 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
3/5/13	806633-3	9.5	N/A	N/A	N/A	RB
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
3/5/13	806634-1	9.5	N/A	N/A	N/A	RB
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
3/5/13	806635-1	9.5	N/A	N/A	N/A	RB
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806497(1,2)	<1	<2	2/25/13	DC	yes			
806520	>1	<2						
806493(1-5)	>1	<2						
806494(1-5)	>1	<2						
806552	<1	>2	2-27-13	BE	yes	11:00		
806553(1-4)		<2						
806554(1-4)								
806555(1-4-1)								
806542(1-3)		>2			no	12:00	2/28/13 @ 15:35	
806545								
806537	<1	<2		DC	yes			
806565	<1	>2			yes	14:00	2/28/13 @ 15:30	
806562(1-14)	<1	>2	2/28/13	ES	no	9:30	3/1/13 @ 16:00	pH < 2
806567(10-12)								
806570(1-2)	>1	>2			yes			
806572(1-2)	>1	<2			yes			
806586(1,2)	<1	>2		DC	yes	15:30		
806617	>1	<2	3/4/13	DC	yes			
806632(1-12)	<1		3-5-13	BE				
806633(1-12)								
806634(1-12)								
806635(1-5, 8-14)								
806620(1-2, 4)	<1	>2	3/5/13	ES	no	12:00		
806627(16, 23)								
806625		>2			yes			
806626								
806686(1-2, 5-12)	<1	<2	3-6-13	BE	yes			
806669(1-2)		>2						Lab Bilt Acidified
806670(1-2)								
806679(1-5)		<2						
806643	>1	<2		DC	yes			
806651	<1							
806688	>1	>2				12:30		
806667	<1	>2		BE	no	14:00		
806663(1-3)						15:00		
806694(10-12)								
806682(4-6)								
806650	<1	<2	3/4/13	DC	yes			
806649								
806648								
806647								
806646								
806652								
806671								

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

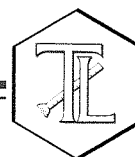
Client: E 2Lab # 806634Date Delivered: 03/04/13 Time: 22:30 By: ☐ Mail ☒ Field Service ☐ Client

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)? 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.e ☒ 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. Stabinsky



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

March 22, 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-191-Q1, GROUNDWATER MONITORING
PROJECT, TLI NO.: 806827

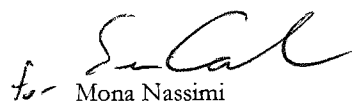
Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-191-Q1 groundwater-monitoring project for Hexavalent and Total Dissolved Chromium. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

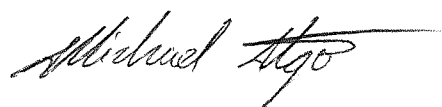
The samples were received and delivered with the chain of custody March 12, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

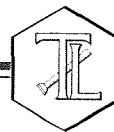
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

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.: 806827
Date Received: March 12, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.03
P.O. No.: 423575.MP.02.GM.03

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806827-001	MW-57-070-191a	E218.6	FLDFLT	3/11/2013	15:05	Chromium, Hexavalent	594	ug/L	5.0
806827-001	MW-57-070-191a	SW6020	FLDFLT	3/11/2013	15:05	Chromium	562	ug/L	2.0
806827-002	MW-240-191	E218.6	FLDFLT	3/12/2013	6:00	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.

005

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.

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.02.GM.03

P.O. Number: 423575.MP.02.GM.03

Release Number:

Laboratory No. 806827

Page 1 of 9

Printed 3/22/2013

Samples Received on 3/12/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-57-070-191a	806827-001	03/11/2013 15:05	Water
MW-240-191	806827-002	03/12/2013 06:00	Water

Chrome VI by EPA 218.6

Batch 03CrH13J

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806827-001 Chromium, Hexavalent	ug/L	03/14/2013 09:23	25.0	0.230	5.0	594
806827-002 Chromium, Hexavalent	ug/L	03/14/2013 09:55	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate

Lab ID = 806858-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.38	1.39	1.02	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.212	0.200	106	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.98	5.00	99.5	90 - 110

Matrix Spike

Lab ID = 806827-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	1180	1220(625)	93.6	90 - 110

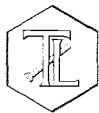
Matrix Spike

Lab ID = 806827-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.976	1.02(1.00)	95.2	90 - 110

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

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TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 4 of 9

Project Number: 423575.MP.02.GM.03

Printed 3/22/2013

Metals by EPA 6020A, Dissolved

Batch 031913A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806827-001 Chromium	ug/L	03/19/2013 10:25	10.0	0.920	2.0	562

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 = 806827-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	1.53	1.50	1.85	0 - 20
Chromium	ug/L	10.0	593	562	5.37	0 - 20
Selenium	ug/L	2.00	ND	2.81	0	0 - 20
Manganese	ug/L	2.00	1.24	1.25	1.04	0 - 20
Molybdenum	ug/L	2.00	2.45	2.40	2.14	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.209	0.200	104	70 - 130
Chromium	ug/L	1.00	0.168	0.200	84.0	70 - 130
Selenium	ug/L	1.00	0.937	1.00	93.7	70 - 130
Manganese	ug/L	1.00	0.141	0.200	70.5	70 - 130
Molybdenum	ug/L	1.00	0.531	0.500	106	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	46.6	50.0	93.2	85 - 115
Chromium	ug/L	1.00	47.4	50.0	94.8	85 - 115
Selenium	ug/L	1.00	45.0	50.0	90.0	85 - 115
Manganese	ug/L	1.00	47.0	50.0	93.9	85 - 115
Molybdenum	ug/L	1.00	49.2	50.0	98.4	85 - 115

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 5 of 9****Project Number: 423575.MP.02.GM.03****Printed 3/22/2013****Matrix Spike**

Lab ID = 806827-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	53.8	51.5(50.0)	104	75 - 125
Chromium	ug/L	10.0	794	812(250)	92.8	75 - 125
Selenium	ug/L	2.00	53.3	52.8(50.0)	101	75 - 125
Manganese	ug/L	2.00	52.5	51.2(50.0)	102	75 - 125
Molybdenum	ug/L	2.00	52.7	52.4(50.0)	101	75 - 125

Matrix Spike Duplicate

Lab ID = 806827-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	50.3	51.5(50.0)	97.6	75 - 125
Chromium	ug/L	10.0	774	812(250)	84.8	75 - 125
Selenium	ug/L	2.00	50.0	52.8(50.0)	94.5	75 - 125
Manganese	ug/L	2.00	49.0	51.2(50.0)	95.4	75 - 125
Molybdenum	ug/L	2.00	52.8	52.4(50.0)	101	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.5	20.0	102	90 - 110
Chromium	ug/L	1.00	20.4	20.0	102	90 - 110
Selenium	ug/L	1.00	20.9	20.0	104	90 - 110
Manganese	ug/L	1.00	20.5	20.0	102	90 - 110
Molybdenum	ug/L	1.00	21.5	20.0	108	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	18.6	20.0	93.1	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	18.4	20.0	92.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.0	20.0	94.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.7	20.0	93.7	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 8 of 9

Project Number: 423575.MP.02.GM.03

Printed 3/22/2013

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	19.4	20.0	96.8	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.0	20.0	100	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.2	20.0	96.0	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.1	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	19.0	20.0	95.3	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.6	20.0	98.2	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 = 806827-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	548	562	2.52	0 - 10



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 9 of 9

Project Number: 423575.MP.02.GM.03

Printed 3/22/2013


Serial Dilution

Lab ID = 806828-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	10.0	58.2	58.3	0.113	0 - 10
Manganese	ug/L	10.0	59.6	59.6	0.0772	0 - 10
Molybdenum	ug/L	10.0	31.2	30.3	2.81	0 - 10

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.


for Mona Nassimi
Manager, Analytical Services

806 P27

CH2MHILL

CHAIN OF CUSTODY RECORD

3/12/2013 9:33:32 AM

Page 1 OF 1

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy				Container: 250 ml Poly Preservatives: (NH4)2S O4/NH4O H, 4°C Filtered: Field Holding Time: 28	1x500 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
Project Number 423575.MP.02.GM.03 Task Order Project 2013-GMP-191-Q1 Turnaround Time 10 Days Shipping Date: 3/12/2013 COC Number: 18				C/6 (E218.6) Field Filtered Metals (6020AFF) Field Filtered Chromium				
DATE	TIME	MATRIX						
MW-57-070-191	3/11/2013	15:05	Water	X	X		2	pu-2
MW-240-191	3/12/2013	6:00	Water	X			1	6020A
TOTAL NUMBER OF CONTAINERS							3	

For Sample Conditions
See Form Attached

Signatures Approved by <i>[Signature]</i> Sampled by <i>[Signature]</i> Relinquished by <i>[Signature]</i> Received by <i>[Signature]</i> Relinquished by <i>[Signature]</i> Received by <i>[Signature]</i>		Date/Time 3-12-13 1535 3/12/13 15:35 3-12-13 21:38 3/12/13 21:30	Shipping Details Method of Shipment: courier On Ice: yes / no Airbill No: Lab Name: Truesdail Laboratories, Inc. Lab Phone: (714) 730-6239	ATTN: Sample Custody	Special Instructions: Feb 4 - Feb 28, 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
3/12/13	806790-1	9.5	N/A	N/A	N/A	TW
	-2					
	-3					
	-4					
	-5					
3/12/13	806791-1	9.5	N/A	N/A	N/A	TW
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
3/12/13	806805	7.0	2mL/100mL	9.5	16:50	TW
3/13/13	806824-1	9.0-9.5	N/A	N/A	N/A	TW
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
3/13/13	806825	9.5	N/A	N/A	N/A	TW
3/13/13	806826	7.0	2mL/100mL	9.5	11:10	TW
3/13/13	806827-1	9.5	N/A	N/A	N/A	TW
	-2					
TW 3/13/13	806828-1	9.5	N/A	N/A	N/A	TW
	-2					
	-3					
3/13/13	806829-1	9.5	N/A	N/A	N/A	TW
	-2					

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806861	<2	<2	3/14/13	DC	yes			
806862	<1	<2	3/14/13	DC	yes			
806848 (10-12)	<1	>2		BC	NO	13:30		
806849 (11-7)	↓	↓	↓	↓	NO			
806726 (1-5)	<1	<2	3/8/13	BE	yes			
806826	<1	>2	3/15/13	ES	yes	9:00		
806827-1	<1	<2	↓	↓	↓			
806828 (1-3)	↓	↓	↓	↓	↓			
806829 (1-4)	↓	↓	↓	↓	↓			
806877 (1-6)	<1	<2	3/14/13	ES	yes			
806908 (1-4)	↓	↓	↓	↓	↓			
806909 (1-12)	↓	↓	↓	↓	↓			
806910 (1-12)	↓	↓	↓	↓	↓			
806933 (1-7)	↓	↓	↓	↓	↓			
806965	<1	>2	3/20/13	ES	yes	9:30		
806966 (1,3)	↓	<2	↓	↓	↓			
806963	<1	>2	3/20/13	DC	NO	12:10		
806918 (1,2,4)	<1	>2	↓	↓	NO	12:10		
806958 (1,2,3)	↓	↓	↓	↓	NO	12:10		
806953 (1,3,4)	↓	↓	↓	↓	NO	↓		
806903	<1	<2	↓	↓	yes			
806904	↓	↓	↓	↓	↓			
806923	↓	↓	↓	↓	↓			
806925	↓	↓	↓	↓	↓			
806926	↓	↓	↓	↓	↓			
806939	↓	↓	↓	↓	↓			
806959	↓	↓	↓	↓	↓			
806960	↓	↓	↓	↓	↓			
806961	↓	↓	↓	↓	↓			
806962	↓	↓	↓	↓	↓			
806963	↓	↓	↓	↓	↓			
806964	>1	↓	↓	↓	↓			
806897	<1	↓	↓	↓	↓			
806899	↓	↓	↓	↓	↓			
806873	>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

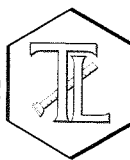
Lab # 806827

Date Delivered: 03/21/13 Time: 4:30 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)? 3.4 °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. & G. ☒ 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

March 26, 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-191-Q1, GROUNDWATER MONITORING
PROJECT, TLI NO.: 806908

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-191-Q1 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 March 15, 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 (125 ug/L) and Hexavalent Chromium (90.6 ug/L) results for sample MW-60BR-245-191, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 116 ug/L and 82.7 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and yielded a result of 121 ug/L. The original results were reported.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

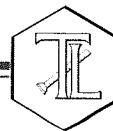

Mona Nassimi
Manager, Analytical Services



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

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.03
P.O. No.: 423575.MP.02.GM.03

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

Laboratory No.: 806908
Date Received: March 15, 2013

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806908-001	MW-66BR-270-191	E218.6	FLDFLT	3/12/2013	8:25	Chromium, Hexavalent	ND	ug/L	1.0
806908-001	MW-66BR-270-191	SW6020	FLDFLT	3/12/2013	8:25	Chromium	ND	ug/L	1.0
806908-002	MW-24BR-191	E218.6	FLDFLT	3/14/2013	14:58	Chromium, Hexavalent	ND	ug/L	1.0
806908-002	MW-24BR-191	SW6020	FLDFLT	3/14/2013	14:58	Chromium	ND	ug/L	1.0
806908-003	MW-60BR-245-191	E218.6	FLDFLT	3/14/2013	8:02	Chromium, Hexavalent	90.6	ug/L	1.0
806908-003	MW-60BR-245-191	SW6020	FLDFLT	3/14/2013	8:02	Chromium	125	ug/L	1.0
806908-004	MW-126-191	E218.6	FLDFLT	3/14/2013	13:13	Chromium, Hexavalent	93.9	ug/L	1.0
806908-004	MW-126-191	SW6020	FLDFLT	3/14/2013	13:13	Chromium	110	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.

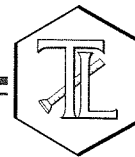
Quality Control data will always have three (3) significant figures.

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.

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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.GM.03

P.O. Number: 423575.MP.02.GM.03

Release Number:

Laboratory No. 806908

Page 1 of 5

Printed 3/26/2013

Samples Received on 3/15/2013 6:00:00 PM

Field ID	Lab ID	Collected	Matrix
MW-66BR-270-191	806908-001	03/12/2013 08:25	Water
MW-24BR-191	806908-002	03/14/2013 14:58	Water
MW-60BR-245-191	806908-003	03/14/2013 08:02	Water
MW-126-191	806908-004	03/14/2013 13:13	Water

Chromium VI by EPA 218.6

Batch 03CrH13M

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806908-001 Chromium, Hexavalent	ug/L	03/19/2013 16:44	5.00	0.0460	1.0	ND
806908-002 Chromium, Hexavalent	ug/L	03/19/2013 16:54	5.00	0.0460	1.0	ND
806908-003 Chromium, Hexavalent	ug/L	03/19/2013 13:47	5.00	0.0460	1.0	90.6
806908-004 Chromium, Hexavalent	ug/L	03/19/2013 14:18	5.00	0.0460	1.0	93.9

Method Blank

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

Duplicate

Lab ID = 806910-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.474	0.476	0.505	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.213	0.200	106	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.04	5.00	101	90 - 110

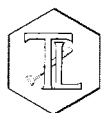
Matrix Spike

Lab ID = 806908-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.96	5.00(5.00)	99.3	90 - 110

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Client: E2 Consulting Engineers, Inc.

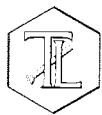
Project Name: PG&E Topock Project

Page 2 of 5

Project Number: 423575.MP.02.GM.03

Printed 3/26/2013

Matrix Spike						Lab ID = 806908-001
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 = 806908-002
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 = 806908-002
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 = 806908-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	195	191(100)	104	90 - 110
Matrix Spike						Lab ID = 806908-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	198	194(100)	104	90 - 110
Matrix Spike						Lab ID = 806909-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	7050	6740(3750)	108	90 - 110
Matrix Spike						Lab ID = 806910-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	467	454(250)	105	90 - 110
Matrix Spike						Lab ID = 806910-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	7260	6910(3750)	109	90 - 110
Matrix Spike						Lab ID = 806910-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	3930	3820(2000)	105	90 - 110
Matrix Spike						Lab ID = 806910-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	6670	6920(3750)	93.4	90 - 110
Matrix Spike						Lab ID = 806910-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.46	1.48(1.00)	98.6	90 - 110
Matrix Spike						Lab ID = 806910-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	500	20300	19900(10000)	104	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/26/2013

Metals by EPA 6020A, Dissolved

Batch 032113C-ICPMS-1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806908-001 Chromium	ug/L	03/22/2013 00:59	2.00	0.184	1.0	ND
806908-002 Chromium	ug/L	03/22/2013 01:57	2.00	0.184	1.0	ND
806908-003 Chromium	ug/L	03/22/2013 02:04	2.00	0.184	1.0	125
806908-004 Chromium	ug/L	03/22/2013 02:11	2.00	0.184	1.0	110

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 806908-001

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	0.141	0.200	70.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	52.6	50.0	105	85 - 115

Matrix Spike

Lab ID = 806908-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	55.9	50.0(50.0)	112	75 - 125

Matrix Spike Duplicate

Lab ID = 806908-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	55.4	50.0(50.0)	111	75 - 125

MRCCS - Secondary

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	18.7	20.0	93.7	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



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 5 of 5

Project Number: 423575.MP.02.GM.03

Printed 3/26/2013

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	19.4	20.0	97.0	80 - 120

Interference Check Standard AB

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


Serial Dilution

Lab ID = 806908-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	10.0	99.4	110	10.1	0 - 10

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services

CH2MHILL


CHAIN OF CUSTODY RECORD

3/15/2013 12:16:44 PM

Page 1 OF 1

Project Name PG&E Topock				Container:	250 ml Poly	1x500 ml Poly	<div style="border: 1px 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	HNO3, 4°C			
Project Manager Jay Piper				Filtered:	Field	Field			
Sample Manager Shawn Duffy				Holding Time:	28	180			
Project Number 423575.MP.02.GM.03									
Task Order									
Project 2013-GMP-191-Q1									
Turnaround Time 10 Days									
Shipping Date: 3/19/2013									
COC Number: 21									
DATE	TIME	Matrix							
MW-66BR-270-191	3/12/2013	8:25	Water	X	X			2	
MW-24BR-191	3/14/2013	14:58	Water	X	X			2	
MW-60BR-245-191	3/14/2013	8:02	Water	X	X			2	
MW-126-191	3-14-13	1313	Water	X	X			2	
							TOTAL NUMBER OF CONTAINERS	8	2

For Sample Conditions
See Form Attached

Signatures		Date/Time	Shipping Details
Approved by		3-15-13 1230	Method of Shipment: courier
Sampled by			On Ice: yes / no
Relinquished by			Airbill No:
Received by	Rafael Davila	3/15/13 12:30	Lab Name: Truesdail Laboratories, Inc.
Relinquished by	Rafael Davila	3-15-13 6:00	Lab Phone: (714) 730-6239
Received by	inda, TLI	3/15/13 6:00 pm	

Special Instructions:

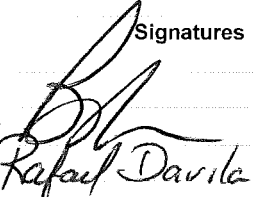



Feb 4 - Feb 28, 2013

Report Copy to

Shawn Duffy
(530) 229-3303

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.02.GM.0 Task Order Project 2013-GMP-191-Q1 Turnaround Time 10 Days Shipping Date: 3/19/2013 COC Number: 21				Container: 250 ml Poly Preservatives: (NH4)2S O4/NH4O H, 4°C Filtered: Field Holding Time: 28		1x500 ml Poly HNO3 4°C Field 180		Number of Containers	COMMENTS
				Cr6 (E218.6) Field Filtered		Metals (6020AF) Field Filtered Chromium			
DATE	TIME	MATRIX							
MW-66BR-270-191	3/12/2013	8:25	Water	X	X			2	
MW-24BR-191	3/14/2013	14:58	Water	X	X			2	
MW-60BR-245-191	3/14/2013	8:02	Water	X	X			2	
MW-126-191	3-14-13	1313	Water	X	X	TOTAL NUMBER OF CONTAINERS		2	

8 Bec

Signatures Approved by  Sampled by  Relinquished by  Received by  Relinquished by Received by		Date/Time 3-15-13 1230 3/15/13 12:30		Shipping Details Method of Shipment: courier On Ice: yes / no Airbill No: Lab Name: Truesdail Laboratories, Inc. Lab Phone: (714) 730-6239		Special Instructions: Feb 4 - Feb 28, 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
3/13/12	806829-3	9.5	N/A	N/A	N/A	TM
↓	-4	↓	↓	↓	↓	↓
3/13/13	806855-1	7.0	2 mL/100 mL	9.5	17:15	TM
↓	-2	↓	↓	↓	↓	↓
3/14/13	806858-1	9.5	N/A	N/A	N/A	HAV
↓	-2	↓	↓	↓	↓	↓
↓	-3	↓	↓	↓	↓	↓
↓	-4	↓	↓	↓	↓	↓
↓	-5	↓	↓	↓	↓	↓
3/14/13	806872-1	8.0	1 mL/100 mL	9.5	18:15	TM
↓	-2	7.0	2 mL/100 mL	9.5	↓	↓
3/18/13	806908-1	9.5	N/A	N/A	N/A	RB
↓	-2	↓	↓	↓	↓	↓
↓	-3	↓	↓	↓	↓	↓
↓	-4	↓	↓	↓	↓	↓
3/18/13	806909-1	9.5	N/A	N/A	N/A	RB
↓	-2	↓	↓	↓	↓	↓
↓	-3	↓	↓	↓	↓	↓
↓	-4	↓	↓	↓	↓	↓
↓	-5	↓	↓	↓	↓	↓
↓	-6	↓	↓	↓	↓	↓
↓	-7	↓	↓	↓	↓	↓
↓	-8	↓	↓	↓	↓	↓
↓	-9	↓	↓	↓	↓	↓
↓	-10	↓	↓	↓	↓	↓
↓	-11	↓	↓	↓	↓	↓
↓	-12	↓	↓	↓	↓	↓
3/18/13	806909-1	9.5	N/A	N/A	N/A	RB
↓	910-2	↓	↓	↓	↓	↓
↓	910-3	↓	↓	↓	↓	↓
↓	910-4	↓	↓	↓	↓	↓

RB
3/18/13

RB
3/21/13

RB
03/22/13



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806861	<2	<2	3/14/13	DC	yes			
806862	<1	<2	3/14/13	DC	yes			
806848 (10-12)	<1	>2		BC	NO	13:30		
806849 (1-7)	1	1			NO			
806726 (1-5)	<1	<2	3/8/13	BE	yes			
806826	<1	>2	3/15/13	ES	yes	9:00		
806827 ~1	<1	<2						
806828 (1-3)								
806829 (1-4)								
806877 (1-6)	<1	<2	3/19/13	ES	yes			
806908 (1-4)								
806909 (1-12)								
806910 (1-12)								
806933 (1-7)								
806965	<1	>2	3/20/13	ES	yes	9:30		
806966 (1,3)		<2						
806963	<1	>2	3/20/13	DC	NO	12:10	3/20/13 1:00	pH <2
806918 (1,2,4)	<1	>2			NO	12:10		
806958 (1,2,3)					NO	12:10		
806953 (1,3,4)					NO			
806903	<1	<2			yes			
806904								
806923								
806925								
806926								
806939								
806959								
806960								
806961								
806962								
806963								
806964	>1							
806897	<1							
806899								
806873	>1	<2						
806985	<1	<2	3/21/13	DC	yes			
806999	>1	>2				14:25		
806987	<1	<2	3-22-13	BE	yes			
806982 (1-3)		>2			NO	9:30	3/26/13 10:00	pH <2
806983 (1-10)								
807008								
806994	<1	>2		DC	NO	12:10		
807029 (1-8)	<1	>2	3/22/13	DC	NO	16:05		
807011	<1	<2	3/25/13	DC	yes			

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 # 806908

Date Delivered: 03/15/13 Time: 18:00 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)? 4.2 °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 = Self 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. Shabunina





CH2MHILL

Applied Sciences Laboratory

ANALYTICAL REPORT

For:

PGE Topock

ASL Report #: M1209

Project ID: 423575.MP.02.GM.03

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

March 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 #: M1209

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
M120901	MW-121-191	02/04/13 07:02	02/12/13
M120902	MW-27-060-191	02/04/13 11:26	02/12/13
M120903	MW-27-085-191	02/04/13 12:50	02/12/13
M120904	MW-28-090-191	02/05/13 12:41	02/12/13
M120905	MW-33-150-191	02/05/13 14:44	02/12/13
M120906	MW-33-210-191	02/05/13 15:55	02/12/13
M120907	MW-57-185-191	02/06/13 14:25	02/12/13
M120908	MW-63-065-191	02/06/13 10:58	02/12/13
M120909	MW-71-035-191	02/07/13 08:05	02/12/13
M120910	MW-72BR-200-191	02/07/13 15:10	02/12/13

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO

ASL SDG#: M1209

Project: PGE Topock

Project #: 423575.MP.02.GM.03

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):

MS and MSD recovery of Nitrate/Nitrite-N (115% and 121%) in MW-72BR-200-191 (M120910) did not meet acceptance criteria of 90-110%.

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: Emily Elie

Date: 3/11/13

Reviewed by: Kathy McLane

Date: 3/11/13

MW-27-060-191

Date Received: 02/12/13

[illegible]

MW-27-085-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M120903

Date Received: 02/12/13

[illegible]

MW-33-150-191

Date Received: 02/12/13

[illegible]

MW-33-210-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M120906

Date Received: 02/12/13

[illegible]

MW-57-185-191

Date Received: 02/12/13

[illegible]

MW-63-065-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M120908

[illegible]

MW-71-035-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M120909

Date Received: 02/12/13

[illegible]

MW-72BR-200-191

Date Received: 02/12/13

[illegible]

WB1-021213

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB1-021213

[illegible]

Concentration Units: MG/L

[illegible]

Signatures		Date/Time	Shipping Details		Special Instructions:	
Approved by		2-5-13 1615	Method of Shipment:	courier	ATTN:	Feb 4 - Feb 28, 2013
Sampled by			On Ice:	yes / no 2-8 ICE	Sample Custody	
Relinquished by		2/5/13 1615	Airbill No:		and	Report Copy to
Received by		2/5/13 1856	Lab Name:	CH2M HILL Applied Sciences Lab	Kathy McKinley	Shawn Duffy
Relinquished by		2/5/13 1856	Lab Phone:	(541) 752-4271		(530) 229-3303
Received by		2/5/13 1700	Mumian Bell 2/5/13 1000			

CH2MHILL

CHAIN OF CUSTODY RECORD

2/7/2013 1:15:38 PM

Page 1 OF 1

Project Name PG&E Topock				Container:	1 Liter 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.GM.03								
Task Order								
Project 2013-GMP-191-Q1								
Turnaround Time 10 Days								
Shipping Date: 2/7/2013								
COC Number: 5								
	DATE	TIME	MATRIX				Number of Containers	COMMENTS
MW-57-185-191	2/6/2013	14:25	Water	X			1	7
MW-63-065-191	2/6/2013	10:58	Water	X			1	8
MW-71-035-191	2/7/2013	8:05	Water	X			1	9
MW-72-200-191	2-7-13	15:10	Water	X	MW-72BR-200-191			
TOTAL NUMBER OF CONTAINERS							4	10

SPD

4

Approved by	Signatures	Date/Time	Shipping Details	Special Instructions:
Sampled by		2-7-13 16:50	Method of Shipment: courier	Feb 4 - Feb 28, 2013
Relinquished by			On Ice: yes 1 no 3.6 ICE	
Received by		2/7/13 16:50	Airbill No:	Sample Custody
Relinquished by			Lab Name: CH2M HILL Applied Sciences Lab	and
Received by		2/7/13 18:50	Lab Phone: (541) 752-4271	Kathy McKinley
		2/11/13 9:17:00		Report Copy to
				Shawn Duffy
				(530) 229-3303

Curran Bell 2/12/13 (COA)

McKinley, Kathy/CVO

From: Contreras, Erlene/RDD
Sent: Tuesday, March 05, 2013 5:03 PM
To: McKinley, Kathy/CVO
Cc: Duffy, Shawn/RDD
Subject: Topock M1209 ID revision
Attachments: M1209-COC-2013-GMP-191-Q1-Topock_03-05-13spd.pdf

Importance: High

Hi Kathy,

Can you please revise both edata and pdf for sample M120910 from **MW-72-200-191** to **MW-72BR-200-191** per the attached revised COC.

Thank you,
Erlene

Erlene Contreras
Project Assistant 6
CH2M Hill
2525 Airpark Drive
Redding, CA 96001-2443
Phone 530-229-3247
Fax 530-339-3247
erlene.contreras@ch2m.com



Batch Number: M12.09

Date received: 7/12/13

Client/Project: TOPCCN

Checked by:

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 1.8 °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]



Sample Receipt Exception Report

Sample Batch Number: M1209

Client/Project PGE 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	11) COC requests SM4500NO3. ASL only performs by E353.2
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.	
X 11. Other.	

ACTION TAKEN:

Notify client. Proceed with analysis.

Originator: Kathy McKinley/CVO

Date: February 12, 2013

Client was notified on: 2/12/2013
(Date/Time)

Client Contact: Shawn Duffy/RDD, Data Center/RDD

Client Services:



CH2MHILL

Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock

ASL Report #: M1279
Project ID: 423575.MP.02.GM.03
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
March 28, 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 #: M1279

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
M127901	MW-68BR-280-191	02/18/13 11:41	02/26/13
M127902	MW-35-060-191	02/19/13 08:27	02/26/13
M127903	MW-65-160-191	02/19/13 09:57	02/26/13
M127904	MW-65-225-191	02/19/13 13:23	02/26/13
M127905	MW-70-105-191	02/19/13 11:09	02/26/13
M127906	MW-72-080-191	02/19/13 12:21	02/26/13
M127907	MW-73-080-191	02/19/13 08:52	02/26/13
M127908	MW-60-125-191	02/20/13 13:06	02/26/13
M127909	MW-66-165-191	02/20/13 10:23	02/26/13
M127910	MW-68-240-191	02/20/13 14:11	02/26/13
M127911	MW-69-195-191	02/20/13 11:14	02/26/13
M127912	MW-125-191	02/21/13 09:30	02/26/13
M127913	MW-66-230-191	02/21/13 11:35	02/26/13
M127914	MW-67-185-191	02/21/13 09:25	02/26/13
M127915	MW-67-225-191	02/21/13 10:25	02/26/13
M127916	MW-67-260-191	02/21/13 08:39	02/26/13
M127917	MW-68-180-191	02/21/13 14:06	02/26/13
M127918	TW-01-191	02/21/13 16:05	02/26/13

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO

ASL SDG#: M1279

Project: PGE Topock

Project #: 423575.MP.02.GM.03

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):

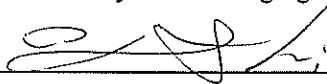
None.

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: _____

3/26/2013

Reviewed by: _____

Katley Mcken

Date: _____

3/28/13

1A-WC

MW-68BR-280-191

Date Received: 02/26/13

[illegible]

1A-WC

MW-35-060-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M127902

[illegible]

1A-WC

MW-65-225-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M127904

Date Received: 02/26/13

[illegible]

1A-WC

MW-70-105-191

Date Received: 02/26/13

[illegible]

1A-WC

MW-72-080-191

Date Received: 02/26/13

[illegible]

1A-WC

MW-73-080-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M127907

Date Received: 02/26/13

[illegible]

1A-WC

MW-60-125-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M127908

Date Received: 02/26/13

[illegible]

1A-WC

MW-66-165-191

Date Received: 02/26/13

[illegible]

1A-WC

MW-68-240-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M127910

Date Received: 02/26/13

[illegible]

1A-WC

MW-125-191

Date Received: 02/26/13

[illegible]

1A-WC

MW-66-230-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M127913

[illegible]

1A-WC

MW-67-185-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M127914

Date Received: 02/26/13

[illegible]

1A-WC

MW-67-225-191

Date Received: 02/26/13

[illegible]

1A-WC

MW-67-260-191

Date Received: 02/26/13

[illegible]

1A-WC

MW-68-180-191

Date Received: 02/26/13

[illegible]

1A-WC

TW-01-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M127918

SDG No. : M1279

[illegible]

1A-WC

WB2-0304

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB2-0304

Date Received: / /

[illegible]

1A-WC

WB3-0313

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB3-0313

Date Received: / /

[illegible]

1A-WC

WB5-0304

Date Received: / /

[illegible]

1A-WC

WB6-0304

Date Received: / /

[illegible]

Concentration Units: MG/L

Concentration Units: MG/L

[illegible]

Comments:

Concentration Units: MG/L

[illegible]

Comments:

Concentration Units: MG/L

[illegible]

Comments:

M1279

CH2MHILL

CHAIN OF CUSTODY RECORD

2/19/2013 3:36:18 PM

Page 1 OF 1

Project Name PG&E Topock		Container: 1 Liter Poly		Nitrile/Nitrite (SM4500NO3) Nitrate		Number of Containers	COMMENTS
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.GM.03							
Task Order							
Project 2013-GMP-191-Q1							
Turnaround Time 10 Days							
Shipping Date: 2/19/2013							
COC Number: 8							
DATE	TIME	MATRIX					
MW-68BR-280-191	2/18/2013	11:41	Water	X		1	1
MW-35-060-191	2/19/2013	8:27	Water	X		1	2
MW-65-160-191	2/19/2013	9:57	Water	X		1	3
MW-65-225-191	2/19/2013	13:23	Water	X		1	4
MW-70-105-191	2/19/2013	11:09	Water	X		1	5
MW-72-080-191	2/19/2013	12:21	Water	X		1	6
MW-73-080-191	2/19/2013	8:52	Water	X		1	7
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 4.6 IRA ICE

Airbill No:

Lab Name: CH2M HILL Applied Sciences Lab

Lab Phone: (541) 752-4271

ATTN:

Sample Custody

and

Kathy McKinley

Special Instructions:

Feb 4 - Feb 28, 2013

Report Copy to

Shawn Duffy
(530) 229-3303

REL: MBCARTIN 2/25/13 @ 1700

Carmen Bell

2/26/13 @ 1010

m1279

CH2MHILL

CHAIN OF CUSTODY RECORD

2/21/2013 4:19:16 PM

Page 1 OF 1

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.02.GM.03 Task Order Project 2013-GMP-191-Q1 Turnaround Time 10 Days Shipping Date: 2/21/2013 COC Number: 11				Containers: 1 Liter Poly Preservatives: H2SO4, pH<2, 4°C Filtered: NA Holding Time: 28 Nitrate/Nitrite (SM4500NO3) Nitrate	Number of Containers	COMMENTS
DATE	TIME	Matrix				
MW-60-125-191	2/20/2013	13:06	Water	X	1	8
MW-66-165-191	2/20/2013	10:23	Water	X	1	9
MW-68-240-191	2/20/2013	14:11	Water	X	1	10
MW-69-195-191	2/20/2013	11:14	Water	X	1	11
MW-125-191	2/21/2013	9:30	Water	X	1	12
MW-66-230-191	2/21/2013	11:35	Water	X	1	13
MW-67-185-191	2/21/2013	9:25	Water	X	1	14
MW-67-225-191	2/21/2013	10:25	Water	X	1	15
MW-67-260-191	2/21/2013	8:39	Water	X	1	16
MW-68-180-191	2/21/2013	14:06	Water	X	1	17
TW-01-191	2/21/2013	16:05	Water	X	1	18
TOTAL NUMBER OF CONTAINERS					11	

Approved by _____
 Sampled by _____
 Relinquished by _____
 Received by _____
 Relinquished by _____
 Received by _____
 REL: M3CARTON / [Signature] 2/25/13 @ 1700

Signatures
 Date/Time
 2-21-13 1620
 2-21-13 1620
 2-21-13 1838

Shipping Details
 Method of Shipment: courier
 On Ice: ☒ / no 2.8 1R1 ICE
 Airbill No:
 Lab Name: CH2M HILL Applied Sciences Lab
 Lab Phone: (541) 752-4271

Special Instructions:
 Feb 4 - Feb 28, 2013

ATTN:
 Sample Custody
 and
 Kathy McKinley
 Report Copy to
 Shawn Duffy
 (530) 229-3303

Marven Bell 2/26/13 @ 1010



Batch Number: 11279
Client/Project: To rock

Date received: 2/26/13
Checked by: CLB
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 Blue Ice</u> 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 <u>3.6 °C</u>		✓	

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 #: M1333

Project ID: 423575.MP.02.GM.03

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

April 02, 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 #: M1333

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
M133301	MW-46-175-191	02/25/13 16:24	03/05/13
M133302	MW-61-110-191	02/25/13 15:23	03/05/13
M133303	MW-110-191	02/26/13 15:03	03/05/13
M133304	MW-12-191	02/26/13 14:58	03/05/13
M133305	MW-44-115-191	02/26/13 12:35	03/05/13
M133306	MW-46-175H-191SMT	02/25/13 11:25	03/05/13
M133307	MW-46-175MD-191SMT	02/25/13 14:13	03/05/13
M133308	MW-61-110H-191SMT	02/25/13 13:00	03/05/13
M133309	MW-61-110MD-191SMT	02/25/13 14:31	03/05/13
M133310	MW-110H-191SMT	02/26/13 15:03	03/05/13
M133311	MW-110MD-191SMT	02/26/13 14:20	03/05/13
M133312	MW-12H-191SMT	02/26/13 13:26	03/05/13
M133313	MW-12MD-191SMT	02/26/13 14:18	03/05/13
M133314	MW-44-115H-191SMT	02/26/13 09:15	03/05/13
M133315	MW-44-115MD-191SMT	02/26/13 10:55	03/05/13
M133316	MW-33-040-191	02/25/13 10:47	03/05/13
M133317	MW-62-110-191	02/26/13 15:59	03/05/13
M133318	MW-62-190-191	02/26/13 16:05	03/05/13
M133319	MW-70BR-225-191	02/26/13 11:16	03/05/13
M133320	MW-47-115-191	02/27/13 15:09	03/05/13
M133321	MW-50-200-191	02/27/13 15:53	03/05/13
M133322	MW-59-100-191	02/27/13 10:25	03/05/13
M133323	MW-47-115H-191SMT	02/27/13 12:05	03/05/13
M133324	MW-47-115MD-191SMT	02/27/13 13:11	03/05/13
M133325	MW-50-200H-191SMT	02/27/13 11:30	03/05/13
M133326	MW-50-200MD-191SMT	02/27/13 13:30	03/05/13
M133327	MW-59-100H-191SMT	02/27/13 08:26	03/05/13
M133328	MW-59-100MD-191SMT	02/27/13 09:47	03/05/13
M133329	MW-74-240-191	03/01/13 08:15	03/05/13

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO

ASL SDG#: M1333

Project: PGE Topock

Project #: 423575.MP.02.GM.03

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):

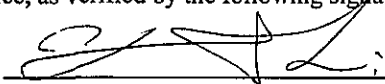
None.

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:

3/26/2013

Reviewed by:

Kathryn McKene

Date:

3/29/13

1A-WC

MW-46-175-191

Date Received: 03/05/13

Field Sample ID:

SDG No. : M1333

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: M133302

Date Received: 03/05/13

[illegible]

1A-WC

MW-110-191

Date Received: 03/05/13

[illegible]

1A-WC

MW-12-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M133304

Date Received: 03/05/13

[illegible]

1A-WC

MW-44-115-191

Date Received: 03/05/13

1A-WC

MW-62-110-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M133317

Date Received: 03/05/13

[illegible]

1A-WC

MW-62-190-191

1A-WC

MW-70BR-225-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M133319

Date Received: 03/05/13

[illegible]

1A-WC

MW-47-115-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M133320

Date Received: 03/05/13

[illegible]

1A-WC

MW-50-200-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M133321

Date Received: 03/05/13

[illegible]

1A-WC

MW-74-240-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M133329

Date Received: 03/05/13

[illegible]

1A-WC

WB1-0313

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB1-0313

Date Received: / /

[illegible]

1A-WC

WB1-0322

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB1-0322

Date Received: / /

[illegible]

Concentration Units: MG/L

[illegible]

Comments:

Concentration Units: MG/L

Concentration Units: MG/L

[illegible]

Comments:

m1333

CH2MHILL

CHAIN OF CUSTODY RECORD

2/26/2013 5:01:36 PM

Page 1 OF 1

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.06-75 Task Order 02-11-03 Project 2013-GMP-191SAMPLEMETHOD Turnaround Time 10 Days Shipping Date: 2/26/2013 COC Number: 10				Container: 250 ml Poly Preservatives: H2SO4, pH<2, 4°C Filtered: NA Holding Time: 28 Nitrate/Nitrite (E353.3)	Number of Containers	COMMENTS
DATE	TIME	Matrix				
MW-46-175-191	2/25/2013 16:24	Water	X			
MW-61-110-191	2/25/2013 15:23	Water	X			
MW-110-191	2/26/2013 15:03	Water	X			
MW-12-191	2/26/2013 14:58	Water	X			
MW-44-115-191	2/26/2013 12:35	Water	X			
TOTAL NUMBER OF CONTAINERS				5		

Approved by Sampled by Relinquished by Received by Relinquished by Received by	Signatures 	Date/Time 2-26-13 1705 2/26/13 1705 2/26/13 1705 2/26/13 1705	Shipping Details Method of Shipment: courier On Ice: yes 1 no 1-6°C Airbill No: 1E#1 Lab Name: CH2M HILL Applied Sciences Lab Lab Phone: (541) 752-4271	ATTN: Sample Custody and Kathy McKinley	Special Instructions: Feb 4 - Feb 28, 2013 Report Copy to Shawn Duffy (530) 229-3303
---	----------------------------	---	--	--	--

REL: [Signature] 3/4/13 @ 1700

Carmen Bell 3/5/13 1030

m1333

CH2MHILL

CHAIN OF CUSTODY RECORD

2/26/2013 5:00:49 PM

Page 1 OF 1

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.0075							
Task Order 02.6M.03							
Project 2013-GMP-191SAMPLEMETHOD							
Turnaround Time 10 Days							
Shipping Date: 2/26/2013							
COC Number: 11							
	DATE	TIME	Matrix				
MW-46-175H-191SMT	2/25/2013	11:25	Water	X			
MW-46-175MD-191SMT	2/25/2013	14:13	Water	X			
MW-61-110H-191SMT	2/25/2013	13:00	Water	X			
MW-61-110MD-191SMT	2/25/2013	14:31	Water	X			
MW-110H-191SMT	2/26/2013	15:03	Water	X			
MW-110MD-191SMT	2/26/2013	14:20	Water	X			
MW-12H-191SMT	2/26/2013	13:26	Water	X			
MW-12MD-191SMT	2/26/2013	14:18	Water	X			
MW-44-115H-191SMT	2/26/2013	9:15	Water	X			
MW-44-115MD-191SMT	2/26/2013	10:55	Water	X			
TOTAL NUMBER OF CONTAINERS					10		

Signatures		Date/Time	Shipping Details		ATTN: Sample Custody and Kathy McKinley	Special Instructions: Feb 4 - Feb 28, 2013 Report Copy to Shawn Duffy (530) 229-3303
Approved by		2-26-13	Method of Shipment: courier			
Sampled by		1705	On Ice: yes / no 1.6°C			
Relinquished by		2/26/13 1705	Airbill No: 1P#1			
Received by		2/26/13 1705	Lab Name: CH2M HILL Applied Sciences Lab			
Relinquished by		2/26/13 1705	Lab Phone: (541) 752-4271			
Received by		2/26/13 1705				

PEL: 3/4/13 @ 1700 Carmen BEL 3/05/13 1030

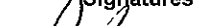



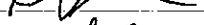
CH2MHILL

CHAIN OF CUSTODY RECORD

2/26/2013 4:26:35 PM

Page 1 OF 1

Project Name PG&E Topock Container: 1 Liter Poly 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.02.GM.03 Task Order Project 2013-GMP-191-Q1 Turnaround Time 10 Days Shipping Date: 2/26/2013 COC Number: 14					Nitrate/Nitrite (SM4500NO3) Nitrate		Number of Containers	COMMENTS
DATE	TIME	Matrix						
MW-33-040-191	2/25/2013	10:47	Water	X		16	1	17
MW-62-110-191	2/26/2013	15:59	Water	X		17	1	18
MW-62-190-191	2/26/2013	16:05	Water	X		18	1	19
MW-70BR-225-191	2/26/2013	11:16	Water	X		19	1	20
TOTAL NUMBER OF CONTAINERS						4		20

Approved by	Signatures	Date/Time	Shipping Details	ATTN: Sample Custody and Kathy McKinley	Special Instructions:
Sampled by		2-26-13 1705	Method of Shipment: courier		Feb 4 - Feb 28, 2013
Relinquished by			On Ice: yes no 1-6°C		
Received by		2/26/13 1705	Airbill No:		
Relinquished by		2/26/13 1705	Lab Name: CH2M HILL Applied Sciences Lab		Report Copy to
Received by		2/26/13 1705	Lab Phone: (541) 752-4271		Shawn Duffy (530) 229-3303

12th: *Amorpha* 3/4/13 e. 1700

Carmen Bell 3/8/13 1534

M1333

CH2MHILL

CHAIN OF CUSTODY RECORD

3/1/2013 4:28:38 PM

Page 1 OF 1

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.00.15 Task Order 02.6W.03		Nitrate/Nitrite (E353.3)	
Project 2013-GMP-191SAMPLEMETHOD			
Turnaround Time 10 Days			
Shipping Date: 3/1/2013			
COC Number: 17			
DATE TIME Matrix			
MW-47-115-191	2/27/2013 15:09	Water	X
MW-50-200-191	2/27/2013 15:53	Water	X
MW-59-100-191	2/27/2013 10:25	Water	X
TOTAL NUMBER OF CONTAINERS			3

Signatures		Date/Time	Shipping Details		ATTN: Sample Custody and Kathy McKinley	Special Instructions:
Approved by		3-1-13	Method of Shipment: courier			Feb 4 - Feb 28, 2013
Sampled by		1645	On Ice: yes / no 3-4°C			
Relinquished by		3/1/13 1645	Airbill No: 1241			
Received by		3/1/13 1645	Lab Name: CH2M HILL Applied Sciences Lab			
Relinquished by		3/1/13 1645	Lab Phone: (541) 752-4271			
Received by		3/1/13 1645				Report Copy to Shawn Duffy (530) 229-3303
REL: 3/4/13 @ 1700						

M1333

CH2MHILL

CHAIN OF CUSTODY RECORD

3/1/2013 4:40:12 PM

Page 1 OF 1

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.0075		Nitrate/Nitrite (E853.3)																																	
Task Order 02.GM.03																																			
Project 2013-GMP-191SAMPLEMETHOD																																			
Turnaround Time 10 Days																																			
Shipping Date: 3/1/2013																																			
COC Number: 18																																			
<table border="1"><thead><tr><th>DATE</th><th>TIME</th><th>Matrix</th><th></th></tr></thead><tbody><tr><td>MW-47-115H-191SMT</td><td>2/27/2013</td><td>12:05</td><td>Water X</td></tr><tr><td>MW-47-115MD-191SMT</td><td>2/27/2013</td><td>13:11</td><td>Water X</td></tr><tr><td>MW-50-200H-191SMT</td><td>2/27/2013</td><td>11:30</td><td>Water X</td></tr><tr><td>MW-50-200MD-191SMT</td><td>2/27/2013</td><td>13:30</td><td>Water X</td></tr><tr><td>MW-59-100H-191SMT</td><td>2/27/2013</td><td>8:26</td><td>Water X</td></tr><tr><td>MW-59-100MD-191SMT</td><td>2/27/2013</td><td>9:47</td><td>Water X</td></tr><tr><td colspan="3">TOTAL NUMBER OF CONTAINERS</td><td>6</td></tr></tbody></table>				DATE	TIME	Matrix		MW-47-115H-191SMT	2/27/2013	12:05	Water X	MW-47-115MD-191SMT	2/27/2013	13:11	Water X	MW-50-200H-191SMT	2/27/2013	11:30	Water X	MW-50-200MD-191SMT	2/27/2013	13:30	Water X	MW-59-100H-191SMT	2/27/2013	8:26	Water X	MW-59-100MD-191SMT	2/27/2013	9:47	Water X	TOTAL NUMBER OF CONTAINERS			6
DATE	TIME	Matrix																																	
MW-47-115H-191SMT	2/27/2013	12:05	Water X																																
MW-47-115MD-191SMT	2/27/2013	13:11	Water X																																
MW-50-200H-191SMT	2/27/2013	11:30	Water X																																
MW-50-200MD-191SMT	2/27/2013	13:30	Water X																																
MW-59-100H-191SMT	2/27/2013	8:26	Water X																																
MW-59-100MD-191SMT	2/27/2013	9:47	Water X																																
TOTAL NUMBER OF CONTAINERS			6																																
			Number of Containers																																
			COMMENTS																																

Signatures		Date/Time	Shipping Details		ATTN:	Special Instructions:
Approved by		3-1-13	Method of Shipment: courier			
Sampled by		1645	On Ice: yes / no 3-42		Sample Custody and Kathy McKinley	Feb 4 - Feb 28, 2013
Relinquished by			Airbill No: 1R#1			
Received by		3/1/13 1045	Lab Name: CH2M HILL Applied Sciences Lab		Report Copy to Shawn Duffy (530) 229-3303	
Relinquished by		3/1/13 1200	Lab Phone: (541) 752-4271			
Received by		3/1/13 1200				
REL: [Signature]		3/4/13 1700	Norman Bell 3/5/13 1030			

CH2MHILL

CHAIN OF CUSTODY RECORD

3/1/2013 4:44:53 PM

Page 1 OF 1

DATE				TIME	Matrix	1 Liter Poly	H2SO4, pH<2, 4°C	NA	28	Nitrate/Nitrite (SM4500NO3) Nitrate	Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.02.GM.03 Task Order Project 2013-GMP-191-Q1 Turnaround Time 10 Days Shipping Date: 3/1/2013 COC Number: 17	Number of Containers	COMMENTS
DATE	TIME	Matrix											
MW-74-240-191	3/1/2013	8:15	Water	X								29	30
TOTAL NUMBER OF CONTAINERS											1	41	

Approved by Sampled by Relinquished by Received by Relinquished by Received by	Signatures 	Date/Time 3-1-13 1645 3/1/13 1645 3/1/13 3/1/13 1600 3/4/13 @ 1700	Shipping Details Method of Shipment: courier On Ice: yes / no 5-400 1241 Airbill No: Lab Name: CH2M HILL Applied Sciences Lab Lab Phone: (541) 752-4271	ATTN: Sample Custody and Kathy McKinley	Special Instructions: Feb 4 - Feb 28, 2013 Report Copy to Shawn Duffy (530) 229-3303
---	---	---	---	--	--



Batch Number: M1333
Client/Project: TGDCN

Date received: 3/5/13
Checked by: on
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		✓	

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]

February 21, 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.: N009541

RE: PG&E Topock, 423575.MP.02.GM.03

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on February 05, 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.02.GM.03
Lab Order: N009541

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 300.0:

Dilution was necessary on samples N009541-004, N009541-007, N009541-008 and N009541-009 due to matrix.



CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N009541
Contract No: 2013-GMP-191-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009541-001A	MW-121-191	Water	2/4/2013 7:02:00 AM	2/5/2013	2/21/2013
N009541-001B	MW-121-191	Water	2/4/2013 7:02:00 AM	2/5/2013	2/21/2013
N009541-002A	MW-123-191	Water	2/4/2013 5:54:00 PM	2/5/2013	2/21/2013
N009541-002B	MW-123-191	Water	2/4/2013 5:54:00 PM	2/5/2013	2/21/2013
N009541-003A	MW-27-060-191	Water	2/4/2013 11:26:00 AM	2/5/2013	2/21/2013
N009541-003B	MW-27-060-191	Water	2/4/2013 11:26:00 AM	2/5/2013	2/21/2013
N009541-004A	MW-27-085-191	Water	2/4/2013 12:50:00 PM	2/5/2013	2/21/2013
N009541-004B	MW-27-085-191	Water	2/4/2013 12:50:00 PM	2/5/2013	2/21/2013
N009541-005A	MW-42-055-191	Water	2/4/2013 3:37:00 PM	2/5/2013	2/21/2013
N009541-005B	MW-42-055-191	Water	2/4/2013 3:37:00 PM	2/5/2013	2/21/2013
N009541-006A	MW-42-065-191	Water	2/4/2013 2:39:00 PM	2/5/2013	2/21/2013
N009541-006B	MW-42-065-191	Water	2/4/2013 2:39:00 PM	2/5/2013	2/21/2013
N009541-007A	MW-28-090-191	Water	2/5/2013 12:41:00 PM	2/5/2013	2/21/2013
N009541-007B	MW-28-090-191	Water	2/5/2013 12:41:00 PM	2/5/2013	2/21/2013
N009541-008A	MW-33-150-191	Water	2/5/2013 2:44:00 PM	2/5/2013	2/21/2013
N009541-008B	MW-33-150-191	Water	2/5/2013 2:44:00 PM	2/5/2013	2/21/2013
N009541-009A	MW-33-210-191	Water	2/5/2013 3:55:00 PM	2/5/2013	2/21/2013
N009541-009B	MW-33-210-191	Water	2/5/2013 3:55:00 PM	2/5/2013	2/21/2013
N009541-010A	MW-34-080-191	Water	2/5/2013 11:03:00 AM	2/5/2013	2/21/2013
N009541-010B	MW-34-080-191	Water	2/5/2013 11:03:00 AM	2/5/2013	2/21/2013



Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 21-Feb-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-121-191
Lab Order:	N009541	Collection Date:	2/4/2013 7:02:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009541-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	-----	------	-------	----	---------------

SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130206A	QC Batch: R87512	PrepDate:	Analyst: QBM
Specific Conductance	1000	0.10	0.10
		umhos/cm	1
			2/6/2013

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: 21-Feb-13

CLIENT: CH2M HILL
Lab Order: N009541
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009541-002

Client Sample ID: MW-123-191
Collection Date: 2/4/2013 5:54:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130206A	QC Batch: R87512	PrepDate:	Analyst: QBM
Specific Conductance	8500 0.10 0.10	umhos/cm	1 2/6/2013

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: 21-Feb-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-27-060-191
Lab Order:	N009541	Collection Date:	2/4/2013 11:26:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009541-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130206A	QC Batch: R87512	PrepDate:	Analyst: QBM
Specific Conductance	990	0.10	0.10
		umhos/cm	1
			2/6/2013

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: 21-Feb-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-27-085-191
Lab Order:	N009541	Collection Date:	2/4/2013 12:50:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009541-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130206A	QC Batch: R87512	PrepDate:	Analyst: QBM			
Specific Conductance	11000	0.10	0.10	umhos/cm	1	2/6/2013

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: 21-Feb-13

CLIENT: CH2M HILL
Lab Order: N009541
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009541-005

Client Sample ID: MW-42-055-191
Collection Date: 2/4/2013 3:37:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130206A	QC Batch: R87512			PrepDate:	Analyst: QBM		
Specific Conductance	2600	0.10	0.10	umhos/cm	1	2/6/2013	

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: 21-Feb-13

CLIENT: CH2M HILL
Lab Order: N009541
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009541-006

Client Sample ID: MW-42-065-191
Collection Date: 2/4/2013 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_130206A	QC Batch: R87512	PrepDate:	Analyst: QBM
Specific Conductance	8700 0.10 0.10	umhos/cm	1 2/6/2013

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: 21-Feb-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-28-090-191
Lab Order:	N009541	Collection Date:	2/5/2013 12:41:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009541-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130206A	QC Batch: R87512	PrepDate:	Analyst: QBM			
Specific Conductance	7000	0.10	0.10	umhos/cm	1	2/6/2013

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: 21-Feb-13

CLIENT: CH2M HILL
Lab Order: N009541
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009541-008

Client Sample ID: MW-33-150-191
Collection Date: 2/5/2013 2:44:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130206A	QC Batch: R87512			PrepDate:		Analyst: QBM
Specific Conductance	16000	0.10	0.10	umhos/cm	1	2/6/2013

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: 21-Feb-13

CLIENT: CH2M HILL
Lab Order: N009541
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009541-009

Client Sample ID: MW-33-210-191
Collection Date: 2/5/2013 3:55:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130206A	QC Batch: R87512	PrepDate:	Analyst: QBM
Specific Conductance	18000 0.10	umhos/cm	2/6/2013

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: 21-Feb-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-34-080-191
Lab Order:	N009541	Collection Date:	2/5/2013 11:03:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009541-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130206A	QC Batch: R87512	PrepDate:	Analyst: QBM			
Specific Conductance	7000	0.10	0.10	umhos/cm	1	2/6/2013

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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CLIENT: CH2M HILL
 Work Order: N009541
 Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT**TestCode: 120.1_WPGE**

Sample ID: LCS-R87512	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87512			
Client ID: LCSW	Batch ID: R87512	TestNo: EPA 120.1			Analysis Date: 2/6/2013				SeqNo: 1520688		
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				

Sample ID: N009541-004B-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87512			
Client ID: ZZZZZZ	Batch ID: R87512	TestNo: EPA 120.1			Analysis Date: 2/6/2013				SeqNo: 1520693		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	10530.000	0.10						10620	0.851	10	

Sample ID: N009541-004BMS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87512			
Client ID: ZZZZZZ	Batch ID: R87512	TestNo: EPA 120.1			Analysis Date: 2/6/2013				SeqNo: 1520694		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	20860.000	0.20	9992	10620	102	75	125				

Sample ID: N009541-004BMSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87512			
Client ID: ZZZZZZ	Batch ID: R87512	TestNo: EPA 120.1			Analysis Date: 2/6/2013				SeqNo: 1520695		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	21220.000	0.20	9992	10620	106	75	125	20860	1.71	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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 21-Feb-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-121-191
Lab Order:	N009541	Collection Date:	2/4/2013 7:02:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009541-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130213A	QC Batch: R87659	PrepDate:	Analyst: QBM
Fluoride	0.79 0.012 0.50	mg/L	1 2/13/2013 11:54 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: 21-Feb-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-27-060-191
Lab Order:	N009541	Collection Date:	2/4/2013 11:26:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009541-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130213A	QC Batch: R87659	PrepDate:	Analyst: QBM
Fluoride	0.81 0.012 0.50	mg/L	1 2/13/2013 12:06 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: 21-Feb-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-27-085-191
Lab Order:	N009541	Collection Date:	2/4/2013 12:50:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009541-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY**EPA 300.0**

RunID: IC2_130213A	QC Batch: R87659	PrepDate:	Analyst: QBM
Fluoride	ND 0.060	2.5 mg/L	5 2/13/2013 12:17 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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 21-Feb-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-28-090-191
Lab Order:	N009541	Collection Date:	2/5/2013 12:41:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009541-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130213A	QC Batch: R87659	PrepDate:	Analyst: QBM
Fluoride	ND 0.12	5.0	mg/L 10 2/13/2013 02:22 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: 21-Feb-13

CLIENT: CH2M HILL
Lab Order: N009541
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009541-008

Client Sample ID: MW-33-150-191
Collection Date: 2/5/2013 2:44:00 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_130213A	QC Batch: R87659	PrepDate:	Analyst: QBM
Fluoride	ND 0.12 5.0	mg/L	10 2/13/2013 12:41 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: 21-Feb-13

CLIENT: CH2M HILL
Lab Order: N009541
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009541-009

Client Sample ID: MW-33-210-191
Collection Date: 2/5/2013 3:55:00 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_130213A	QC Batch: R87659	PrepDate:		Analyst: QBM			
Fluoride	ND	0.12	5.0		mg/L	10	2/13/2013 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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CLIENT: CH2M HILL
 Work Order: N009541
 Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT**TestCode: 300_W_FPGE**

Sample ID: MB-R87659_F	SampType: MBLK	TestCode: 300_W_FPGE Units: mg/L				Prep Date:				RunNo: 87659		
Client ID: PBW	Batch ID: R87659	TestNo: EPA 300.0				Analysis Date: 2/13/2013				SeqNo: 1527343		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Fluoride	ND	0.50										

Sample ID: LCS-R87659_F	SampType: LCS	TestCode: 300_W_FPGE Units: mg/L				Prep Date:				RunNo: 87659		
Client ID: LCSW	Batch ID: R87659	TestNo: EPA 300.0				Analysis Date: 2/13/2013				SeqNo: 1527344		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Fluoride	2.467	0.50	2.500	0	98.7	90	110					

Sample ID: N009541-001BDUP	SampType: DUP	TestCode: 300_W_FPGE Units: mg/L				Prep Date:				RunNo: 87659		
Client ID: ZZZZZZ	Batch ID: R87659	TestNo: EPA 300.0				Analysis Date: 2/13/2013				SeqNo: 1527355		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Fluoride	0.791	0.50						0.7940	0.379	20		

Sample ID: N009541-003BMS	SampType: MS	TestCode: 300_W_FPGE Units: mg/L				Prep Date:				RunNo: 87659		
Client ID: ZZZZZZ	Batch ID: R87659	TestNo: EPA 300.0				Analysis Date: 2/13/2013				SeqNo: 1527356		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Fluoride	3.086	0.50	2.500	0.8080	91.1	80	120					

Sample ID: N009541-003BMSD	SampType: MSD	TestCode: 300_W_FPGE Units: mg/L				Prep Date:				RunNo: 87659		
Client ID: ZZZZZZ	Batch ID: R87659	TestNo: EPA 300.0				Analysis Date: 2/13/2013				SeqNo: 1527357		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Fluoride	3.034	0.50	2.500	0.8080	89.0	80	120	3.086	1.70	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: 21-Feb-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-121-191
Lab Order:	N009541	Collection Date:	2/4/2013 7:02:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009541-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130209C	QC Batch: 42091	PrepDate: 2/6/2013	Analyst: CEI
Arsenic	7.3 0.035 0.10	µg/L	1 2/9/2013 12:33 PM
Manganese	130 0.16 0.50	µg/L	1 2/9/2013 12:33 PM
Molybdenum	3.8 0.074 0.50	µg/L	1 2/9/2013 12:33 PM
Selenium	ND 0.084 0.50	µg/L	1 2/9/2013 12:33 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	



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 21-Feb-13

CLIENT: CH2M HILL
Lab Order: N009541
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009541-002

Client Sample ID: MW-123-191
Collection Date: 2/4/2013 5:54:00 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_130209C**QC Batch: **42091**

PrepDate:

2/6/2013Analyst: **CEI**

Arsenic	2.4	0.035	0.10	µg/L	1	2/9/2013 12:39 PM
Manganese	1300	4.0	12	µg/L	25	2/9/2013 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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 21-Feb-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-27-060-191
Lab Order:	N009541	Collection Date:	2/4/2013 11:26:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009541-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130209C	QC Batch: 42091	PrepDate: 2/6/2013	Analyst: CEI
Arsenic	7.2 0.035 0.10	µg/L	1 2/9/2013 12:45 PM
Manganese	130 0.16 0.50	µg/L	1 2/9/2013 12:45 PM
Molybdenum	3.9 0.074 0.50	µg/L	1 2/9/2013 12:45 PM
Selenium	ND 0.084 0.50	µg/L	1 2/9/2013 12:45 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: 21-Feb-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-27-085-191
Lab Order:	N009541	Collection Date:	2/4/2013 12:50:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009541-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130209C	QC Batch: 42091	PrepDate: 2/6/2013	Analyst: CEI
Arsenic	1.4 0.035 0.10	µg/L	1 2/9/2013 01:03 PM
Manganese	48 0.16 0.50	µg/L	1 2/9/2013 01:03 PM
Molybdenum	22 0.074 0.50	µg/L	1 2/9/2013 01:03 PM
Selenium	ND 0.084 0.50	µg/L	1 2/9/2013 01:03 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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ANALYTICAL RESULTS

Print Date: 21-Feb-13

CLIENT: CH2M HILL
Lab Order: N009541
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009541-005

Client Sample ID: MW-42-055-191
Collection Date: 2/4/2013 3:37:00 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_130209C**

QC Batch: **42091**

PrepDate:

2/6/2013

Analyst: **CEI**

Arsenic

12 0.035

0.10

µg/L

1

2/9/2013 01:09 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: 21-Feb-13

CLIENT: CH2M HILL
Lab Order: N009541
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009541-006

Client Sample ID: MW-42-065-191
Collection Date: 2/4/2013 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_130209C**

QC Batch: **42091**

PrepDate:

2/6/2013

Analyst: **CEI**

Arsenic	2.3	0.035	0.10		µg/L	1	2/9/2013 01:15 PM
Manganese	1300	4.0	12		µg/L	25	2/9/2013 02:36 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: 21-Feb-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-28-090-191
Lab Order:	N009541	Collection Date:	2/5/2013 12:41:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009541-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130209C	QC Batch: 42091	PrepDate: 2/6/2013	Analyst: CEI
Arsenic	1.6 0.035 0.10	µg/L	1 2/9/2013 01:24 PM
Manganese	120 0.16 0.50	µg/L	1 2/9/2013 01:24 PM
Molybdenum	19 0.074 0.50	µg/L	1 2/9/2013 01:24 PM
Selenium	ND 0.084 0.50	µg/L	1 2/9/2013 01:24 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	



**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: 21-Feb-13

CLIENT: CH2M HILL
Lab Order: N009541
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009541-008

Client Sample ID: MW-33-150-191
Collection Date: 2/5/2013 2:44:00 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_130209C**

QC Batch: **42091**

PrepDate:

2/6/2013

Analyst: **CEI**

Arsenic	1.8	0.069	0.20		µg/L	2	2/9/2013 02:57 PM
Manganese	ND	0.16	0.50		µg/L	1	2/9/2013 01:33 PM
Molybdenum	38	0.15	1.0		µg/L	2	2/9/2013 02:57 PM
Selenium	ND	0.42	2.5		µg/L	5	2/9/2013 02:42 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



**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: 21-Feb-13

CLIENT: CH2M HILL
Lab Order: N009541
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009541-009

Client Sample ID: MW-33-210-191
Collection Date: 2/5/2013 3:55:00 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_130209C**

QC Batch: **42091**

PrepDate:

2/6/2013

Analyst: **CEI**

Arsenic	1.1	0.17	0.50		µg/L	5	2/9/2013 02:48 PM
Manganese	ND	0.16	0.50		µg/L	1	2/9/2013 01:39 PM
Molybdenum	16	0.37	2.5		µg/L	5	2/9/2013 02:48 PM
Selenium	ND	0.42	2.5		µg/L	5	2/9/2013 02:48 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



**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: 21-Feb-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-34-080-191
Lab Order:	N009541	Collection Date:	2/5/2013 11:03:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009541-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130209C	QC Batch: 42091	PrepDate: 2/6/2013	Analyst: CEI
Arsenic	1.3 0.035 0.10	µg/L	1 2/9/2013 01:45 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		



**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: N009541
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT**TestCode: 6020_DIS**

Sample ID: MB-42091	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 2/6/2013	RunNo: 87615						
Client ID: PBW	Batch ID: 42091	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/9/2013	SeqNo: 1525315						
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-42091	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 2/6/2013	RunNo: 87615						
Client ID: LCSW	Batch ID: 42091	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/9/2013	SeqNo: 1525316						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	9.910	0.10	10.00	0	99.1	85	115
Manganese	96.741	0.50	100.0	0	96.7	85	115
Molybdenum	10.128	0.50	10.00	0	101	85	115
Selenium	9.218	0.50	10.00	0	92.2	85	115

Sample ID: N009539-001B-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 2/6/2013	RunNo: 87615						
Client ID: ZZZZZZ	Batch ID: 42091	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/9/2013	SeqNo: 1525320						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	18.007	0.10	10.00	8.308	97.0	75	125
Manganese	99.527	0.50	100.0	8.159	91.4	75	125
Molybdenum	21.613	0.50	10.00	11.05	106	75	125
Selenium	12.418	0.50	10.00	3.158	92.6	75	125

Sample ID: N009539-001B-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 2/6/2013	RunNo: 87615						
Client ID: ZZZZZZ	Batch ID: 42091	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/9/2013	SeqNo: 1525321						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	18.505	0.10	10.00	8.308	102	75	125	18.01	2.73	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			



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: N009541
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N009539-001B-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 2/6/2013	RunNo: 87615						
Client ID: ZZZZZZ	Batch ID: 42091	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/9/2013	SeqNo: 1525321						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	101.457	0.50	100.0	8.159	93.3	75	125	99.53	1.92	20	
Molybdenum	22.087	0.50	10.00	11.05	110	75	125	21.61	2.17	20	
Selenium	12.647	0.50	10.00	3.158	94.9	75	125	12.42	1.83	20	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference



**Advanced Technology
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.02.GM.03 Task Order Project 2013-GMP-191-Q1 Turnaround Time 10 Days Shipping Date: 2/5/2013 COC Number: 2				Container: 1x500 ml Poly 1x500 ml Poly 1x500 ml Poly 1x1 Liter 1x1 Liter		Preservatives: HNO3, 4°C HNO3, 4°C HNO3, 4°C 4°C 4°C		Filtered: Field Field Field NA NA		Holding Time: 180 180 180 14 14		Field Filtered Arsenic (6020A) Field Filtered Metals (6020A) Field Filtered Mo, Se, Mn Metals (6020A) Field Filtered Specific Conductance (E120.1) Anions (E300.0) Fluoride		Number of Containers	COMMENTS
DATE TIME Matrix															
MW-121-191	2/4/2013	7:02	Water	X		X	X	X				2			
MW-123-191	2/4/2013	17:54	Water	X	X		X				2				
MW-27-060-191	2/4/2013	11:26	Water	X		X	X	X			2				
MW-27-085-191	2/4/2013	12:50	Water	X		X	X	X			2				
MW-42-055-191	2/4/2013	15:37	Water	X			X				2				
MW-42-065-191	2/4/2013	14:39	Water	X	X		X				2				
MW-28-090-191	2/5/2013	12:41	Water	X		X	X	X			2				
MW-33-150-191	2/5/2013	14:44	Water	X		X	X	X			2				
MW-33-210-191	2/5/2013	15:55	Water	X		X	X	X			2				
MW-34-080-191	2/5/2013	11:03	Water	X			X				2				
TOTAL NUMBER OF CONTAINERS												20			

Signatures Approved by _____ Sampled by _____ Relinquished by _____ Received by _____ Relinquished by _____ Received by _____		Date/Time 2-5-13 1615 2/5/13 1415 2/5/13 1856 2/5/13 1856		Shipping Details Method of Shipment: courier On Ice: <input checked="" type="checkbox"/> yes / no 2.8 ICE Airbill No: Lab Name: ADVANCED TECHNOLOGY LABORATO Lab Phone: (702) 307-2659		ATTN: Sample Custody and Marlon		Special Instructions: Feb 4 - Feb 28, 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: 2/5/2013

Workorder: N009541

Rep sample Temp (Deg C): 2.8

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

2/6/13

Reviewed By:

ATL

Sample Calculation

METHOD: EPA 300

TEST NAME: INORGANIC ANIONS BY IC

MATRIX: WATER

FORMULA:

Calculate the Nitrate concentration, in mg/L, in the original sample as follows:

$$\text{Nitrate, mg/L} = A * DF$$

where:

A = mg/L, IC calculated concentration

DF = dilution factor

For **N009541-001B**, concentration in mg/L are calculated as follows:

Fluoride
~~Nitrate~~, mg/L = 0.794 * 1
= 0.794 mg/L

Reporting **N009541-001B** results in two significant figures,

NS for 2/20/13 *Fluoride*
~~Nitrate~~, mg/L = 0.79 *Actual*

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 **N009541-002**, the concentration in ug/L is calculated as follows:

$$\begin{aligned}\text{Arsenic, ug/L} &= 2.3908428961418 * 1 * (25/25) \\ &= 2.3908428961418\end{aligned}$$

Reporting results in two significant figuresL,

$$\text{Arsenic, ug/L} = 2.4$$

MS for
2/2/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N009541
Test Method: EPA 6020
Analysis Date: 02/09/13

Dilution Test Summary

Matrix: Water
Batch No.: 42091

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Mn, Mo and Se. The calculated values were <25X RL. PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SampRefVal	%DIFF	%DIFFlimit
N009539-001B-DT 5X	Arsenic	µg/L	8.10	PASSED	8.31	2.46%	10
N009539-001B-DT 5X	Manganese	µg/L	8.02	NA	8.16	1.65%	10
N009539-001B-DT 5X	Molybdenum	µg/L	10.26	NA	11.05	7.13%	10
N009539-001B-DT 5X	Selenium	µg/L	3.21	NA	3.16	1.80%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N009541
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT**TestCode: 6020_DIS**

Sample ID: N009539-001B-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 87615						
Client ID: ZZZZZZ	Batch ID: 42091	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/9/2013	SeqNo: 1525319						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	29.238	0.20	20.00	8.308	105	75	125				
Manganese	212.090	1.0	200.0	8.159	102	75	125				
Molybdenum	33.809	1.0	20.00	11.05	114	75	125				
Selenium	23.746	1.0	20.00	3.158	103	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

February 26, 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.: N009566

RE: PG&E Topock, 423575.MP.02.GM.03

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on February 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

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



Advanced Technology
Laboratories, Inc.

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.02.GM.03
Lab Order: N009566

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 .



Advanced Technology Laboratories, Inc.**Date:** 06-Mar-13

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N009566
Contract No: 2013-GMP-191-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009566-001A	MW-57-185-191	Water	2/6/2013 2:25:00 PM	2/7/2013	2/26/2013
N009566-001B	MW-57-185-191	Water	2/6/2013 2:25:00 PM	2/7/2013	2/26/2013
N009566-001C	MW-57-185-191	Water	2/6/2013 2:25:00 PM	2/7/2013	2/26/2013
N009566-002A	MW-63-065-191	Water	2/6/2013 10:58:00 AM	2/7/2013	2/26/2013
N009566-002B	MW-63-065-191	Water	2/6/2013 10:58:00 AM	2/7/2013	2/26/2013
N009566-002C	MW-63-065-191	Water	2/6/2013 10:58:00 AM	2/7/2013	2/26/2013
N009566-003A	MW-21-191	Water	2/7/2013 9:05:00 AM	2/7/2013	2/26/2013
N009566-003B	MW-21-191	Water	2/7/2013 9:05:00 AM	2/7/2013	2/26/2013
N009566-004A	MW-48-191	Water	2/7/2013 8:35:00 AM	2/7/2013	2/26/2013
N009566-004B	MW-48-191	Water	2/7/2013 8:35:00 AM	2/7/2013	2/26/2013
N009566-005A	MW-71-035-191	Water	2/7/2013 8:05:00 AM	2/7/2013	2/26/2013
N009566-005B	MW-71-035-191	Water	2/7/2013 8:05:00 AM	2/7/2013	2/26/2013
N009566-005C	MW-71-035-191	Water	2/7/2013 8:05:00 AM	2/7/2013	2/26/2013
N009566-006A	MW-72BR-200-191	Water	2/7/2013 3:10:00 PM	2/7/2013	2/26/2013
N009566-006B	MW-72BR-200-191	Water	2/7/2013 3:10:00 PM	2/7/2013	2/26/2013
N009566-006C	MW-72BR-200-191	Water	2/7/2013 3:10:00 PM	2/7/2013	2/26/2013



Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 26-Feb-13

CLIENT: CH2M HILL
Lab Order: N009566
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009566-001

Client Sample ID: MW-57-185-191
Collection Date: 2/6/2013 2:25:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130208B	QC Batch: R87541			PrepDate:		Analyst: QBM
Specific Conductance	17000	0.10	0.10	umhos/cm	1	2/8/2013

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



**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: 26-Feb-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-63-065-191
Lab Order:	N009566	Collection Date:	2/6/2013 10:58:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009566-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130208B	QC Batch: R87541	PrepDate:	Analyst: QBM			
Specific Conductance	6300	0.10	0.10	umhos/cm	1	2/8/2013

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		

**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: 26-Feb-13

CLIENT: CH2M HILL
Lab Order: N009566
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009566-003

Client Sample ID: MW-21-191
Collection Date: 2/7/2013 9:05:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130208B	QC Batch: R87541			PrepDate:		Analyst: QBM
Specific Conductance	8500	0.10	0.10	umhos/cm	1	2/8/2013

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
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: 26-Feb-13

CLIENT: CH2M HILL
Lab Order: N009566
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009566-004

Client Sample ID: MW-48-191
Collection Date: 2/7/2013 8:35:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130208B	QC Batch: R87541			PrepDate:		Analyst: QBM
Specific Conductance	15000	0.10	0.10	umhos/cm	1	2/8/2013

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



**Advanced Technology
Laboratories, Inc.**

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 26-Feb-13

CLIENT: CH2M HILL
Lab Order: N009566
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009566-005

Client Sample ID: MW-71-035-191
Collection Date: 2/7/2013 8:05:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130208B	QC Batch: R87541	PrepDate:	Analyst: QBM
Specific Conductance	6800 0.10 0.10	umhos/cm	1 2/8/2013

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: 06-Mar-13

CLIENT: CH2M HILL
Lab Order: N009566
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009566-006

Client Sample ID: MW-72BR-200-191
Collection Date: 2/7/2013 3:10:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130208B	QC Batch: R87541			PrepDate:		Analyst: QBM
Specific Conductance	12000	0.10	0.10	umhos/cm	1	2/8/2013

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



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CLIENT: CH2M HILL
 Work Order: N009566
 Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: LCS-R87541	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87541			
Client ID: LCSW	Batch ID: R87541	TestNo: EPA 120.1			Analysis Date: 2/8/2013				SeqNo: 1521434		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	102300.000	0.10	99740	0	103	85	115				

Sample ID: N009566-001B-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87541			
Client ID: ZZZZZZ	Batch ID: R87541	TestNo: EPA 120.1			Analysis Date: 2/8/2013				SeqNo: 1521436		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	17800.000	0.10						17490	1.76	10	

Sample ID: N009566-001B MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87541			
Client ID: ZZZZZZ	Batch ID: R87541	TestNo: EPA 120.1			Analysis Date: 2/8/2013				SeqNo: 1521437		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	93800.000	0.20	99740	17490	76.5	75	125				

Sample ID: N009566-001B MSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87541			
Client ID: ZZZZZZ	Batch ID: R87541	TestNo: EPA 120.1			Analysis Date: 2/8/2013				SeqNo: 1521441		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	92800.000	0.20	99740	17490	75.5	75	125	93800	1.07	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: 26-Feb-13

CLIENT: CH2M HILL
Lab Order: N009566
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009566-001

Client Sample ID: MW-57-185-191
Collection Date: 2/6/2013 2:25:00 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_130219B	QC Batch: 42152			PrepDate: 2/12/2013		Analyst: CEI
Arsenic	13	0.035	0.10	µg/L	1	2/19/2013 01:41 PM
Manganese	270	0.80	2.5	µg/L	5	2/19/2013 03:37 PM
Molybdenum	77	1.8	12	µg/L	25	2/19/2013 05:06 PM
Selenium	ND	0.084	0.50	µg/L	1	2/19/2013 01:41 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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 26-Feb-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-63-065-191
Lab Order:	N009566	Collection Date:	2/6/2013 10:58:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009566-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130219B	QC Batch: 42152	PrepDate: 2/12/2013	Analyst: CEI
Arsenic	1.6	0.035	0.10
Manganese	3.4	0.16	0.50
Molybdenum	22	0.15	1.0
Selenium	0.81	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: 26-Feb-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-71-035-191
Lab Order:	N009566	Collection Date:	2/7/2013 8:05:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009566-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130219B	QC Batch: 42152	PrepDate: 2/12/2013	Analyst: CEI
Arsenic	1.5 0.035 0.10	µg/L	1 2/19/2013 01:52 PM
Manganese	51 0.16 0.50	µg/L	1 2/19/2013 01:52 PM
Molybdenum	59 1.8 12	µg/L	25 2/19/2013 05:12 PM
Selenium	2.2 0.084 0.50	µg/L	1 2/19/2013 01:52 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: 06-Mar-13

CLIENT: CH2M HILL
Lab Order: N009566
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009566-006

Client Sample ID: MW-72BR-200-191
Collection Date: 2/7/2013 3:10:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			EPA 6020			
RunID: ICP7_130219B	QC Batch: 42152			PrepDate:	2/12/2013	Analyst: CEI	
Arsenic	14	0.035	0.10		µg/L	1	2/19/2013 01:58 PM
Manganese	9.1	0.16	0.50		µg/L	1	2/19/2013 01:58 PM
Molybdenum	65	1.8	12		µg/L	25	2/19/2013 05:18 PM
Selenium	ND	0.084	0.50		µg/L	1	2/19/2013 01:58 PM

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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CLIENT: CH2M HILL
Work Order: N009566
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT**TestCode: 6020_DIS**

Sample ID: MB-42152	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 2/12/2013	RunNo: 87744						
Client ID: PBW	Batch ID: 42152	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/19/2013	SeqNo: 1530585						
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-42152	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 2/12/2013	RunNo: 87744						
Client ID: LCSW	Batch ID: 42152	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/19/2013	SeqNo: 1530586						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	10.279	0.10	10.00	0	103	85	115
Manganese	100.351	0.50	100.0	0	100	85	115
Molybdenum	9.665	0.50	10.00	0	96.7	85	115
Selenium	9.577	0.50	10.00	0	95.8	85	115

Sample ID: N009581-001B-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 2/12/2013	RunNo: 87744						
Client ID: ZZZZZZ	Batch ID: 42152	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/19/2013	SeqNo: 1530590						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	13.890	0.10	10.00	4.359	95.3	75	125
Manganese	90.709	0.50	100.0	0	90.7	75	125
Molybdenum	12.622	0.50	10.00	2.855	97.7	75	125
Selenium	9.330	0.50	10.00	0.1205	92.1	75	125

Sample ID: N009581-001B-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 2/12/2013	RunNo: 87744						
Client ID: ZZZZZZ	Batch ID: 42152	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/19/2013	SeqNo: 1530591						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	13.872	0.10	10.00	4.359	95.1	75	125	13.89	0.133	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			



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: N009566
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N009581-001B-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 2/12/2013	RunNo: 87744						
Client ID: ZZZZZZ	Batch ID: 42152	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/19/2013	SeqNo: 1530591						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	90.921	0.50	100.0	0	90.9	75	125	90.71	0.234	20	
Molybdenum	12.593	0.50	10.00	2.855	97.4	75	125	12.62	0.226	20	
Selenium	8.805	0.50	10.00	0.1205	86.8	75	125	9.330	5.79	20	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference



**Advanced Technology
Laboratories, Inc.**

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CH2MHILL

CHAIN OF CUSTODY RECORD

2/7/2013 1:16:11 PM

Page 1 OF 1

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.02.GM.03 Task Order Project 2013-GMP-191-Q1 Turnaround Time 10 Days Shipping Date: 2/7/2013 COC Number: 8				Container: 1x500 ml Poly Preservatives: HNO3, 4°C Filtered: Field Holding Time: 180 1x500 ml Poly HNO3, 4°C Field 180 1x1 Liter 4°C NA 14 1 Liter Poly 4°C NA 30				Please change sample ID MW-72-200-191 to MW-72BR-200-191 Shawn P. Duffy 03-05-13				Number of Containers	COMMENTS
DATE TIME Matrix				Arsenic (5020A) Field Filtered Metals (5020AF) Field Filtered Mo, Se, Mn Specific Conductance (E120.1) Extra (+)									
MW-57-185-191	2/6/2013	14:25	Water	X	X	X	X	N009566-1				3	
MW-63-065-191	2/6/2013	10:58	Water	X	X	X	X					3	
MW-21-191	2/7/2013	9:05	Water			X	X					2	
MW-48-191	2/7/2013	8:35	Water			X	X					2	
MW-71-035-191	2/7/2013	8:05	Water	X	X	X	X					2	
MW-72-200-191	2-7-13	1510	Water	X	X	X	X	MW-72BR-200-191				3	
TOTAL NUMBER OF CONTAINERS											16	150	

SPD

Revision 1, 03/06/13

Approved by Sampled by Relinquished by Received by Relinquished by Received by		Signatures  		Date/Time 2-7-13 1650 2/7/13 1650 2/7/13 1850		Shipping Details Method of Shipment: courier On Ice: yes / no 3.6 ICE Airbill No: Lab Name: ADVANCED TECHNOLOGY LABORATO Lab Phone: (702) 307-2659		ATTN: Sample Custody and Marlon		Special Instructions: Feb 4 - Feb 28, 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: 2/7/2013

Workorder: N009566

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

2/9/13

Reviewed By:



Sample Calculation

METHOD: EPA 6020

TEST NAME: Heavy Metals by ICP-MS

MATRIX: Aqueous

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

$$\text{Arsenic, ug/L} = A * DF * PF$$

where:

A = ug/L, calculated concentration

DF = dilution factor

PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample **N009566-001C**, the concentration in ug/L is calculated as follows:

$$\begin{aligned} \text{Arsenic, ug/L} &= 13.231031035 * 1 * (25/25) \\ &= 13.231031035 \end{aligned}$$

Reporting results in two significant figures,

$$\text{Arsenic, ug/L} = 13$$

us for
2/26/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N009566
Test Method: EPA 6020
Analysis Date: 02/19/13

Dilution Test Summary

Matrix: Water
Batch No.: 42152

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Mn, Se and Mo. 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
N009581-001B-DT 5X	Arsenic	µg/L	4.807700345	FAILED	4.358513925	10.31%	10
N009581-001B-DT 5X	Manganese	µg/L	0	NA	0	0.00%	10
N009581-001B-DT 5X	Selenium	µg/L	0	NA	0.120506697	100.00%	10
N009581-001B-DT 5X	Molybdenum	µg/L	3.107312737	NA	2.854824572	8.84%	10

Note: NA - Not applicable

CLIENT: CH2M HILL

Work Order: N009566

Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N009581-001B-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 87744						
Client ID: ZZZZZZ	Batch ID: 42152	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/19/2013	SeqNo: 1530589						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	24.231	0.20	20.00	4.359	99.4	75	125				
Manganese	188.157	1.0	200.0	0	94.1	75	125				
Molybdenum	22.399	1.0	20.00	2.855	97.7	75	125				
Selenium	18.511	1.0	20.00	0.1205	92.0	75	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out

E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values

H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

March 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.: N009637

RE: PG&E Topock, 423575.MP.02.GM.03

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on February 19, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,



Jose Tenorio Jr.
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



Advanced Technology
Laboratories, Inc.

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.02.GM.03
Lab Order: N009637

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:

Dilution was necessary on samples N009637-003 and N009637-009 due to failing internal standard when samples were analyzed at no dilution.



Advanced Technology Laboratories, Inc.

Date: 05-Mar-13

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N009637
Contract No: 2013-GMP-191-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009637-001A	MW-23-060-191	Water	2/18/2013 1:46:00 PM	2/19/2013	3/5/2013
N009637-001B	MW-23-060-191	Water	2/18/2013 1:46:00 PM	2/19/2013	3/5/2013
N009637-001C	MW-23-060-191	Water	2/18/2013 1:46:00 PM	2/19/2013	3/5/2013
N009637-002A	MW-23-080-191	Water	2/18/2013 3:26:00 PM	2/19/2013	3/5/2013
N009637-002B	MW-23-080-191	Water	2/18/2013 3:26:00 PM	2/19/2013	3/5/2013
N009637-002C	MW-23-080-191	Water	2/18/2013 3:26:00 PM	2/19/2013	3/5/2013
N009637-003A	MW-68BR-280-191	Water	2/18/2013 11:41:00 AM	2/19/2013	3/5/2013
N009637-003B	MW-68BR-280-191	Water	2/18/2013 11:41:00 AM	2/19/2013	3/5/2013
N009637-003C	MW-68BR-280-191	Water	2/18/2013 11:41:00 AM	2/19/2013	3/5/2013
N009637-004A	MW-35-060-191	Water	2/19/2013 8:27:00 AM	2/19/2013	3/5/2013
N009637-004B	MW-35-060-191	Water	2/19/2013 8:27:00 AM	2/19/2013	3/5/2013
N009637-005A	MW-62-065-191	Water	2/19/2013 2:52:00 PM	2/19/2013	3/5/2013
N009637-005B	MW-62-065-191	Water	2/19/2013 2:52:00 PM	2/19/2013	3/5/2013
N009637-006A	MW-65-160-191	Water	2/19/2013 9:57:00 AM	2/19/2013	3/5/2013
N009637-006B	MW-65-160-191	Water	2/19/2013 9:57:00 AM	2/19/2013	3/5/2013
N009637-006C	MW-65-160-191	Water	2/19/2013 9:57:00 AM	2/19/2013	3/5/2013
N009637-007A	MW-65-225-191	Water	2/19/2013 1:23:00 PM	2/19/2013	3/5/2013
N009637-007B	MW-65-225-191	Water	2/19/2013 1:23:00 PM	2/19/2013	3/5/2013
N009637-007C	MW-65-225-191	Water	2/19/2013 1:23:00 PM	2/19/2013	3/5/2013
N009637-008A	MW-70-105-191	Water	2/19/2013 11:09:00 AM	2/19/2013	3/5/2013
N009637-008B	MW-70-105-191	Water	2/19/2013 11:09:00 AM	2/19/2013	3/5/2013
N009637-008C	MW-70-105-191	Water	2/19/2013 11:09:00 AM	2/19/2013	3/5/2013
N009637-009A	MW-72-080-191	Water	2/19/2013 12:21:00 PM	2/19/2013	3/5/2013
N009637-009B	MW-72-080-191	Water	2/19/2013 12:21:00 PM	2/19/2013	3/5/2013
N009637-009C	MW-72-080-191	Water	2/19/2013 12:21:00 PM	2/19/2013	3/5/2013
N009637-010A	MW-73-080-191	Water	2/19/2013 8:52:00 AM	2/19/2013	3/5/2013
N009637-010B	MW-73-080-191	Water	2/19/2013 8:52:00 AM	2/19/2013	3/5/2013
N009637-010C	MW-73-080-191	Water	2/19/2013 8:52:00 AM	2/19/2013	3/5/2013



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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 05-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-23-060-191
Lab Order:	N009637	Collection Date:	2/18/2013 1:46:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009637-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130220B	QC Batch: R87713	PrepDate:	Analyst: QBM			
Specific Conductance	17000	0.10	0.10	umhos/cm	1	2/20/2013

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-Mar-13

CLIENT: CH2M HILL
Lab Order: N009637
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009637-002

Client Sample ID: MW-23-080-191
Collection Date: 2/18/2013 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_130220B	QC Batch: R87713			PrepDate:		Analyst: QBM
Specific Conductance	17000	0.10	0.10	umhos/cm	1	2/20/2013

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: 05-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-68BR-280-191
Lab Order:	N009637	Collection Date:	2/18/2013 11:41:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009637-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130220B	QC Batch: R87713	PrepDate:	Analyst: QBM
Specific Conductance	21000	0.10	0.10
		umhos/cm	1
			2/20/2013

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-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-35-060-191
Lab Order:	N009637	Collection Date:	2/19/2013 8:27:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009637-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130220B	QC Batch: R87713	PrepDate:	Analyst: QBM			
Specific Conductance	6500	0.10	0.10	umhos/cm	1	2/20/2013

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: 05-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-62-065-191
Lab Order:	N009637	Collection Date:	2/19/2013 2:52:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009637-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130220B	QC Batch: R87713	PrepDate:	Analyst: QBM
Specific Conductance	5400	0.10	0.10
		umhos/cm	1
			2/20/2013

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: 05-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-65-160-191
Lab Order:	N009637	Collection Date:	2/19/2013 9:57:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009637-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130220B	QC Batch: R87713	PrepDate:	Analyst: QBM
Specific Conductance	4000	0.10	0.10
		umhos/cm	1
			2/20/2013

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: 05-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-65-225-191
Lab Order:	N009637	Collection Date:	2/19/2013 1:23:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009637-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130220B	QC Batch: R87713	PrepDate:	Analyst: QBM
Specific Conductance	10000	0.10	0.10
		umhos/cm	1
			2/20/2013

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: 05-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-70-105-191
Lab Order:	N009637	Collection Date:	2/19/2013 11:09:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009637-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130220B	QC Batch: R87713	PrepDate:	Analyst: QBM
Specific Conductance	3300	0.10	0.10
		umhos/cm	1
			2/20/2013

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: 05-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-72-080-191
Lab Order:	N009637	Collection Date:	2/19/2013 12:21:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009637-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130220B	QC Batch: R87713	PrepDate:	Analyst: QBM
Specific Conductance	16000	0.10	0.10
		umhos/cm	1
			2/20/2013

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: 05-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-73-080-191
Lab Order:	N009637	Collection Date:	2/19/2013 8:52:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009637-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130220B	QC Batch: R87713	PrepDate:	Analyst: QBM
Specific Conductance	8800	0.10	0.10
		umhos/cm	1
			2/20/2013

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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CLIENT: CH2M HILL
 Work Order: N009637
 Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: LCS-R87713	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87713			
Client ID: LCSW	Batch ID: R87713	TestNo: EPA 120.1			Analysis Date: 2/20/2013				SeqNo: 1529624		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	98600.000	0.10	99800	0	98.8	85	115				

Sample ID: N009637-002A-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87713			
Client ID: ZZZZZZ	Batch ID: R87713	TestNo: EPA 120.1			Analysis Date: 2/20/2013				SeqNo: 1529627		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	16880.000	0.10						16760	0.713	10	

Sample ID: N009637-002A MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87713			
Client ID: ZZZZZZ	Batch ID: R87713	TestNo: EPA 120.1			Analysis Date: 2/20/2013				SeqNo: 1529628		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	122600.000	0.20	99800	16760	106	75	125				

Sample ID: N009637-002A MSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87713			
Client ID: ZZZZZZ	Batch ID: R87713	TestNo: EPA 120.1			Analysis Date: 2/20/2013				SeqNo: 1529629		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	123000.000	0.20	99800	16760	106	75	125	122600	0.326	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: 05-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-23-060-191
Lab Order:	N009637	Collection Date:	2/18/2013 1:46:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009637-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130224A	QC Batch: 42233	PrepDate: 2/20/2013	Analyst: CEI
Arsenic	5.5 0.035 0.10	µg/L	1 2/24/2013 08:10 PM
Manganese	ND 0.16 0.50	µg/L	1 2/24/2013 08:10 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS

Print Date: 05-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-23-080-191
Lab Order:	N009637	Collection Date:	2/18/2013 3:26:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009637-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130224A	QC Batch: 42233	PrepDate: 2/20/2013	Analyst: CEI
Arsenic	3.1 0.035 0.10	µg/L	1 2/24/2013 08:16 PM
Manganese	ND 0.16 0.50	µg/L	1 2/24/2013 08:16 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: 05-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-68BR-280-191
Lab Order:	N009637	Collection Date:	2/18/2013 11:41:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009637-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130224A	QC Batch: 42233	PrepDate: 2/20/2013	Analyst: CEI
Arsenic	2.3 0.17 0.50	µg/L	5 2/24/2013 09:46 PM
Manganese	180 0.80 2.5	µg/L	5 2/24/2013 09:46 PM
Molybdenum	88 0.37 2.5	µg/L	5 2/27/2013 12:58 PM
Selenium	ND 0.42 2.5	µg/L	5 2/24/2013 09:46 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: 05-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-35-060-191
Lab Order:	N009637	Collection Date:	2/19/2013 8:27:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009637-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130224A	QC Batch: 42233	PrepDate: 2/20/2013	Analyst: CEI
Arsenic	1.0 0.035	0.10	µg/L 1 2/24/2013 09:11 PM
Manganese	ND 0.16	0.50	µg/L 1 2/24/2013 09:11 PM
Molybdenum	8.7 0.074	0.50	µg/L 1 2/27/2013 01:40 PM
Selenium	0.89 0.084	0.50	µg/L 1 2/27/2013 01:40 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: 05-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-65-160-191
Lab Order:	N009637	Collection Date:	2/19/2013 9:57:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009637-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130224A	QC Batch: 42233	PrepDate: 2/20/2013	Analyst: CEI
Arsenic	0.83	0.035	0.10
Manganese	26	0.16	0.50
Molybdenum	28	0.074	0.50
Selenium	7.7	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: 05-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-65-225-191
Lab Order:	N009637	Collection Date:	2/19/2013 1:23:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009637-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130224A	QC Batch: 42233	PrepDate: 2/20/2013	Analyst: CEI
Arsenic	2.4 0.035 0.10	µg/L	1 2/24/2013 09:22 PM
Manganese	5.8 0.16 0.50	µg/L	1 2/24/2013 09:22 PM
Molybdenum	33 0.37 2.5	µg/L	5 2/27/2013 01:16 PM
Selenium	7.2 0.42 2.5	µg/L	5 2/24/2013 09:58 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		



**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-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-70-105-191
Lab Order:	N009637	Collection Date:	2/19/2013 11:09:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009637-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130224A	QC Batch: 42233	PrepDate: 2/20/2013	Analyst: CEI
Arsenic	5.8 0.035 0.10	µg/L	1 2/24/2013 09:28 PM
Manganese	210 0.80 2.5	µg/L	5 2/24/2013 10:16 PM
Molybdenum	110 0.074 0.50	µg/L	1 2/27/2013 01:22 PM
Selenium	2.6 0.084 0.50	µg/L	1 2/24/2013 09:28 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-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-72-080-191
Lab Order:	N009637	Collection Date:	2/19/2013 12:21:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009637-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130224A	QC Batch: 42233	PrepDate: 2/20/2013	Analyst: CEI
Arsenic	11 0.035	0.10	µg/L 1 2/24/2013 09:34 PM
Manganese	81 0.16	0.50	µg/L 1 2/24/2013 09:34 PM
Molybdenum	73 0.37	2.5	µg/L 5 2/27/2013 01:28 PM
Selenium	ND 0.42	2.5	µg/L 5 2/24/2013 10:22 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-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-73-080-191
Lab Order:	N009637	Collection Date:	2/19/2013 8:52:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009637-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130224A	QC Batch: 42233	PrepDate: 2/20/2013	Analyst: CEI
Arsenic	2.1 0.035 0.10	µg/L	1 2/24/2013 09:40 PM
Manganese	ND 0.16 0.50	µg/L	1 2/24/2013 09:40 PM
Molybdenum	23 0.37 2.5	µg/L	5 2/27/2013 01:34 PM
Selenium	4.0 0.42 2.5	µg/L	5 2/24/2013 10:28 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: N009637
 Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: MB-42233	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 2/20/2013	RunNo: 87798						
Client ID: PBW	Batch ID: 42233	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/24/2013	SeqNo: 1535228						
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-42233	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 2/20/2013	RunNo: 87798						
Client ID: LCSW	Batch ID: 42233	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/24/2013	SeqNo: 1535229						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.401	0.10	10.00	0	104	85	115				
Manganese	104.412	0.50	100.0	0	104	85	115				
Molybdenum	9.864	0.50	10.00	0	98.6	85	115				
Selenium	10.040	0.50	10.00	0	100	85	115				

Sample ID: N009640-001B-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 2/20/2013	RunNo: 87798						
Client ID: ZZZZZZ	Batch ID: 42233	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/24/2013	SeqNo: 1535245						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	18.803	0.10	10.00	8.549	103	75	125				
Manganese	94.459	0.50	100.0	0	94.5	75	125				
Molybdenum	28.568	0.50	10.00	18.15	104	75	125				
Selenium	9.042	0.50	10.00	0.3013	87.4	75	125				

Sample ID: N009640-001B-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 2/20/2013	RunNo: 87798						
Client ID: ZZZZZZ	Batch ID: 42233	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/24/2013	SeqNo: 1535246						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.059	0.10	10.00	8.549	105	75	125	18.80	1.35	20	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference



Advanced Technology
Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N009637
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N009640-001B-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 2/20/2013	RunNo: 87798						
Client ID: ZZZZZZ	Batch ID: 42233	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/24/2013	SeqNo: 1535246						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	96.733	0.50	100.0	0	96.7	75	125	94.46	2.38	20	
Molybdenum	29.199	0.50	10.00	18.15	111	75	125	28.57	2.18	20	
Selenium	9.341	0.50	10.00	0.3013	90.4	75	125	9.042	3.25	20	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

H Holding times for preparation or analysis exceeded



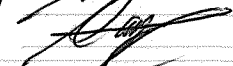
S Spike/Surrogate outside of limits due to matrix interference



**Advanced Technology
Laboratories, Inc.**

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Project Name PG&E Topock				Container:		1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x1 Liter	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	30			
Project Number 423575.MP.02.GM.03						Arsenic (6020A) Field Filtered	Metals (6020A) Field Filtered Mn	Metals (6020A) Field Filtered Mo, Se, Mn	Specific Conductance (E120.1)	Extra (+)			
Task Order													
Project 2013-GMP-191-Q1													
Turnaround Time 10 Days													
Shipping Date: 2/19/2013													
COC Number: 9													
DATE TIME Matrix													
MW-23-060-191	2/18/2013	13:46	Water	X	X		X	X	N009637-1		3		
MW-23-080-191	2/18/2013	15:26	Water	X	X		X	X	- 2		3		
MW-68BR-280-191	2/18/2013	11:41	Water	X		X	X	X	- 3		3		
MW-35-060-191	2/19/2013	8:27	Water	X		X	X		- 4		2		
MW-62-065-191	2/19/2013	14:52	Water				X	X	- 5		2		
MW-65-160-191	2/19/2013	9:57	Water	X		X	X	X	- 6		3		
MW-65-225-191	2/19/2013	13:23	Water	X		X	X	X	- 7		3		
MW-70-105-191	2/19/2013	11:09	Water	X		X	X	X	- 8		3		
MW-72-080-191	2/19/2013	12:21	Water	X		X	X	X	- 9		3		
MW-73-080-191	2/19/2013	8:52	Water	X		X	X	X	- 10		3		
TOTAL NUMBER OF CONTAINERS											28		

Approved by Sampled by Relinquished by Received by Relinquished by Received by		Signatures   		Date/Time 2-19-13 1550 2-14-13 1550 2-19-13 1815		Shipping Details Method of Shipment: courier On Ice: <input checked="" type="checkbox"/> yes no 46 IR1 ICE Airbill No: Lab Name: ADVANCED TECHNOLOGY LABORATO Lab Phone: (702) 307-2659		ATTN: Sample Custody and Marlon		Special Instructions: Feb 4 - Feb 28, 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: 2/19/2013

Workorder: N009637

Rep sample Temp (Deg C): 4.6

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

2/20/13

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 **N009637-001B**, the concentration in ug/L is calculated as follows:

$$\begin{aligned}\text{Arsenic, ug/L} &= 5.49889883512474 * 1 * (25/25) \\ &= 5.49889883512474\end{aligned}$$

Reporting results in two significant figures,

$$\text{Arsenic, ug/L} = 5.5$$

MS
3/5/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N009637
Test Method: EPA 6020
Analysis Date: 02/24/13

Dilution Test Summary

Matrix: Water
Batch No.: 42233

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Se and Mn. The calculated values were <25X RL. However, PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009640-001B-DT 5X	Selenium	µg/L	0	NA	0.301255477	100.00%	10
N009640-001B-DT 5X	Arsenic	µg/L	8.65404027	PASSED	8.548593012	1.23%	10
N009640-001B-DT 5X	Manganese	µg/L	0	NA	0	0.00%	10
N009640-001B-DT 5X	Molybdenum	µg/L	17.92150389	PASSED	18.14643885	1.24%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N009637
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N009640-001B-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 87798						
Client ID: ZZZZZZ	Batch ID: 42233	TestNo: EPA 6020	EPA 3010A	Analysis Date: 2/24/2013	SeqNo: 1535244						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	29.506	0.20	20.00	8.549	105	75	125				
Manganese	192.724	1.0	200.0	0	96.4	75	125				
Molybdenum	39.572	1.0	20.00	18.15	107	75	125				
Selenium	18.586	1.0	20.00	0.3013	91.4	75	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out

E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values

H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

March 11, 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.: N009678

RE: PG&E Topock, 423575.MP.02.GM.03

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on February 21, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,



Jose Tenorio Jr.
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



Advanced Technology
Laboratories, Inc.

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.02.GM.03
Lab Order: N009678

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: 11-Mar-13

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N009678
Contract No: 2013-GMP-191-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009678-001A	MW-124-191	Water	2/20/2013 10:10:00 AM	2/21/2013	3/11/2013
N009678-002A	MW-57-070-191	Water	2/20/2013 9:01:00 AM	2/21/2013	3/11/2013
N009678-003A	MW-60-125-191	Water	2/20/2013 1:06:00 PM	2/21/2013	3/11/2013
N009678-003B	MW-60-125-191	Water	2/20/2013 1:06:00 PM	2/21/2013	3/11/2013
N009678-003C	MW-60-125-191	Water	2/20/2013 1:06:00 PM	2/21/2013	3/11/2013
N009678-004A	MW-66-165-191	Water	2/20/2013 10:23:00 AM	2/21/2013	3/11/2013
N009678-004B	MW-66-165-191	Water	2/20/2013 10:23:00 AM	2/21/2013	3/11/2013
N009678-004C	MW-66-165-191	Water	2/20/2013 10:23:00 AM	2/21/2013	3/11/2013
N009678-005A	MW-68-240-191	Water	2/20/2013 2:11:00 PM	2/21/2013	3/11/2013
N009678-005B	MW-68-240-191	Water	2/20/2013 2:11:00 PM	2/21/2013	3/11/2013
N009678-005C	MW-68-240-191	Water	2/20/2013 2:11:00 PM	2/21/2013	3/11/2013
N009678-006A	MW-69-195-191	Water	2/20/2013 11:14:00 AM	2/21/2013	3/11/2013
N009678-006B	MW-69-195-191	Water	2/20/2013 11:14:00 AM	2/21/2013	3/11/2013
N009678-006C	MW-69-195-191	Water	2/20/2013 11:14:00 AM	2/21/2013	3/11/2013
N009678-007A	MW-125-191	Water	2/21/2013 9:30:00 AM	2/21/2013	3/11/2013
N009678-007B	MW-125-191	Water	2/21/2013 9:30:00 AM	2/21/2013	3/11/2013
N009678-007C	MW-125-191	Water	2/21/2013 9:30:00 AM	2/21/2013	3/11/2013
N009678-008A	MW-66-230-191	Water	2/21/2013 11:35:00 AM	2/21/2013	3/11/2013
N009678-008B	MW-66-230-191	Water	2/21/2013 11:35:00 AM	2/21/2013	3/11/2013
N009678-008C	MW-66-230-191	Water	2/21/2013 11:35:00 AM	2/21/2013	3/11/2013
N009678-009A	MW-67-185-191	Water	2/21/2013 9:25:00 AM	2/21/2013	3/11/2013
N009678-009B	MW-67-185-191	Water	2/21/2013 9:25:00 AM	2/21/2013	3/11/2013
N009678-009C	MW-67-185-191	Water	2/21/2013 9:25:00 AM	2/21/2013	3/11/2013
N009678-010A	MW-67-225-191	Water	2/21/2013 10:25:00 AM	2/21/2013	3/11/2013
N009678-010B	MW-67-225-191	Water	2/21/2013 10:25:00 AM	2/21/2013	3/11/2013
N009678-010C	MW-67-225-191	Water	2/21/2013 10:25:00 AM	2/21/2013	3/11/2013
N009678-011A	MW-67-260-191	Water	2/21/2013 8:39:00 AM	2/21/2013	3/11/2013
N009678-011B	MW-67-260-191	Water	2/21/2013 8:39:00 AM	2/21/2013	3/11/2013
N009678-011C	MW-67-260-191	Water	2/21/2013 8:39:00 AM	2/21/2013	3/11/2013



Advanced Technology
Laboratories, Inc.

Page 1 of 2
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N009678
Contract No: 2013-GMP-191-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009678-012A	MW-68-180-191	Water	2/21/2013 2:06:00 PM	2/21/2013	3/11/2013
N009678-012B	MW-68-180-191	Water	2/21/2013 2:06:00 PM	2/21/2013	3/11/2013
N009678-012C	MW-68-180-191	Water	2/21/2013 2:06:00 PM	2/21/2013	3/11/2013
N009678-013A	TW-01-191	Water	2/21/2013 4:05:00 PM	2/21/2013	3/11/2013
N009678-013B	TW-01-191	Water	2/21/2013 4:05:00 PM	2/21/2013	3/11/2013



Advanced Technology
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3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Page 2 of 2

Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-124-191
Lab Order:	N009678	Collection Date:	2/20/2013 10:10:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130222B	QC Batch: R87767	PrepDate:	Analyst: QBM			
Specific Conductance	2100	0.10	0.10	umhos/cm	1	2/22/2013

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
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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: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-57-070-191
Lab Order:	N009678	Collection Date:	2/20/2013 9:01:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130222B	QC Batch: R87767	PrepDate:	Analyst: QBM
Specific Conductance	2100	0.10	0.10
		umhos/cm	1
			2/22/2013

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: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-60-125-191
Lab Order:	N009678	Collection Date:	2/20/2013 1:06:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130222B	QC Batch: R87767	PrepDate:	Analyst: QBM			
Specific Conductance	8400	0.10	0.10	umhos/cm	1	2/22/2013

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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ANALYTICAL RESULTS

Print Date: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-66-165-191
Lab Order:	N009678	Collection Date:	2/20/2013 10:23:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130222B	QC Batch: R87767	PrepDate:	Analyst: QBM
Specific Conductance	4300	0.10	0.10
		umhos/cm	1
			2/22/2013

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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ANALYTICAL RESULTS

Print Date: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-68-240-191
Lab Order:	N009678	Collection Date:	2/20/2013 2:11:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130222B	QC Batch: R87767	PrepDate:	Analyst: QBM
Specific Conductance	15000	0.10	0.10
		umhos/cm	1
			2/22/2013

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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ANALYTICAL RESULTS

Print Date: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-69-195-191
Lab Order:	N009678	Collection Date:	2/20/2013 11:14:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130222B	QC Batch: R87767	PrepDate:	Analyst: QBM
Specific Conductance	3500	0.10	0.10
		umhos/cm	1
			2/22/2013

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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ANALYTICAL RESULTS

Print Date: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-125-191
Lab Order:	N009678	Collection Date:	2/21/2013 9:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130222B	QC Batch: R87767	PrepDate:	Analyst: QBM
Specific Conductance	4200	0.10	0.10
		umhos/cm	1
			2/22/2013

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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ANALYTICAL RESULTS

Print Date: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-66-230-191
Lab Order:	N009678	Collection Date:	2/21/2013 11:35:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130222B	QC Batch: R87767	PrepDate:	Analyst: QBM
Specific Conductance	18000	0.10	0.10
		umhos/cm	1
			2/22/2013

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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ANALYTICAL RESULTS

Print Date: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-67-185-191
Lab Order:	N009678	Collection Date:	2/21/2013 9:25:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130222B	QC Batch: R87767	PrepDate:	Analyst: QBM
Specific Conductance	4300	0.10	0.10
		umhos/cm	1
			2/22/2013

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: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-67-225-191
Lab Order:	N009678	Collection Date:	2/21/2013 10:25:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130222B	QC Batch: R87767	PrepDate:	Analyst: QBM			
Specific Conductance	7000	0.10	0.10	umhos/cm	1	2/22/2013

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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ANALYTICAL RESULTS

Print Date: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-67-260-191
Lab Order:	N009678	Collection Date:	2/21/2013 8:39:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130222C	QC Batch: R87768	PrepDate:	Analyst: QBM
Specific Conductance	17000	0.10	0.10
		umhos/cm	1
			2/22/2013

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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ANALYTICAL RESULTS

Print Date: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-68-180-191
Lab Order:	N009678	Collection Date:	2/21/2013 2:06:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130222C	QC Batch: R87768	PrepDate:	Analyst: QBM
Specific Conductance	3700	0.10	0.10
		umhos/cm	1
			2/22/2013

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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ANALYTICAL RESULTS

Print Date: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	TW-01-191
Lab Order:	N009678	Collection Date:	2/21/2013 4:05:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130222C	QC Batch: R87768	PrepDate:	Analyst: QBM
Specific Conductance	7200	0.10	0.10
		umhos/cm	1
			2/22/2013

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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CLIENT: CH2M HILL
 Work Order: N009678
 Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT**TestCode: 120.1_WPGE**

Sample ID: LCS-R87767	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87767			
Client ID: LCSW	Batch ID: R87767	TestNo: EPA 120.1			Analysis Date: 2/22/2013				SeqNo: 1531242		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	93800.000	0.10	99800	0	94.0	85	115				

Sample ID: N009678-008A-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87767			
Client ID: ZZZZZZ	Batch ID: R87767	TestNo: EPA 120.1			Analysis Date: 2/22/2013				SeqNo: 1531251		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	18320.000	0.10						17990	1.82	10	

Sample ID: N009678-008A-MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87767			
Client ID: ZZZZZZ	Batch ID: R87767	TestNo: EPA 120.1			Analysis Date: 2/22/2013				SeqNo: 1531252		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	119400.000	0.20	99800	17990	102	75	125				

Sample ID: N009678-008A-MSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87767			
Client ID: ZZZZZZ	Batch ID: R87767	TestNo: EPA 120.1			Analysis Date: 2/22/2013				SeqNo: 1531253		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	120200.000	0.20	99800	17990	102	75	125	119400	0.668	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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CLIENT: CH2M HILL
Work Order: N009678
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: LCS-R87768	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87768			
Client ID: LCSW	Batch ID: R87768	TestNo: EPA 120.1			Analysis Date: 2/22/2013				SeqNo: 1531259		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	97700.000	0.10	99800	0	97.9	85	115				

Sample ID: N009678-011A-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87768			
Client ID: ZZZZZZ	Batch ID: R87768	TestNo: EPA 120.1			Analysis Date: 2/22/2013				SeqNo: 1531261		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	17040.000	0.10						16940	0.589	10	

Sample ID: N009678-011A MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87768			
Client ID: ZZZZZZ	Batch ID: R87768	TestNo: EPA 120.1			Analysis Date: 2/22/2013				SeqNo: 1531262		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	121800.000	0.20	99800	16940	105	75	125				

Sample ID: N009678-011A MSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87768			
Client ID: ZZZZZZ	Batch ID: R87768	TestNo: EPA 120.1			Analysis Date: 2/22/2013				SeqNo: 1531263		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	122200.000	0.20	99800	16940	105	75	125	121800	0.328	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: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-60-125-191
Lab Order:	N009678	Collection Date:	2/20/2013 1:06:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130310A	QC Batch: 42402	PrepDate: 3/9/2013	Analyst: CEI
Arsenic	1.6 0.035 0.10	µg/L	1 3/10/2013 02:58 PM
Manganese	ND 0.16 0.50	µg/L	1 3/10/2013 02:58 PM
Molybdenum	19 0.074 0.50	µg/L	1 3/10/2013 02:58 PM
Selenium	6.1 0.084 0.50	µg/L	1 3/10/2013 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: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-66-165-191
Lab Order:	N009678	Collection Date:	2/20/2013 10:23:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130310A	QC Batch: 42402	PrepDate: 3/9/2013	Analyst: CEI
Arsenic	1.3 0.035 0.10	µg/L	1 3/10/2013 03:04 PM
Manganese	ND 0.16 0.50	µg/L	1 3/10/2013 03:04 PM
Molybdenum	6.7 0.074 0.50	µg/L	1 3/10/2013 03:04 PM
Selenium	39 0.084 0.50	µg/L	1 3/10/2013 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: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-68-240-191
Lab Order:	N009678	Collection Date:	2/20/2013 2:11:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130310A	QC Batch: 42402	PrepDate: 3/9/2013	Analyst: CEI
Arsenic	1.9 0.035 0.10	µg/L	1 3/10/2013 03:10 PM
Manganese	82 0.16 0.50	µg/L	1 3/10/2013 03:10 PM
Molybdenum	22 0.37 2.5	µg/L	5 3/10/2013 05:30 PM
Selenium	4.6 0.084 0.50	µg/L	1 3/10/2013 03:10 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS

Print Date: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-69-195-191
Lab Order:	N009678	Collection Date:	2/20/2013 11:14:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130310A	QC Batch: 42402	PrepDate: 3/9/2013	Analyst: CEI
Arsenic	2.2 0.035 0.10	µg/L	1 3/10/2013 03:21 PM
Manganese	ND 0.16 0.50	µg/L	1 3/10/2013 03:21 PM
Molybdenum	65 0.074 0.50	µg/L	1 3/10/2013 03:21 PM
Selenium	13 0.084 0.50	µg/L	1 3/10/2013 03:21 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: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-125-191
Lab Order:	N009678	Collection Date:	2/21/2013 9:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130310A	QC Batch: 42402	PrepDate: 3/9/2013	Analyst: CEI
Arsenic	1.6 0.035 0.10	µg/L	1 3/10/2013 03:34 PM
Manganese	ND 0.16 0.50	µg/L	1 3/10/2013 03:34 PM
Molybdenum	17 0.074 0.50	µg/L	1 3/10/2013 03:34 PM
Selenium	110 0.084 0.50	µg/L	1 3/10/2013 03:34 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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-66-230-191
Lab Order:	N009678	Collection Date:	2/21/2013 11:35:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130310A	QC Batch: 42402	PrepDate: 3/9/2013	Analyst: CEI
Arsenic	6.6	0.17	0.50
Manganese	ND	0.80	2.5
Molybdenum	87	0.37	2.5
Selenium	11	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: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-67-185-191
Lab Order:	N009678	Collection Date:	2/21/2013 9:25:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130310A	QC Batch: 42402	PrepDate: 3/9/2013	Analyst: CEI
Arsenic	1.7 0.035 0.10	µg/L	1 3/10/2013 03:46 PM
Manganese	ND 0.16 0.50	µg/L	1 3/10/2013 06:11 PM
Molybdenum	17 0.074 0.50	µg/L	1 3/10/2013 03:46 PM
Selenium	110 0.084 0.50	µg/L	1 3/10/2013 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: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-67-225-191
Lab Order:	N009678	Collection Date:	2/21/2013 10:25:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130310A	QC Batch: 42402	PrepDate: 3/9/2013	Analyst: CEI
Arsenic	3.2 0.035 0.10	µg/L	1 3/10/2013 03:52 PM
Manganese	ND 0.16 0.50	µg/L	1 3/10/2013 03:52 PM
Molybdenum	36 0.074 0.50	µg/L	1 3/10/2013 03:52 PM
Selenium	75 0.084 0.50	µg/L	1 3/10/2013 03:52 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: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-67-260-191
Lab Order:	N009678	Collection Date:	2/21/2013 8:39:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130310A	QC Batch: 42402	PrepDate: 3/9/2013	Analyst: CEI
Arsenic	11 0.035	0.10	µg/L 1 3/10/2013 04:38 PM
Manganese	88 0.16	0.50	µg/L 1 3/10/2013 04:38 PM
Molybdenum	85 0.37	2.5	µg/L 5 3/10/2013 05:44 PM
Selenium	1.6 0.084	0.50	µg/L 1 3/10/2013 04:38 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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-68-180-191
Lab Order:	N009678	Collection Date:	2/21/2013 2:06:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130310A	QC Batch: 42402	PrepDate: 3/9/2013	Analyst: CEI
Arsenic	2.5 0.035 0.10	µg/L	1 3/10/2013 04:44 PM
Manganese	ND 0.16 0.50	µg/L	1 3/10/2013 06:17 PM
Molybdenum	47 0.074 0.50	µg/L	1 3/10/2013 04:44 PM
Selenium	14 0.084 0.50	µg/L	1 3/10/2013 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	



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 11-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	TW-01-191
Lab Order:	N009678	Collection Date:	2/21/2013 4:05:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009678-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130310A	QC Batch: 42402	PrepDate: 3/9/2013	Analyst: CEI
Molybdenum	15 0.074	0.50	µg/L 1 3/10/2013 04:50 PM
Selenium	21 0.084	0.50	µg/L 1 3/10/2013 04:50 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: N009678
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT**TestCode: 6020_DIS**

Sample ID: MB-42402	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/9/2013	RunNo: 87977						
Client ID: PBW	Batch ID: 42402	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/10/2013	SeqNo: 1538355						
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-42402	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/9/2013	RunNo: 87977						
Client ID: LCSW	Batch ID: 42402	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/10/2013	SeqNo: 1538356						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	11.115	0.10	10.00	0	111	85	115				
Manganese	106.209	0.50	100.0	0	106	85	115				
Molybdenum	11.175	0.50	10.00	0	112	85	115				
Selenium	10.843	0.50	10.00	0	108	85	115				

Sample ID: N009678-003B-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/9/2013	RunNo: 87977						
Client ID: ZZZZZZ	Batch ID: 42402	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/10/2013	SeqNo: 1538370						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	12.156	0.10	10.00	1.608	105	75	125				
Manganese	93.606	0.50	100.0	0	93.6	75	125				
Molybdenum	32.297	0.50	10.00	18.84	135	75	125				S
Selenium	16.686	0.50	10.00	6.117	106	75	125				

Sample ID: N009678-003B-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/9/2013	RunNo: 87977						
Client ID: ZZZZZZ	Batch ID: 42402	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/10/2013	SeqNo: 1538371						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	12.361	0.10	10.00	1.608	108	75	125	12.16	1.67	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		



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: N009678
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N009678-003B-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/9/2013	RunNo: 87977						
Client ID: ZZZZZZ	Batch ID: 42402	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/10/2013	SeqNo: 1538371						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	93.514	0.50	100.0	0	93.5	75	125	93.61	0.0979	20	
Molybdenum	32.098	0.50	10.00	18.84	133	75	125	32.30	0.617	20	S
Selenium	16.839	0.50	10.00	6.117	107	75	125	16.69	0.914	20	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference



**Advanced Technology
Laboratories, Inc.**

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Project Name PG&E Topock			Container:	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x1 Liter	1Liter 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	30			
Project Number 423575.MP.02.GM.03				Arsenic (6020A) Field Filtered	Metals (6020AFF) Field Filtered Mo, Se, Mn	Metals (6020AFF) Field Filtered	Specific Conductance (E120.1)	Extra (*)			
Task Order											
Project 2013-GMP-191-Q1											
Turnaround Time 10 Days											
Shipping Date: 2/21/2013											
COC Number: 10											
DATE	TIME	MATRIX									
MW-124-191	2/20/2013	10:10	Water				X		N009678-1	1	
MW-57-070-191	2/20/2013	9:01	Water				X		- 2	1	
MW-60-125-191	2/20/2013	13:06	Water	X		X	X	X	- 3	3	
MW-66-165-191	2/20/2013	10:23	Water	X		X	X	X	- 4	3	
MW-68-240-191	2/20/2013	14:11	Water	X		X	X	X	- 5	3	
MW-69-195-191	2/20/2013	11:14	Water	X		X	X	X	- 6	3	
MW-125-191	2/21/2013	9:30	Water	X		X	X	X	- 7	3	
MW-66-230-191	2/21/2013	11:35	Water	X		X	X	X	- 8	3	
MW-67-185-191	2/21/2013	9:25	Water	X		X	X	X	- 9	3	
MW-67-225-191	2/21/2013	10:25	Water	X		X	X	X	- 10	3	
MW-67-260-191	2/21/2013	8:39	Water	X		X	X	X	- 11	3	
MW-68-180-191	2/21/2013	14:06	Water	X		X	X	X	- 12	3	
TW-01-191	2/21/2013	16:05	Water		X		X		- 13	2	
TOTAL NUMBER OF CONTAINERS										34	

Signatures		Date/Time	Shipping Details		ATTN: Sample Custody and Marlon	Special Instructions: Feb 4 - Feb 28, 2013 Report Copy to Shawn Duffy (530) 229-3303
Approved by		2-21-13	Method of Shipment:	courier		
Sampled by		1620	On Ice:	yes / no 2.8 12.1 0E		
Relinquished by		2-21-13 1620	Airbill No:			
Received by		2-21-13 1838	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: 2/21/2013

Workorder: N009678

Rep sample Temp (Deg C): 2.8

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 2/22/13

Reviewed By:

7/6/13

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 **N009678-003B**, the concentration in ug/L is calculated as follows:

$$\begin{aligned}\text{Arsenic, ug/L} &= 1.608 * 1 * (25/25) \\ &= 1.608\end{aligned}$$

Reporting results in two significant figures,

$$\text{Arsenic, ug/L} = 1.6$$

MS for
3/11/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N009678
 Test Method: EPA 6020
 Analysis Date: 03/10/13

Dilution Test Summary

Matrix: Water
 Batch No.: 42402

Instrument ID: ICP-MS #2
 Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Mn, As, Se and Mo. The calculated values were <25X RL. However, PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009661-001A-DT 5X	Arsenic	µg/L	1.622930042	NA	1.607553711	0.96%	10
N009661-001A-DT 5X	Manganese	µg/L	0	NA	0		10
N009661-001A-DT 5X	Molybdenum	µg/L	17.91899533	NA Passed	18.83691394	4.87%	10
N009661-001A-DT 5X	Selenium	µg/L	6.805512781	NA	6.117227712	11.25%	10

~ 3/11/13

CLIENT: CH2M HILL
Work Order: N009678
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N009678-003B-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 87977						
Client ID: ZZZZZZ	Batch ID: 42402	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/10/2013	SeqNo: 1538373						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	23.626	0.20	20.00	1.608	110	75	125				
Manganese	165.664	1.0	200.0	0	82.8	75	125				
Molybdenum	43.620	1.0	20.00	18.84	124	75	125				
Selenium	25.807	1.0	20.00	6.117	98.5	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

March 12, 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.: N009706

RE: PG&E Topock, 423575.MP.02.GM.03

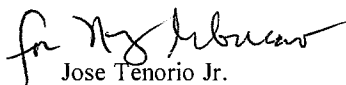
Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on February 26, 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.02.GM.03
Lab Order: N009706

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 Molybdenum possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Dilution was necessary on samples N009706-005 and N009706-006 due to failing internal standard when samples were analyzed at no dilution.

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N009706
Contract No: 2013-GMP-191-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009706-001A	MW-33-040-191	Water	2/25/2013 10:47:00 AM	2/26/2013	3/12/2013
N009706-001B	MW-33-040-191	Water	2/25/2013 10:47:00 AM	2/26/2013	3/12/2013
N009706-002A	MW-122-191	Water	2/26/2013 5:12:00 PM	2/26/2013	3/12/2013
N009706-002B	MW-122-191	Water	2/26/2013 5:12:00 PM	2/26/2013	3/12/2013
N009706-003A	MW-34-100-191	Water	2/26/2013 2:52:00 PM	2/26/2013	3/12/2013
N009706-003B	MW-34-100-191	Water	2/26/2013 2:52:00 PM	2/26/2013	3/12/2013
N009706-004A	MW-62-110-191	Water	2/26/2013 3:59:00 PM	2/26/2013	3/12/2013
N009706-004B	MW-62-110-191	Water	2/26/2013 3:59:00 PM	2/26/2013	3/12/2013
N009706-004C	MW-62-110-191	Water	2/26/2013 3:59:00 PM	2/26/2013	3/12/2013
N009706-005A	MW-62-190-191	Water	2/26/2013 4:05:00 PM	2/26/2013	3/12/2013
N009706-005B	MW-62-190-191	Water	2/26/2013 4:05:00 PM	2/26/2013	3/12/2013
N009706-005C	MW-62-190-191	Water	2/26/2013 4:05:00 PM	2/26/2013	3/12/2013
N009706-006A	MW-70BR-225-191	Water	2/26/2013 11:16:00 AM	2/26/2013	3/12/2013
N009706-006B	MW-70BR-225-191	Water	2/26/2013 11:16:00 AM	2/26/2013	3/12/2013
N009706-006C	MW-70BR-225-191	Water	2/26/2013 11:16:00 AM	2/26/2013	3/12/2013



Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-33-040-191
Lab Order:	N009706	Collection Date:	2/25/2013 10:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009706-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130227C	QC Batch: R87836	PrepDate:	Analyst: QBM			
Specific Conductance	6100	0.10	0.10	umhos/cm	1	2/27/2013

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: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-122-191
Lab Order:	N009706	Collection Date:	2/26/2013 5:12:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009706-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130227C	QC Batch: R87836	PrepDate:	Analyst: QBM
Specific Conductance	17000	0.10	0.10
		umhos/cm	1
			2/27/2013

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: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-34-100-191
Lab Order:	N009706	Collection Date:	2/26/2013 2:52:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009706-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130227C	QC Batch: R87836	PrepDate:	Analyst: QBM
Specific Conductance	17000	0.10	0.10
		umhos/cm	1
			2/27/2013

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: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-62-110-191
Lab Order:	N009706	Collection Date:	2/26/2013 3:59:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009706-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130227C	QC Batch: R87836	PrepDate:	Analyst: QBM			
Specific Conductance	8400	0.10	0.10	umhos/cm	1	2/27/2013

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: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-62-190-191
Lab Order:	N009706	Collection Date:	2/26/2013 4:05:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009706-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130227C	QC Batch: R87836	PrepDate:	Analyst: QBM
Specific Conductance	17000	0.10	0.10
		umhos/cm	1
			2/27/2013

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: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-70BR-225-191
Lab Order:	N009706	Collection Date:	2/26/2013 11:16:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009706-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130227C	QC Batch: R87836	PrepDate:	Analyst: QBM			
Specific Conductance	13000	0.10	0.10	umhos/cm	1	2/27/2013

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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CLIENT: CH2M HILL
 Work Order: N009706
 Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT**TestCode: 120.1_WPGE**

Sample ID: LCS-R87836	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87836			
Client ID: LCSW	Batch ID: R87836	TestNo: EPA 120.1			Analysis Date: 2/27/2013				SeqNo: 1533461		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1443.000	0.10	1412	0	102	85	115				

Sample ID: N009705-012A-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87836			
Client ID: ZZZZZZ	Batch ID: R87836	TestNo: EPA 120.1			Analysis Date: 2/27/2013				SeqNo: 1533464		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	4770.000	0.10						4810	0.835	10	

Sample ID: N009705-012A MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87836			
Client ID: ZZZZZZ	Batch ID: R87836	TestNo: EPA 120.1			Analysis Date: 2/27/2013				SeqNo: 1533465		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6260.000	0.20	1412	4810	103	75	125				

Sample ID: N009705-012A MSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87836			
Client ID: ZZZZZZ	Batch ID: R87836	TestNo: EPA 120.1			Analysis Date: 2/27/2013				SeqNo: 1533466		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6260.000	0.20	1412	4810	103	75	125	6260	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: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-33-040-191
Lab Order:	N009706	Collection Date:	2/25/2013 10:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009706-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY**EPA 300.0**

RunID: IC2_130301A	QC Batch: R87949	PrepDate:	Analyst: QBM
Fluoride	12 0.12 5.0	mg/L	10 3/1/2013 11:46 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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CLIENT: CH2M HILL
Work Order: N009706
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT**TestCode: 300_W_FPGE**

Sample ID: MB-R87949_F	SampType: MBLK	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 87949
Client ID: PBW	Batch ID: R87949	TestNo: EPA 300.0		Analysis Date: 3/1/2013	SeqNo: 1537535
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Fluoride	ND	0.50			

Sample ID: LCS-R87949_F	SampType: LCS	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 87949
Client ID: LCSW	Batch ID: R87949	TestNo: EPA 300.0		Analysis Date: 3/1/2013	SeqNo: 1537536
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: N009706-001BDUP	SampType: DUP	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 87949
Client ID: ZZZZZZ	Batch ID: R87949	TestNo: EPA 300.0		Analysis Date: 3/1/2013	SeqNo: 1537538
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Fluoride	11.540	5.0			11.73 1.63 20

Sample ID: N009706-001BMS	SampType: MS	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 87949
Client ID: ZZZZZZ	Batch ID: R87949	TestNo: EPA 300.0		Analysis Date: 3/1/2013	SeqNo: 1537539
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Fluoride	35.800	5.0	25.00	11.73	96.3 80 120

Sample ID: N009706-001BMSD	SampType: MSD	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 87949
Client ID: ZZZZZZ	Batch ID: R87949	TestNo: EPA 300.0		Analysis Date: 3/1/2013	SeqNo: 1537540
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Fluoride	35.820	5.0	25.00	11.73	96.4 80 120 35.80 0.0559 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: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-33-040-191
Lab Order:	N009706	Collection Date:	2/25/2013 10:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009706-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130311B	QC Batch: 42369	PrepDate: 3/6/2013	Analyst: CEI
Arsenic	14 0.035	0.10	µg/L 1 3/11/2013 04:10 PM
Manganese	ND 0.16	0.50	µg/L 1 3/11/2013 04:10 PM
Molybdenum	160 0.074	0.50	µg/L 1 3/11/2013 04:10 PM
Selenium	ND 0.084	0.50	µg/L 1 3/11/2013 04:10 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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ANALYTICAL RESULTS

Print Date: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-122-191
Lab Order:	N009706	Collection Date:	2/26/2013 5:12:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009706-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130311B	QC Batch: 42369	PrepDate: 3/6/2013	Analyst: CEI
Arsenic	1.5 0.17 0.50	µg/L	5 3/11/2013 06:25 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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Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-34-100-191
Lab Order:	N009706	Collection Date:	2/26/2013 2:52:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009706-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS**EPA 3010A****EPA 6020**

RunID: ICP7_130311B	QC Batch: 42369			PrepDate: 3/6/2013		Analyst: CEI
Arsenic	1.6	0.17	0.50	µg/L	5	3/11/2013 06:37 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: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-62-110-191
Lab Order:	N009706	Collection Date:	2/26/2013 3:59:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009706-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130311B	QC Batch: 42369	PrepDate: 3/6/2013	Analyst: CEI
Arsenic	10 0.035	0.10	µg/L 1 3/11/2013 05:03 PM
Manganese	83 0.16	0.50	µg/L 1 3/11/2013 05:03 PM
Molybdenum	47 0.37	2.5	µg/L 5 3/11/2013 06:14 PM
Selenium	3.0 0.084	0.50	µg/L 1 3/11/2013 05:03 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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ANALYTICAL RESULTS

Print Date: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-62-190-191
Lab Order:	N009706	Collection Date:	2/26/2013 4:05:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009706-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130311B	QC Batch: 42369	PrepDate: 3/6/2013	Analyst: CEI
Arsenic	5.9	0.17	0.50
Manganese	620	0.80	2.5
Molybdenum	81	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: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-70BR-225-191
Lab Order:	N009706	Collection Date:	2/26/2013 11:16:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009706-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130311B	QC Batch: 42369	PrepDate: 3/6/2013	Analyst: CEI
Arsenic	1.9 0.035	0.10	µg/L 1 3/11/2013 05:15 PM
Manganese	ND 0.80	2.5	µg/L 5 3/11/2013 06:20 PM
Molybdenum	19 0.37	2.5	µg/L 5 3/11/2013 06:20 PM
Selenium	2.6 0.42	2.5	µg/L 5 3/11/2013 06:20 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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CLIENT: CH2M HILL
Work Order: N009706
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT**TestCode: 6020_DIS**

Sample ID: MB-42369	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/6/2013	RunNo: 87990						
Client ID: PBW	Batch ID: 42369	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/11/2013	SeqNo: 1539161						
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-42369	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/6/2013	RunNo: 87990						
Client ID: LCSW	Batch ID: 42369	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/11/2013	SeqNo: 1539162						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	8.720	0.10	10.00	0	87.2	85	115				
Manganese	97.495	0.50	100.0	0	97.5	85	115				
Molybdenum	9.981	0.50	10.00	0	99.8	85	115				
Selenium	9.086	0.50	10.00	0	90.9	85	115				

Sample ID: N009706-001A-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/6/2013	RunNo: 87990						
Client ID: ZZZZZZ	Batch ID: 42369	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/11/2013	SeqNo: 1539164						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	26.108	0.10	10.00	13.73	124	75	125				
Manganese	105.224	0.50	100.0	0	105	75	125				
Molybdenum	167.524	0.50	10.00	156.1	114	75	125				
Selenium	8.561	0.50	10.00	0.3303	82.3	75	125				

Sample ID: N009706-001A-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/6/2013	RunNo: 87990						
Client ID: ZZZZZZ	Batch ID: 42369	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/11/2013	SeqNo: 1539165						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	25.541	0.10	10.00	13.73	118	75	125	26.11	2.20	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		



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: N009706
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N009706-001A-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/6/2013	RunNo: 87990						
Client ID: ZZZZZZ	Batch ID: 42369	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/11/2013	SeqNo: 1539165						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	104.969	0.50	100.0	0	105	75	125	105.2	0.242	20	
Molybdenum	169.536	0.50	10.00	156.1	134	75	125	167.5	1.19	20	S
Selenium	9.082	0.50	10.00	0.3303	87.5	75	125	8.561	5.91	20	

Qualifiers:

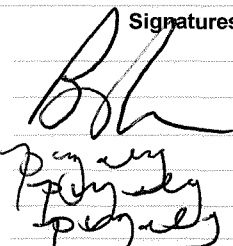
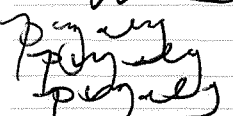
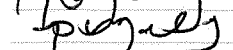
B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



Advanced Technology
Laboratories, Inc.

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Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.02.GM.03 Task Order Project 2013-GMP-191-Q1 Turnaround Time 10 Days Shipping Date: 2/26/2013 COC Number: 13				Container: 1x500 ml Poly 1x500 ml Poly 1x1 Liter 1x1 Liter 1 Liter Poly	Preservatives: HNO3, 4°C HNO3, 4°C 4°C 4°C 4°C	Filtered: Field Field NA NA NA	Holding Time: 180 180 14 14 30	Number of Containers				COMMENTS
DATE TIME Matrix	Arsenic (6020A) Field Filtered Metals (6020AF) Field Filtered Mo, Se, Mn Specific Conductance (E120.1) Anions (E300.0) Fluoride Extra (*)	N009706										
MW-33-040-191	2/25/2013	10:47	Water	X	X	X	X			~	2	
MW-122-191	2/26/2013	17:12	Water	X		X				-2	2	
MW-34-100-191	2/26/2013	14:52	Water	X		X				-3	2	
MW-62-110-191	2/26/2013	15:59	Water	X	X	X		X		-4	3	
MW-62-190-191	2/26/2013	16:05	Water	X	X	X		X		-5	3	
MW-70BR-225-191	2/26/2013	11:16	Water	X	X	X		X		-6	3	
TOTAL NUMBER OF CONTAINERS											15	

Approved by Sampled by Relinquished by Received by Relinquished by Received by	Signatures   	Date/Time 2-26-13 1705 2/26/13 1705 2/26/13 1705 2/26/13 1705	Shipping Details Method of Shipment: courier On Ice: yes / no 2.2°C / 2.4°C Airbill No: 124 Lab Name: ADVANCED TECHNOLOGY LABORATORY Lab Phone: (702) 307-2659	ATTN: Sample Custody and Marlon	Special Instructions: Feb 4 - Feb 28, 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: 2/26/2013

Workorder: N009706

Rep sample Temp (Deg C): 2.2, 2.4

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

2/27/13

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 **N009706-001B**, concentration in mg/L are calculated as follows:

$$\text{Fluoride, mg/L} = 1.173 * 10$$

$$= 11.73 \text{ mg/L}$$

Reporting **N009706-001B** results in two significant figures,

$$\text{Fluoride, mg/L} = 12 \quad \checkmark$$

11.73

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 **N009706-001A**, the concentration in ug/L is calculated as follows:

$$\begin{aligned}\text{Arsenic, ug/L} &= 13.7331 * 1 * (25/25) \\ &= 13.7331\end{aligned}$$

Reporting results in two significant figures,

$$\text{Arsenic, ug/L} = 14$$

us for
3/12/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N009706
Test Method: EPA 6020
Analysis Date: 03/11/13

Dilution Test Summary

Matrix: Water
Batch No.: 42369

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Mn & Se. The calculated values were <25X RL. As failed. However, PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFF limit
N009706-001A-DT 5X	Arsenic	µg/L	15.45969821	FAILED	13.73309635	12.57%	10
N009706-001A-DT 5X	Manganese	µg/L	0	NA	0		10
N009706-001A-DT 5X	Molybdenum	µg/L	160.9028527	PASSED	156.1074427	3.07%	10
N009706-001A-DT 5X	Selenium	µg/L	0.443152859	NA	0.330299091	34.17%	10

CLIENT: CH2M HILL
 Work Order: N009706
 Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N009706-001A-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 87990						
Client ID: ZZZZZZ	Batch ID: 42369	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/11/2013	SeqNo: 1539167						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	36.089	0.20	20.00	13.73	112	75	125				
Manganese	146.877	1.0	200.0	0	73.4	75	125				S
Molybdenum	181.847	1.0	20.00	156.1	129	75	125				S
Selenium	17.015	1.0	20.00	0.3303	83.4	75	125				

⑤ however,
 DT of Molybdenum @ 5x is within criteria and MS/MSD of Manganese
 also passed criteria.

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

March 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.: N009744

RE: PG&E Topock, 423575.MP.02.GM.03

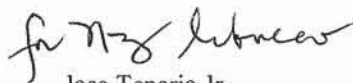
Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on March 01, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,



Jose Tenorio Jr.

Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



**Advanced Technology
Laboratories, Inc.**

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.02.GM.03
Lab Order: N009744

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.



Advanced Technology Laboratories, Inc.

Date: 15-Mar-13

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N009744
Contract No: 2013-GMP-191-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported	
N009744-001A	MW-74-240-191	Water	3/1/2013 8:15:00 AM	3/1/2013	3/15/2013	
N009744-001B	MW-74-240-191	Water	3/1/2013 8:15:00 AM	3/1/2013	3/15/2013	
N009744-001C	MW-74-240-191	Water	3/1/2013 8:15:00 AM	3/1/2013	3/15/2013	
N009744-002A	MW-58BR-165MD-191	Water	2/28/2013 3:52:00 PM	3/1/2013	3/15/2013	MW-58BR-191
N009744-002B	MW-58BR-165MD-191	Water	2/28/2013 3:52:00 PM	3/1/2013	3/15/2013	↓ SPD 04-19-13
N009744-002C	MW-58BR-165MD-191	Water	2/28/2013 3:52:00 PM	3/1/2013	3/15/2013	↓
N009744-003A	MW-64BR-255MD-191	Water	3/1/2013 3:05:00 PM	3/1/2013	3/15/2013	MW-64BR-191
N009744-003B	MW-64BR-255MD-191	Water	3/1/2013 3:05:00 PM	3/1/2013	3/15/2013	↓

Note the sample IDs were changed for MW-58BR and MW-64BR after the data was received from the laboratory to correct for the changes that had occurred to the well build prior to sample collection.

Sharon P. Duff
04/19/13



Advanced Technology
Laboratories, Inc.

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Page 1 of 1

Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 15-Mar-13

CLIENT: CH2M HILL
Lab Order: N009744
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009744-001

Client Sample ID: MW-74-240-191
Collection Date: 3/1/2013 8:15:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130304B	QC Batch: R87879			PrepDate:		Analyst: QBM
Specific Conductance	890	0.10	0.10	umhos/cm	1	3/4/2013

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
Laboratories, Inc.**

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 15-Mar-13

SPD
04-19-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-58BR- 165MD -191	MW-58BR-191
Lab Order:	N009744	Collection Date:	2/28/2013 3:52:00 PM	
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER	
Lab ID:	N009744-002			

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130304C	QC Batch: R87880	PrepDate:	Analyst: QBM
Specific Conductance	7300	0.10	0.10
	umhos/cm	1	3/4/2013

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: 15-Mar-13

SPD
04-19-13

CLIENT: CH2M HILL
Lab Order: N009744
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009744-003

Client Sample ID: MW-64BR-~~255MD~~-191 MW-64BR-191
Collection Date: 3/1/2013 3:05:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130304C	QC Batch: R87880			PrepDate:		Analyst: QBM
Specific Conductance	12000	0.10	0.10	umhos/cm	1	3/4/2013

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: N009744
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT**TestCode: 120.1_WPGE**

Sample ID: LCS-R87879	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87879			
Client ID: LCSW	Batch ID: R87879	TestNo: EPA 120.1			Analysis Date: 3/4/2013				SeqNo: 1535302		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	95600.000	0.10	100000	0	95.6	85	115				

Sample ID: N009742-003A-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87879			
Client ID: ZZZZZZ	Batch ID: R87879	TestNo: EPA 120.1			Analysis Date: 3/4/2013				SeqNo: 1535306		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	9130.000	0.10						9820	7.28	10	

Sample ID: N009742-003A MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87879			
Client ID: ZZZZZZ	Batch ID: R87879	TestNo: EPA 120.1			Analysis Date: 3/4/2013				SeqNo: 1535308		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	117600.000	0.20	100000	9820	108	75	125				

Sample ID: N009742-003A MSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87879			
Client ID: ZZZZZZ	Batch ID: R87879	TestNo: EPA 120.1			Analysis Date: 3/4/2013				SeqNo: 1535309		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	117200.000	0.20	100000	9820	107	75	125	117600	0.341	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		



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: N009744
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: LCS-R87880	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87880			
Client ID: LCSW	Batch ID: R87880	TestNo: EPA 120.1			Analysis Date: 3/4/2013				SeqNo: 1535320		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	90900.000	0.10	100000	0	90.9	85	115				

Sample ID: N009744-003B-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87880			
Client ID: ZZZZZZ	Batch ID: R87880	TestNo: EPA 120.1			Analysis Date: 3/4/2013				SeqNo: 1535325		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	12460.000	0.10						12440	0.161	10	

Sample ID: N009744-003B MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87880			
Client ID: ZZZZZZ	Batch ID: R87880	TestNo: EPA 120.1			Analysis Date: 3/4/2013				SeqNo: 1535326		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	94800.000	0.20	100000	12440	82.3	75	125				

Sample ID: N009744-003B MSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87880			
Client ID: ZZZZZZ	Batch ID: R87880	TestNo: EPA 120.1			Analysis Date: 3/4/2013				SeqNo: 1535327		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	93600.000	0.20	100000	12440	81.1	75	125	94800	1.27	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		



Advanced Technology
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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 15-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-74-240-191
Lab Order:	N009744	Collection Date:	3/1/2013 8:15:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009744-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130312A	QC Batch: 42336	PrepDate: 3/4/2013	Analyst: CEI
Arsenic	8.8 0.035 0.10	µg/L	1 3/12/2013 03:07 PM
Manganese	ND 0.16 0.50	µg/L	1 3/12/2013 03:07 PM
Molybdenum	68 0.074 0.50	µg/L	1 3/12/2013 03:07 PM
Selenium	1.7 0.084 0.50	µg/L	1 3/14/2013 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	



**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-Mar-13

SPD
04-19-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-58BR- 165MD -191	MW-58BR-191
Lab Order:	N009744	Collection Date:	2/28/2013 3:52:00 PM	
Project:	PG&E Topock, 423575.MP.02.GM.03		Matrix: WATER	
Lab ID:	N009744-002			

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			EPA 6020			
RunID: ICP7_130312A	QC Batch: 42336			PrepDate:	3/4/2013	Analyst: CEI	
Arsenic	1.1	0.035	0.10		µg/L	1	3/12/2013 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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Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 15-Mar-13

SPD
04-19-13

CLIENT: CH2M HILL
Lab Order: N009744
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009744-003

Client Sample ID: MW-64BR-~~255MD~~-191 MW-64BR-191
Collection Date: 3/1/2013 3:05:00 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_130312A

QC Batch: 42336

PrepDate:

3/4/2013

Analyst: CEI

Arsenic

2.9 0.035

0.10

µg/L

1

3/12/2013 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



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CLIENT: CH2M HILL
 Work Order: N009744
 Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: MB-42336	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/4/2013	RunNo: 88054						
Client ID: PBW	Batch ID: 42336	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/12/2013	SeqNo: 1540115						
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-42336	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/4/2013	RunNo: 88054						
Client ID: LCSW	Batch ID: 42336	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/12/2013	SeqNo: 1540116						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.918	0.10	10.00	0	99.2	85	115				
Manganese	100.503	0.50	100.0	0	101	85	115				
Molybdenum	10.299	0.50	10.00	0	103	85	115				

Sample ID: N009744-001A-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/4/2013	RunNo: 88054						
Client ID: ZZZZZZ	Batch ID: 42336	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/12/2013	SeqNo: 1540127						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	17.791	0.10	10.00	8.764	90.3	75	125				
Manganese	99.166	0.50	100.0	0	99.2	75	125				
Molybdenum	78.143	0.50	10.00	68.13	100	75	125				

Sample ID: N009744-001A-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/4/2013	RunNo: 88054						
Client ID: ZZZZZZ	Batch ID: 42336	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/12/2013	SeqNo: 1540128						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	17.602	0.10	10.00	8.764	88.4	75	125	17.79	1.07	20	
Manganese	99.757	0.50	100.0	0	99.8	75	125	99.17	0.595	20	
Molybdenum	78.219	0.50	10.00	68.13	101	75	125	78.14	0.0968	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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CLIENT: CH2M HILL
Work Order: N009744
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: MB-42336	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/4/2013	RunNo: 88056						
Client ID: PBW	Batch ID: 42336	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/13/2013	SeqNo: 1540197						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID: LCS-42336	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/4/2013	RunNo: 88056						
Client ID: LCSW	Batch ID: 42336	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/13/2013	SeqNo: 1540198						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	8.748	0.50	10.00	0	87.5	85	115				

Sample ID: N009744-001A-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/4/2013	RunNo: 88056						
Client ID: ZZZZZZ	Batch ID: 42336	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/13/2013	SeqNo: 1540206						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	11.112	0.50	10.00	1.734	93.8	75	125				

Sample ID: N009744-001A-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/4/2013	RunNo: 88056						
Client ID: ZZZZZZ	Batch ID: 42336	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/13/2013	SeqNo: 1540210						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.889	0.50	10.00	1.734	81.6	75	125	11.11	11.6	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

3/1/2013 4:44:28 PM

Page 1 OF 1

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.02.GM.03 Task Order Project 2013-GMP-191-Q1 Turnaround Time 10 Days Shipping Date: 3/1/2013 COC Number: 16				Container: 1x500 ml Poly Preservatives: HNO3, 4°C Filtered: Field Holding Time: 180				Container: 1x500 ml Poly Preservatives: HNO3, 4°C Filtered: Field Holding Time: 180				Container: 1x1 Liter Preservatives: 4°C Filtered: NA Holding Time: 14				Container: 1Liter Poly Preservatives: 4°C Filtered: NA Holding Time: 30				Please note the sample IDs were changed after receiving the results from the laboratory. <i>Shawn P. Duffy</i> 04/19/13				Number of Containers COMMENTS	
DATE TIME MATRIX				Arsenic (6020A) Field Filtered		Metals (6020AF) Field Filtered Mo, Se, Mn		Specific Conductance (E120.1)		Extra (*)		11089744													
MW-74-240-191 3/1/2013 8:15 Water				X		X		X		X		- 1				3									
MW-58BR-191 2-28-13 1552 Water				X		X		X		X		MW-58BR-191 SPD - 2				3									
MW-64BR-191 3-1-13 1505 Water				X		X		X		X		MW-64BR-191 04-19-13 - 3				2									
																8									

SPD

04-19-13

Signatures Approved by <i>[Signature]</i> Sampled by <i>[Signature]</i> Relinquished by <i>[Signature]</i> Received by <i>[Signature]</i> Relinquished by <i>[Signature]</i> Received by <i>[Signature]</i>		Date/Time 3-1-13 1645 3/1/13 1645 3/1/13 1100 3/1/13 1100		Shipping Details Method of Shipment: courier On Ice: yes / no 2-6°C 12#1 Airbill No: Lab Name: ADVANCED TECHNOLOGY LABORATO Lab Phone: (702) 307-2659		ATTN: Sample Custody and Marlon		Special Instructions: Feb 4 - Feb 28, 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: 3/1/2013

Workorder: N009744

Rep sample Temp (Deg C): 2.6

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

3/1/13

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 **N009744-001A**, the concentration in ug/L is calculated as follows:

$$\begin{aligned}\text{Arsenic, ug/L} &= 8.76433543726978 * 1 * (25/25) \\ &= 8.76433543726978\end{aligned}$$

Reporting results in two significant figures,

$$\text{Arsenic, ug/L} = 8.8$$

as for
3/15/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N009744
Test Method: EPA 6020
Analysis Date: 03/12/13

Dilution Test Summary

Matrix: Water
Batch No.: 42336

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. 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
N009744-001A-DT 5X	Arsenic	µg/L	9.840834598	FAILED	8.764335437	12.28%	10
N009744-001A-DT 5X	Manganese	µg/L	0	NA	0	0.00%	10
N009744-001A-DT 5X	Molybdenum	µg/L	72.79336697	PASSED	68.12970692	6.85%	10

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N009744
Test Method: EPA 6020
Analysis Date: 3/13/2013, 3/14/2013

Dilution Test Summary

Matrix: Water
Batch No.: 42336

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. PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc. Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009744-001A-DT 5X	Selenium	µg/L	2.5312197	NA	1.733805426	45.99%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N009744
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N009744-001A-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 88054						
Client ID: ZZZZZZ	Batch ID: 42336	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/12/2013	SeqNo: 1540126						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	25.664	0.20	20.00	8.764	84.5	75	125				
Manganese	189.271	1.0	200.0	0	94.6	75	125				
Molybdenum	89.150	1.0	20.00	68.13	105	75	125				

Sample ID: N009744-001A-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 88056						
Client ID: ZZZZZZ	Batch ID: 42336	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/13/2013	SeqNo: 1540205						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	18.818	1.0	20.00	1.734	85.4	75	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out

E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values

H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

March 26, 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.: N009807

RE: PG&E Topock, 423575.MP.02.GM.03

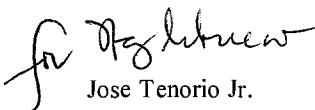
Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on March 12, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,



Jose Tenorio Jr.
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



**Advanced Technology
Laboratories, Inc.**

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.02.GM.03
Lab Order: N009807

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 Manganese since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N009807
Contract No: 2013-GMP-191-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009807-001A	MW-57-070-191a	Water	3/11/2013 3:05:00 PM	3/12/2013	3/26/2013
N009807-002A	MW-66BR-270-191	Water	3/12/2013 8:25:00 AM	3/12/2013	3/26/2013
N009807-002B	MW-66BR-270-191	Water	3/12/2013 8:25:00 AM	3/12/2013	3/26/2013
N009807-002C	MW-66BR-270-191	Water	3/12/2013 8:25:00 AM	3/12/2013	3/26/2013



Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 26-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-57-070-191a
Lab Order:	N009807	Collection Date:	3/11/2013 3:05:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009807-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130313C	QC Batch: R88047	PrepDate:	Analyst: QBM			
Specific Conductance	2200	0.10	0.10	umhos/cm	1	3/13/2013

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: 26-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-66BR-270-191
Lab Order:	N009807	Collection Date:	3/12/2013 8:25:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009807-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130313C	QC Batch: R88047	PrepDate:	Analyst: QBM			
Specific Conductance	18000	0.10	0.10	umhos/cm	1	3/13/2013

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: N009807
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT**TestCode: 120.1_WPGE**

Sample ID: LCS-R88047	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 88047			
Client ID: LCSW	Batch ID: R88047	TestNo: EPA 120.1			Analysis Date: 3/13/2013				SeqNo: 1539774		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1517.000	0.10	1412	0	107	85	115				

Sample ID: N009806-009A-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 88047			
Client ID: ZZZZZZ	Batch ID: R88047	TestNo: EPA 120.1			Analysis Date: 3/13/2013				SeqNo: 1539780		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2040.000	0.10						2030	0.491	10	

Sample ID: N009806-009A MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 88047			
Client ID: ZZZZZZ	Batch ID: R88047	TestNo: EPA 120.1			Analysis Date: 3/13/2013				SeqNo: 1539781		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	3508.000	0.20	1412	2030	105	75	125				

Sample ID: N009806-009A MSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 88047			
Client ID: ZZZZZZ	Batch ID: R88047	TestNo: EPA 120.1			Analysis Date: 3/13/2013				SeqNo: 1539782		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	3500.000	0.20	1412	2030	104	75	125	3508	0.228	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



**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: 26-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-66BR-270-191
Lab Order:	N009807	Collection Date:	3/12/2013 8:25:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009807-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130325A	QC Batch: 42456	PrepDate: 3/18/2013	Analyst: CEI
Arsenic	0.32	0.035	0.10
Manganese	ND	0.16	0.50
Molybdenum	21	0.074	0.50
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		



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: N009807
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT**TestCode: 6020_DIS**

Sample ID: MB-42456	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/18/2013	RunNo: 88192						
Client ID: PBW	Batch ID: 42456	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/25/2013	SeqNo: 1545219						
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-42456	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/18/2013	RunNo: 88192						
Client ID: LCSW	Batch ID: 42456	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/25/2013	SeqNo: 1545220						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	9.983	0.10	10.00	0	99.8	85	115				
Manganese	93.480	0.50	100.0	0	93.5	85	115				
Molybdenum	9.814	0.50	10.00	0	98.1	85	115				
Selenium	9.707	0.50	10.00	0	97.1	85	115				

Sample ID: N009804-001A-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/18/2013	RunNo: 88192						
Client ID: ZZZZZZ	Batch ID: 42456	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/25/2013	SeqNo: 1545231						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	11.254	0.10	10.00	0.4256	108	75	125				
Molybdenum	14.290	0.50	10.00	3.411	109	75	125				
Selenium	10.276	0.50	10.00	0	103	75	125				

Sample ID: N009804-001A-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/18/2013	RunNo: 88192						
Client ID: ZZZZZZ	Batch ID: 42456	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/25/2013	SeqNo: 1545232						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	11.687	0.10	10.00	0.4256	113	75	125	11.25	3.78	20	
Molybdenum	14.222	0.50	10.00	3.411	108	75	125	14.29	0.477	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		



Advanced Technology
Laboratories, Inc.

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CLIENT: CH2M HILL
Work Order: N009807
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N009804-001A-MSD	SampType: MSD	TestCode: 6020_DIS		Units: µg/L	Prep Date: 3/18/2013				RunNo: 88192		
Client ID: ZZZZZZ	Batch ID: 42456	TestNo: EPA 6020		EPA 3010A	Analysis Date: 3/25/2013				SeqNo: 1545232		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.286	0.50	10.00	0	103	75	125	10.28	0.0977	20	

Sample ID: N009804-001A-MS	SampType: MS	TestCode: 6020_DIS		Units: µg/L	Prep Date: 3/18/2013				RunNo: 88192		
Client ID: ZZZZZZ	Batch ID: 42456	TestNo: EPA 6020		EPA 3010A	Analysis Date: 3/25/2013				SeqNo: 1545237		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	2884.870	12	100.0	2885	-0.128	75	125				S

Sample ID: N009804-001A-MSD	SampType: MSD	TestCode: 6020_DIS		Units: µg/L	Prep Date: 3/18/2013				RunNo: 88192		
Client ID: ZZZZZZ	Batch ID: 42456	TestNo: EPA 6020		EPA 3010A	Analysis Date: 3/25/2013				SeqNo: 1545238		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	2874.536	12	100.0	2885	-10.5	75	125	2885	0.359	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		



Advanced Technology
Laboratories, Inc.

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Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.02.GM.03 Task Order Project 2013-GMP-191-Q1 Turnaround Time 10 Days Shipping Date: 3/12/2013 COC Number: 19				Container: 1x500 ml Poly HNO3, 4°C Field 180	1x500 ml Poly HNO3, 4°C Field 180	1x1 Liter 4°C NA 14	1 Liter Poly 4°C NA 30	Number of Containers COMMENTS	
DATE TIME Matrix	Preservatives: Filtered: Holding Time:	Arsenic (6020A) Field Filtered Metals (6020AFF) Field Filtered Mo, Se, Mn Specific Conductance (E120.1) Extra (+)	1009807-1 L -2	1 3 4					
MW-57-070-191	3/11/2013	15:05	Water			X			
MW-66BR-270-191	3/12/2013	8:25	Water	X	X	X	X		
TOTAL NUMBER OF CONTAINERS									4

Approved by Sampled by Relinquished by Received by Relinquished by Received by	Signatures  	Date/Time 3-12-13 1715 3-12-13 1715 3/12/13 1935	Shipping Details Method of Shipment: courier On Ice: <input checked="" type="radio"/> yes / no 13.4 ICE 191 Airbill No: Lab Name: ADVANCED TECHNOLOGY LABORATO Lab Phone: (702) 307-2659	ATTN: Sample Custody and Marlon	Special Instructions: Feb 4 - Feb 28, 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: 3/12/2013

Workorder: N009807

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

3/12/13

Reviewed By:

7/6/13

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 **N009807-002A**, the concentration in ug/L is calculated as follows:

$$\begin{aligned}\text{Arsenic, ug/L} &= 0.32289219254 * 1 * (25/25) \\ &= 0.32289219254\end{aligned}$$

Reporting results in two significant figures,

$$\text{Arsenic, ug/L} = 0.32$$

UJ
3/26/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N009807
Test Method: EPA 6020
Analysis Date: 03/25/13

Dilution Test Summary

Matrix: Water
Batch No.: 42456

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments: Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to As, Mo and Se. The calculated values were <25X RL. However, PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009804-001A-DT 5X	Arsenic	µg/L	0.400733111	NA	0.425582883	5.84%	10
N009804-001A-DT 125X	Manganese	µg/L	2897.45606	PASSED	2884.998068	0.43%	10
N009804-001A-DT 5X	Molybdenum	µg/L	3.490520268	NA	3.41098452	2.33%	10
N009804-001A-DT 5X	Selenium	µg/L	0	NA	0	0.00%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N009807
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N009804-001A-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 88192						
Client ID: ZZZZZZ	Batch ID: 42456	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/25/2013	SeqNo: 1545228						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.182	0.20	20.00	0.4256	98.8	75	125				
Molybdenum	23.861	1.0	20.00	3.411	102	75	125				
Selenium	20.659	1.0	20.00	0	103	75	125				

Sample ID: N009804-001A-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 88192						
Client ID: ZZZZZZ	Batch ID: 42456	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/25/2013	SeqNo: 1545236						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	5332.877	12	2500	2885	97.9	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

March 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.: N009833

RE: PG&E Topock, 423575.MP.02.GM.0

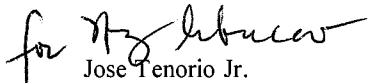
Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on March 15, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,


Jose Tenorio Jr.
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



**Advanced Technology
Laboratories, Inc.**

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.02.GM.0
Lab Order: N009833

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 Manganese since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.0
Lab Order: N009833
Contract No: 2013-GMP-191-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009833-001A	MW-24BR-191	Water	3/14/2013 2:58:00 PM	3/15/2013	3/29/2013
N009833-002A	MW-60BR-245-191	Water	3/14/2013 8:02:00 AM	3/15/2013	3/29/2013
N009833-002B	MW-60BR-245-191	Water	3/14/2013 8:02:00 AM	3/15/2013	3/29/2013
N009833-002C	MW-60BR-245-191	Water	3/14/2013 8:02:00 AM	3/15/2013	3/29/2013
N009833-003A	MW-126-191	Water	3/14/2013 1:13:00 PM	3/15/2013	3/29/2013
N009833-003B	MW-126-191	Water	3/14/2013 1:13:00 PM	3/15/2013	3/29/2013
N009833-003C	MW-126-191	Water	3/14/2013 1:13:00 PM	3/15/2013	3/29/2013



Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 29-Mar-13

CLIENT: CH2M HILL
Lab Order: N009833
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N009833-001

Client Sample ID: MW-24BR-191
Collection Date: 3/14/2013 2:58:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130318A	QC Batch: R88101			PrepDate:		Analyst: QBM
Specific Conductance	14000	0.10	0.10	umhos/cm	1	3/18/2013

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: 29-Mar-13

CLIENT: CH2M HILL
Lab Order: N009833
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N009833-002

Client Sample ID: MW-60BR-245-191
Collection Date: 3/14/2013 8:02:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: **WETCHEM_130318A** QC Batch: **R88101** PrepDate: Analyst: **QBM**
Specific Conductance 16000 0.10 0.10 umhos/cm 1 3/18/2013

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-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-126-191
Lab Order:	N009833	Collection Date:	3/14/2013 1:13:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	Matrix:	WATER
Lab ID:	N009833-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130318A	QC Batch: R88101	PrepDate:	Analyst: QBM			
Specific Conductance	16000	0.10	0.10	umhos/cm	1	3/18/2013

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: N009833
 Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT**TestCode: 120.1_WPGE**

Sample ID: LCS-R88101	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 88101			
Client ID: LCSW	Batch ID: R88101	TestNo: EPA 120.1			Analysis Date: 3/18/2013				SeqNo: 1541969		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1522.000	0.10	1412	0	108	85	115				

Sample ID: N009834-002A-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 88101			
Client ID: ZZZZZZ	Batch ID: R88101	TestNo: EPA 120.1			Analysis Date: 3/18/2013				SeqNo: 1541981		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2450.000	0.10						2460	0.407	10	

Sample ID: N009834-002A MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 88101			
Client ID: ZZZZZZ	Batch ID: R88101	TestNo: EPA 120.1			Analysis Date: 3/18/2013				SeqNo: 1541982		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	3806.000	0.20	1412	2460	95.3	75	125				

Sample ID: N009834-002A MSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 88101			
Client ID: ZZZZZZ	Batch ID: R88101	TestNo: EPA 120.1			Analysis Date: 3/18/2013				SeqNo: 1541983		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	3840.000	0.20	1412	2460	97.7	75	125	3806	0.889	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



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: 29-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-60BR-245-191
Lab Order:	N009833	Collection Date:	3/14/2013 8:02:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	Matrix:	WATER
Lab ID:	N009833-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130325A	QC Batch: 42456	PrepDate: 3/18/2013	Analyst: CEI			
Arsenic	7.5	0.035	0.10	µg/L	1	3/25/2013 01:49 PM
Manganese	ND	0.16	0.50	µg/L	1	3/25/2013 01:49 PM
Molybdenum	46	0.074	0.50	µg/L	1	3/25/2013 01:49 PM
Selenium	1.7	0.084	0.50	µg/L	1	3/25/2013 01:49 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-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-126-191
Lab Order:	N009833	Collection Date:	3/14/2013 1:13:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	Matrix:	WATER
Lab ID:	N009833-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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DISSOLVED METALS BY ICP-MS

EPA 3010A

EPA 6020

RunID: ICP7_130325A	QC Batch: 42456	PrepDate: 3/18/2013	Analyst: CEI			
Arsenic	7.1	0.035	0.10	µg/L	1	3/25/2013 12:17 PM
Manganese	ND	0.16	0.50	µg/L	1	3/25/2013 12:17 PM
Molybdenum	47	0.074	0.50	µg/L	1	3/25/2013 12:17 PM
Selenium	1.8	0.084	0.50	µg/L	1	3/25/2013 12:17 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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Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
 Work Order: N009833
 Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: MB-42456	SampType: MBLK	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/18/2013	RunNo: 88192						
Client ID: PBW	Batch ID: 42456	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/25/2013	SeqNo: 1545219						
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-42456	SampType: LCS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/18/2013	RunNo: 88192						
Client ID: LCSW	Batch ID: 42456	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/25/2013	SeqNo: 1545220						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	9.983	0.10	10.00	0	99.8	85	115				
Manganese	93.480	0.50	100.0	0	93.5	85	115				
Molybdenum	9.814	0.50	10.00	0	98.1	85	115				
Selenium	9.707	0.50	10.00	0	97.1	85	115				

Sample ID: N009804-001A-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/18/2013	RunNo: 88192						
Client ID: ZZZZZZ	Batch ID: 42456	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/25/2013	SeqNo: 1545231						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	11.254	0.10	10.00	0.4256	108	75	125				
Molybdenum	14.290	0.50	10.00	3.411	109	75	125				
Selenium	10.276	0.50	10.00	0	103	75	125				

Sample ID: N009804-001A-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/18/2013	RunNo: 88192						
Client ID: ZZZZZZ	Batch ID: 42456	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/25/2013	SeqNo: 1545232						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	11.687	0.10	10.00	0.4256	113	75	125	11.25	3.78	20	
Molybdenum	14.222	0.50	10.00	3.411	108	75	125	14.29	0.477	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		



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: N009833
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N009804-001A-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/18/2013	RunNo: 88192						
Client ID: ZZZZZZ	Batch ID: 42456	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/25/2013	SeqNo: 1545232						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.286	0.50	10.00	0	103	75	125	10.28	0.0977	20	

Sample ID: N009804-001A-MS	SampType: MS	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/18/2013	RunNo: 88192						
Client ID: ZZZZZZ	Batch ID: 42456	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/25/2013	SeqNo: 1545237						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	2884.870	12	100.0	2885	-0.128	75	125				S

Sample ID: N009804-001A-MSD	SampType: MSD	TestCode: 6020_DIS	Units: µg/L	Prep Date: 3/18/2013	RunNo: 88192						
Client ID: ZZZZZZ	Batch ID: 42456	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/25/2013	SeqNo: 1545238						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	2874.536	12	100.0	2885	-10.5	75	125	2885	0.359	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			

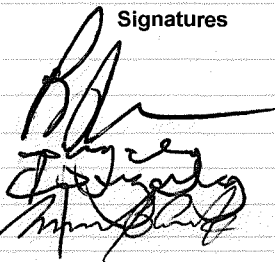
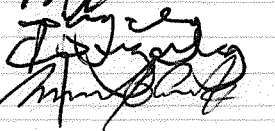



Advanced Technology
Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.02.GM.0 Task Order Project 2013-GMP-191-Q1 Turnaround Time 10 Days Shipping Date: 3/15/2013 COC Number: 22				Containers: 1x500 ml Poly Preservatives: HNO3, 4°C Filtered: Field Holding Time: 180	1x500 ml Poly HNO3, 4°C Field 180	1x1 Liter 4°C NA 14	1 Liter Poly 4°C NA 30	Number of Containers COMMENTS	
DATE TIME Matrix				Arsenic (6020A) Field Filtered Metals (6020AF) Field Filtered Mo,Se,Mn Specific Conductance (E120.1) Extra (*)					
MW-24BR-191	3/14/2013	14:58	Water			X		N009833-1	1
MW-60BR-245-191	3/14/2013	8:02	Water	X	X	X	X		3
MW-24-191	3-14-13	1313	Water	X	X	X	X		3
TOTAL NUMBER OF CONTAINERS									4

7

Approved by Sampled by Relinquished by Received by Relinquished by Received by		Signatures   	Date/Time 3-15-13 1230 3/10/13 1230 3/14/13 1145 3/15/13 0154	Shipping Details Method of Shipment: courier On Ice: yes no 4.6°C 12°F Airbill No: Lab Name: ADVANCED TECHNOLOGY LABORATORY Lab Phone: (702) 307-2659	ATTN: Sample Custody and Marlon	Special Instructions: Feb 4 - Feb 28, 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: 3/15/2013

Workorder: N009833

Rep sample Temp (Deg C): 4.6

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 *MBC 3/15/13*

Reviewed By: *giti*

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 **N009833-003B**, the concentration in ug/L is calculated as follows:

$$\text{Arsenic, ug/L} = 7.0874641064 * 1 * (25/25)$$

$$= 7.0874641064$$

Reporting results in two significant figures,

$$\text{Arsenic, ug/L} = 7.1$$

ms f
3/29/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Work Order No.: N009833
Test Method: EPA 6020
Analysis Date: 03/25/13

Dilution Test Summary

Matrix: Water
Batch No.: 42456

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to As, Mo and Se. The calculated values were <25X RL. However, PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009804-001A-DT 5X	Arsenic	µg/L	0.400733111	NA	0.425582883	5.84%	10
N009804-001A-DT 125X	Manganese	µg/L	2897.45606	PASSED	2884.998068	0.43%	10
N009804-001A-DT 5X	Molybdenum	µg/L	3.490520268	NA	3.41098452	2.33%	10
N009804-001A-DT 5X	Selenium	µg/L	0	NA	0	0.00%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N009833
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N009804-001A-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 88192						
Client ID: ZZZZZZ	Batch ID: 42456	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/25/2013	SeqNo: 1545228						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.182	0.20	20.00	0.4256	98.8	75	125				
Molybdenum	23.861	1.0	20.00	3.411	102	75	125				
Selenium	20.659	1.0	20.00	0	103	75	125				

Sample ID: N009804-001A-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 88192						
Client ID: ZZZZZZ	Batch ID: 42456	TestNo: EPA 6020	EPA 3010A	Analysis Date: 3/25/2013	SeqNo: 1545236						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	5332.877	12	2500	2885	97.9	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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

March 6, 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-191SAMPLEMETHODT,
GROUNDWATER MONITORING PROJECT, TLI NO.: 806464

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-191SAMPLEMETHODT 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 February 20, 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 (8.4 ug/L) and Hexavalent Chromium (3.5 ug/L) results for sample MW-112-191, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 9.7 ug/L and 9.1 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and yielded a result of 8.9 ug/L. The original results were reported.

Due to the discrepancy between the Total Dissolved Chromium (8.2 ug/L) and Hexavalent Chromium (4.2 ug/L) results for sample MW-44-125-191, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 9.4 ug/L and 7.7 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and yielded a result of 8.9 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.

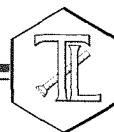

for - Mona Nassimi
Manager, Analytical Services



Michael Ngo
Quality Assurance/Quality Control Officer

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.: 806464
Date Received: February 20, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.03
P.O. No.: 423575.MP.02.GM.03

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806464-001	MW-112-191	E218.6	FLDFLT	2/13/2013	17:46	Chromium, Hexavalent	3.5	ug/L	1.0
806464-001	MW-112-191	SW6010B	FLDFLT	2/13/2013	17:46	Calcium	98100	ug/L	12500
806464-001	MW-112-191	SW6010B	FLDFLT	2/13/2013	17:46	Iron	100	ug/L	20.0
806464-001	MW-112-191	SW6010B	FLDFLT	2/13/2013	17:46	Magnesium	5220	ug/L	1000
806464-001	MW-112-191	SW6010B	FLDFLT	2/13/2013	17:46	Sodium	2950000	ug/L	500000
806464-001	MW-112-191	SW6020	FLDFLT	2/13/2013	17:46	Arsenic	3.9	ug/L	0.50
806464-001	MW-112-191	SW6020	FLDFLT	2/13/2013	17:46	Chromium	8.4	ug/L	1.0
806464-001	MW-112-191	SW6020	FLDFLT	2/13/2013	17:46	Manganese	406	ug/L	2.0
806464-001	MW-112-191	SW6020	FLDFLT	2/13/2013	17:46	Molybdenum	134	ug/L	2.0
806464-001	MW-112-191	SW6020	FLDFLT	2/13/2013	17:46	Selenium	ND	ug/L	5.0
806464-002	MW-200-191	E218.6	FLDFLT	2/13/2013	16:50	Chromium, Hexavalent	ND	ug/L	0.20
806464-002	MW-200-191	SW6020	FLDFLT	2/13/2013	16:50	Chromium	ND	ug/L	1.0
806464-003	MW-44-125-191	E218.6	FLDFLT	2/13/2013	15:32	Chromium, Hexavalent	4.2	ug/L	1.0
806464-003	MW-44-125-191	SW6010B	FLDFLT	2/13/2013	15:32	Calcium	94200	ug/L	5000
806464-003	MW-44-125-191	SW6010B	FLDFLT	2/13/2013	15:32	Iron	87.7	ug/L	20.0
806464-003	MW-44-125-191	SW6010B	FLDFLT	2/13/2013	15:32	Magnesium	5140	ug/L	1000
806464-003	MW-44-125-191	SW6010B	FLDFLT	2/13/2013	15:32	Sodium	2640000	ug/L	100000
806464-003	MW-44-125-191	SW6020	FLDFLT	2/13/2013	15:32	Arsenic	4.1	ug/L	0.50
806464-003	MW-44-125-191	SW6020	FLDFLT	2/13/2013	15:32	Chromium	8.2	ug/L	1.0
806464-003	MW-44-125-191	SW6020	FLDFLT	2/13/2013	15:32	Manganese	368	ug/L	1.0
806464-003	MW-44-125-191	SW6020	FLDFLT	2/13/2013	15:32	Molybdenum	126	ug/L	2.0
806464-003	MW-44-125-191	SW6020	FLDFLT	2/13/2013	15:32	Selenium	ND	ug/L	5.0

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
806464-004	MW-111-191	E218.6	FLDFLT	2/14/2013	14:58	Chromium, Hexavalent	16.2	ug/L	1.0
806464-004	MW-111-191	SW6010B	FLDFLT	2/14/2013	14:58	Calcium	333000	ug/L	100000
806464-004	MW-111-191	SW6010B	FLDFLT	2/14/2013	14:58	Iron	ND	ug/L	20.0
806464-004	MW-111-191	SW6010B	FLDFLT	2/14/2013	14:58	Magnesium	32200	ug/L	2500
806464-004	MW-111-191	SW6010B	FLDFLT	2/14/2013	14:58	Sodium	1970000	ug/L	100000
806464-004	MW-111-191	SW6020	FLDFLT	2/14/2013	14:58	Arsenic	1.6	ug/L	0.50
806464-004	MW-111-191	SW6020	FLDFLT	2/14/2013	14:58	Chromium	18.3	ug/L	1.0
806464-004	MW-111-191	SW6020	FLDFLT	2/14/2013	14:58	Manganese	2.2	ug/L	0.50
806464-004	MW-111-191	SW6020	FLDFLT	2/14/2013	14:58	Molybdenum	16.3	ug/L	2.0
806464-004	MW-111-191	SW6020	FLDFLT	2/14/2013	14:58	Selenium	ND	ug/L	5.0
806464-005	MW-201-191	E218.6	FLDFLT	2/14/2013	16:36	Chromium, Hexavalent	ND	ug/L	0.20
806464-005	MW-201-191	SW6020	FLDFLT	2/14/2013	16:36	Chromium	ND	ug/L	1.0
806464-006	MW-202-191	E218.6	FLDFLT	2/14/2013	16:30	Chromium, Hexavalent	ND	ug/L	0.20
806464-006	MW-202-191	SW6020	FLDFLT	2/14/2013	16:30	Chromium	ND	ug/L	1.0
806464-007	MW-33-090-191	E218.6	FLDFLT	2/14/2013	14:53	Chromium, Hexavalent	17.8	ug/L	1.0
806464-007	MW-33-090-191	SW6010B	FLDFLT	2/14/2013	14:53	Calcium	336000	ug/L	100000
806464-007	MW-33-090-191	SW6010B	FLDFLT	2/14/2013	14:53	Iron	ND	ug/L	20.0
806464-007	MW-33-090-191	SW6010B	FLDFLT	2/14/2013	14:53	Magnesium	32000	ug/L	2500
806464-007	MW-33-090-191	SW6010B	FLDFLT	2/14/2013	14:53	Sodium	2000000	ug/L	100000
806464-007	MW-33-090-191	SW6020	FLDFLT	2/14/2013	14:53	Arsenic	1.4	ug/L	0.50
806464-007	MW-33-090-191	SW6020	FLDFLT	2/14/2013	14:53	Chromium	17.9	ug/L	1.0
806464-007	MW-33-090-191	SW6020	FLDFLT	2/14/2013	14:53	Manganese	2.2	ug/L	0.50
806464-007	MW-33-090-191	SW6020	FLDFLT	2/14/2013	14:53	Molybdenum	16.5	ug/L	2.0
806464-007	MW-33-090-191	SW6020	FLDFLT	2/14/2013	14:53	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806464-008	MW-50-095-191	E218.6	FLDFLT	2/14/2013	10:15	Chromium, Hexavalent	12.4	ug/L	0.20
806464-008	MW-50-095-191	SW6010B	FLDFLT	2/14/2013	10:15	Calcium	115000	ug/L	100000
806464-008	MW-50-095-191	SW6010B	FLDFLT	2/14/2013	10:15	Iron	ND	ug/L	20.0
806464-008	MW-50-095-191	SW6010B	FLDFLT	2/14/2013	10:15	Magnesium	13400	ug/L	2500
806464-008	MW-50-095-191	SW6010B	FLDFLT	2/14/2013	10:15	Sodium	987000	ug/L	100000
806464-008	MW-50-095-191	SW6020	FLDFLT	2/14/2013	10:15	Arsenic	2.7	ug/L	0.50
806464-008	MW-50-095-191	SW6020	FLDFLT	2/14/2013	10:15	Chromium	13.7	ug/L	1.0
806464-008	MW-50-095-191	SW6020	FLDFLT	2/14/2013	10:15	Manganese	ND	ug/L	0.50
806464-008	MW-50-095-191	SW6020	FLDFLT	2/14/2013	10:15	Molybdenum	16.2	ug/L	2.0
806464-008	MW-50-095-191	SW6020	FLDFLT	2/14/2013	10:15	Selenium	ND	ug/L	5.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

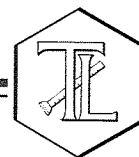
Results below 0.01ppm will have two (2) significant figures.

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

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



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14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
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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.GM.03

P.O. Number: 423575.MP.02.GM.03

Release Number:

Laboratory No. 806464

Page 1 of 17

Printed 3/6/2013

Samples Received on 2/20/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-112-191	806464-001	02/13/2013 17:46	Water
MW-200-191	806464-002	02/13/2013 16:50	Water
MW-44-125-191	806464-003	02/13/2013 15:32	Water
MW-111-191	806464-004	02/14/2013 14:58	Water
MW-201-191	806464-005	02/14/2013 16:36	Water
MW-202-191	806464-006	02/14/2013 16:30	Water
MW-33-090-191	806464-007	02/14/2013 14:53	Water
MW-50-095-191	806464-008	02/14/2013 10:15	Water

Chrome VI by EPA 218.6

Batch 02CrH13R

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806464-001 Chromium, Hexavalent	ug/L	02/22/2013 16:00	5.00	0.0460	1.0	3.5
806464-002 Chromium, Hexavalent	ug/L	02/22/2013 14:26	1.00	0.00920	0.20	ND
806464-003 Chromium, Hexavalent	ug/L	02/22/2013 16:10	5.00	0.0460	1.0	4.2
806464-004 Chromium, Hexavalent	ug/L	02/22/2013 16:21	5.00	0.0460	1.0	16.2
806464-005 Chromium, Hexavalent	ug/L	02/22/2013 14:58	1.00	0.00920	0.20	ND
806464-006 Chromium, Hexavalent	ug/L	02/22/2013 15:08	1.00	0.00920	0.20	ND
806464-007 Chromium, Hexavalent	ug/L	02/22/2013 16:42	5.00	0.0460	1.0	17.8
806464-008 Chromium, Hexavalent	ug/L	02/22/2013 15:50	1.00	0.00920	0.20	12.4

Method Blank

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

Duplicate

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	3.48	3.49	0.428	0 - 20

Lab ID = 806461-009



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/6/2013

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.181	0.200	90.6	70 - 130
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.90	5.00	98.1	90 - 110
Matrix Spike						Lab ID = 806461-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.03	6.08(5.00)	99.0	90 - 110
Matrix Spike						Lab ID = 806461-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.40	1.31(1.00)	109	90 - 110
Matrix Spike						Lab ID = 806461-006
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.28	1.26(1.00)	102	90 - 110
Matrix Spike						Lab ID = 806461-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.08	1.07(1.00)	101	90 - 110
Matrix Spike						Lab ID = 806461-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.08	1.12(1.00)	96.4	90 - 110
Matrix Spike						Lab ID = 806461-009
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.39	8.49(5.00)	97.9	90 - 110
Matrix Spike						Lab ID = 806461-010
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.66	1.67(1.00)	98.6	90 - 110
Matrix Spike						Lab ID = 806461-011
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.69	1.73(1.00)	96.1	90 - 110
Matrix Spike						Lab ID = 806461-012
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.57	1.58(1.00)	99.2	90 - 110
Matrix Spike						Lab ID = 806461-013
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.39	1.39(1.00)	100	90 - 110


Client: E2 Consulting Engineers, Inc.
Project Name: PG&E Topock Project
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Project Number: 423575.MP.02.GM.03
Printed 3/6/2013
Matrix Spike
Lab ID = 806461-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.16	1.17(1.00)	98.6	90 - 110

Matrix Spike
Lab ID = 806461-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.31	1.31(1.00)	99.8	90 - 110

Matrix Spike
Lab ID = 806464-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	8.56	8.53(5.00)	101	90 - 110

Matrix Spike
Lab ID = 806464-002

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 = 806464-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	9.43	9.22(5.00)	104	90 - 110

Matrix Spike
Lab ID = 806464-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	43.2	41.2(25.0)	108	90 - 110

Matrix Spike
Lab ID = 806464-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.999	1.00(1.00)	99.9	90 - 110

Matrix Spike
Lab ID = 806464-006

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 = 806464-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	43.3	42.8(25.0)	102	90 - 110

Matrix Spike
Lab ID = 806464-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	27.6	27.4(15.0)	101	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.93	5.00	98.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.54	10.0	95.4	95 - 105

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 5 of 17****Project Number: 423575.MP.02.GM.03****Printed 3/6/2013****Metals by EPA 6020A, Dissolved**

Batch 022213A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806464-001 Arsenic	ug/L	02/22/2013 09:21	2.00	0.200	0.50	3.9
Chromium	ug/L	02/22/2013 09:21	2.00	0.184	1.0	8.4
Manganese	ug/L	02/22/2013 10:09	10.0	0.860	2.0	406
Molybdenum	ug/L	02/22/2013 09:21	2.00	0.414	2.0	134
Selenium	ug/L	02/22/2013 09:21	2.00	0.160	5.0	ND
806464-002 Chromium	ug/L	02/22/2013 10:56	2.00	0.184	1.0	ND
806464-003 Arsenic	ug/L	02/22/2013 11:02	2.00	0.200	0.50	4.1
Chromium	ug/L	02/22/2013 11:02	2.00	0.184	1.0	8.2
Manganese	ug/L	02/22/2013 11:32	5.00	0.430	1.0	368
Molybdenum	ug/L	02/22/2013 11:02	2.00	0.414	2.0	126
Selenium	ug/L	02/22/2013 11:02	2.00	0.160	5.0	ND
806464-004 Arsenic	ug/L	02/22/2013 11:08	2.00	0.200	0.50	1.6
Chromium	ug/L	02/22/2013 11:08	2.00	0.184	1.0	18.3
Manganese	ug/L	02/22/2013 11:08	2.00	0.172	0.50	2.2
Molybdenum	ug/L	02/22/2013 11:08	2.00	0.414	2.0	16.3
Selenium	ug/L	02/22/2013 11:08	2.00	0.160	5.0	ND
806464-005 Chromium	ug/L	02/22/2013 11:14	2.00	0.184	1.0	ND
806464-006 Chromium	ug/L	02/22/2013 11:38	2.00	0.184	1.0	ND
806464-007 Arsenic	ug/L	02/22/2013 11:44	2.00	0.200	0.50	1.4
Chromium	ug/L	02/22/2013 11:44	2.00	0.184	1.0	17.9
Manganese	ug/L	02/22/2013 11:44	2.00	0.172	0.50	2.2
Molybdenum	ug/L	02/22/2013 11:44	2.00	0.414	2.0	16.5
Selenium	ug/L	02/22/2013 11:44	2.00	0.160	5.0	ND
806464-008 Arsenic	ug/L	02/22/2013 11:50	2.00	0.200	0.50	2.7
Chromium	ug/L	02/22/2013 11:50	2.00	0.184	1.0	13.7
Manganese	ug/L	02/22/2013 11:50	2.00	0.172	0.50	ND
Molybdenum	ug/L	02/22/2013 11:50	2.00	0.414	2.0	16.2
Selenium	ug/L	02/22/2013 11:50	2.00	0.160	5.0	ND

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 6 of 17****Project Number: 423575.MP.02.GM.03****Printed 3/6/2013****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 = 806464-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	4.22	3.93	7.21	0 - 20
Chromium	ug/L	2.00	8.53	8.39	1.65	0 - 20
Selenium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	10.0	416	406	2.40	0 - 20
Molybdenum	ug/L	2.00	134	134	0.226	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.194	0.200	97.0	70 - 130
Chromium	ug/L	1.00	0.225	0.200	112	70 - 130
Selenium	ug/L	1.00	0.719	1.00	71.9	70 - 130
Manganese	ug/L	1.00	0.196	0.200	98.0	70 - 130
Molybdenum	ug/L	1.00	0.455	0.500	91.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.00	53.4	50.0	107	85 - 115
Chromium	ug/L	2.00	53.9	50.0	108	85 - 115
Selenium	ug/L	2.00	51.8	50.0	104	85 - 115
Manganese	ug/L	2.00	54.1	50.0	108	85 - 115
Molybdenum	ug/L	2.00	50.0	50.0	100	85 - 115

Matrix Spike

Lab ID = 806464-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	55.0	53.9(50.0)	102	75 - 125
Chromium	ug/L	2.00	59.4	58.4(50.0)	102	75 - 125
Selenium	ug/L	2.00	46.5	50.0(50.0)	93.0	75 - 125
Manganese	ug/L	10.0	642	656(250)	94.3	75 - 125
Molybdenum	ug/L	2.00	183	184(50.0)	97.8	75 - 125

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 7 of 17****Project Number: 423575.MP.02.GM.03****Printed 3/6/2013****Matrix Spike Duplicate****Lab ID = 806464-001**

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	10.0	669	656(250)	105	75 - 125

MRCSS - 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	20.5	20.0	102	90 - 110
Selenium	ug/L	1.00	20.4	20.0	102	90 - 110
Manganese	ug/L	1.00	20.7	20.0	103	90 - 110
Molybdenum	ug/L	1.00	19.1	20.0	95.4	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	99.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.0	20.0	99.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	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	97.8	90 - 110

MRCVS - Primary

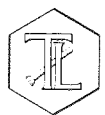
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.2	20.0	101	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/6/2013

Serial Dilution

Lab ID = 806464-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	50.0	407	406	0.255	0 - 10
Molybdenum	ug/L	10.0	130	134	3.19	0 - 10

Serial Dilution

Lab ID = 806465-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	10.0	24.7	25.2	2.04	0 - 10



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/6/2013

Metals by EPA 6010B, Dissolved

Batch 022713A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806464-001 Calcium	ug/L	02/27/2013 15:17	25.0	950	12500	98100
Magnesium	ug/L	02/27/2013 17:30	2.00	110	1000	5220
Sodium	ug/L	02/27/2013 12:26	1000	100000	500000	2950000
806464-003 Calcium	ug/L	02/27/2013 15:40	10.0	380	5000	94200
Magnesium	ug/L	02/27/2013 17:54	2.00	110	1000	5140
Sodium	ug/L	02/27/2013 13:06	200	20000	100000	2640000
806464-004 Calcium	ug/L	02/27/2013 13:12	200	7600	100000	333000
Magnesium	ug/L	02/27/2013 18:00	5.00	274	2500	32200
Sodium	ug/L	02/27/2013 13:12	200	20000	100000	1970000
806464-007 Calcium	ug/L	02/27/2013 13:17	200	7600	100000	336000
Magnesium	ug/L	02/27/2013 18:06	5.00	274	2500	32000
Sodium	ug/L	02/27/2013 13:17	200	20000	100000	2000000
806464-008 Calcium	ug/L	02/27/2013 15:46	200	7600	100000	115000
Magnesium	ug/L	02/27/2013 18:12	5.00	274	2500	13400
Sodium	ug/L	02/27/2013 13:23	200	20000	100000	987000

Method Blank

Parameter	Unit	DF	Result
Calcium	ug/L	1.00	ND
Sodium	ug/L	1.00	ND
Magnesium	ug/L	1.00	ND

Duplicate

Lab ID = 806464-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	ug/L	25.0	99400	98100	1.27	0 - 20
Sodium	ug/L	1000	2880000	2950000	2.44	0 - 20
Magnesium	ug/L	2.00	5310	5220	1.71	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	2240	2000	112	85 - 115
Sodium	ug/L	1.00	2230	2000	112	85 - 115
Magnesium	ug/L	1.00	2220	2000	111	85 - 115

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 13 of 17****Project Number: 423575.MP.02.GM.03****Printed 3/6/2013****Matrix Spike**

Lab ID = 806464-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	ug/L	25.0	151000	148000(50000)	106	75 - 125
Sodium	ug/L	1000	4930000	4950000(200000)	99.2	75 - 125
Magnesium	ug/L	2.00	9200	9220(4000)	99.5	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	5080	5000	102	90 - 110
Sodium	ug/L	1.00	5000	5000	99.9	90 - 110
Magnesium	ug/L	1.00	5100	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4970	5000	99.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4880	5000	97.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4970	5000	99.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4860	5000	97.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	5130	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	5010	5000	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	5260	5000	105	90 - 110

MRCVS - Primary

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



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/6/2013

Metals by EPA 6010B, Dissolved

Batch 022813A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806464-001 Iron	ug/L	02/28/2013 12:04	1.00	3.57	20.0	100
806464-003 Iron	ug/L	02/28/2013 12:40	1.00	3.57	20.0	87.7
806464-004 Iron	ug/L	02/28/2013 12:46	1.00	3.57	20.0	ND
806464-007 Iron	ug/L	02/28/2013 12:52	1.00	3.57	20.0	ND
806464-008 Iron	ug/L	02/28/2013 12:59	1.00	3.57	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 806464-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	96.7	100	3.36	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2180	2000	109	85 - 115

Matrix Spike

Lab ID = 806464-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2020	2100(2000)	95.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5370	5000	107	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5150	5000	103	90 - 110

MRCVS - Primary

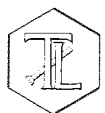
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5160	5000	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4850	5000	97.0	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2340	2000	117	80 - 120



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.GM.03

Printed 3/6/2013

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2200	2000	110	80 - 120

Interference Check Standard AB


Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2370	2000	118	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2150	2000	107	80 - 120

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.


Mona Nassimi
Manager, Analytical Services

CH2MHILL

CHAIN OF CUSTODY RECORD

2/19/2013 3:59:26 PM

Page 1 OF 1

806464

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.06.79 Task Order 02.GM.03 Project 2013-GMP-191SAMPLEMETHOD Turnaround Time 10 Days Shipping Date: 2/19/2013 COC Number: 5				Container:		250 ml Poly	2x250 ml Poly	2x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	<div style="border: 2px solid black; padding: 10px; font-size: 24pt; font-weight: bold;">ALERT !!</div> <div style="border: 2px solid black; padding: 10px; font-size: 24pt; font-weight: bold;">Level III QC</div>	Sample Condition: Form Attached	Number of Containers	COMMENTS
				Preservatives:		(NH4)2S 04/NH4O H, 4°C	(NH4)2S 04/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C				
				Filtered:		Field	Field	Field	Field	Field	Field	Field				
				Holding Time:		28	28	180	180	180	180	180				
					Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Metals (6020AEP) Field Filtered Chromium	Metals (6020AEP) Field Filtered Chromium	Metals (60108EP) Field Filtered Ca,Mg,Na,Fe	Metals (6020AEP) Field Filtered As,Mo,Se,Mn,Cr	Metals (6020AEP) Field Filtered					
DATE	TIME	MATRIX														
1 MW-112-191	2/13/2013	17:46	Water		X	X		X	X				5			
2 MW-200-191	2/13/2013	16:50	Water	X			X						2	pH=2		
3 MW-44-125-191	2/13/2013	15:32	Water		X	X		X	X				5	6020A		
4 MW-44-125-191EB	2/13/2013	8:35	Water	X			X						2	6010B		
5 MW-111-191	2/14/2013	14:58	Water	X				X		X			2			
6 MW-201-191	2/14/2013	16:36	Water	X			X						2			
7 MW-202-191	2/14/2013	16:30	Water	X			X						2	pH=2		
8 MW-33-090-191	2/14/2013	14:53	Water	X				X		X			2	6020A		
9 MW-50-095-191	2/14/2013	10:15	Water	X				X		X			2	6010B		
TOTAL NUMBER OF CONTAINERS												24				

Approved by Sampled by Relinquished by Received by Relinquished by Received by	Signatures Date/Time 2-20-13 15:35 2-20-13 15:35 2-20-13 21:30 2/20/13 21:30	Shipping Details Method of Shipment: courier On Ice: yes / no Airbill No: Lab Name: Truesdail Laboratories, Inc. Lab Phone: (714) 730-6239
---	---	---

ATTN:

Special Instructions:

Feb 4 - Feb 28, 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
2/21/13	806461-4	7	2mL/100mL	9.5	9:00 AM	TM
	-5	7			9:00 AM	TM
	-6				9:05 AM	TM
	-7				9:05 AM	TM
	-8				9:05 AM	TM
	-9				9:10 AM	TM
	-10				9:10 AM	TM
	-11				9:15 AM	TM
	-12				9:15 AM	TM
	-13				9:19 AM	TM
	-14				9:20 AM	TM
	-15				9:20 AM	TM
2/21/13	806462	7	2mL/100mL	9.5	N/A 9:20 AM	TM
2/21/13	806463-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
2/21/13	806464-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					

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
806309	<1	<2	2/14/13	ES	yes			
806312	↓	↓	↓	↓	↓			
806313	↓	↓	↓	↓	↓			
806314	↓	↓	↓	↓	↓			
806315	↓	↓	↓	↓	↓			
806369	>1	<2	2-19-13	BE	yes			
806370	↓	↓	↓	↓	↓			
806371	↓	↓	↓	↓	↓			
806372	↓	↓	↓	↓	↓			
806373	↓	↓	↓	↓	↓			
806374	↓	↓	↓	↓	↓			
806375	↓	↓	↓	↓	↓			
806376	↓	↓	↓	↓	↓			
8063900 (1-2)	↓	↓	↓	↓	↓			
8063405	↓	↓	↓	↓	↓			
8063406	↓	↓	↓	↓	↓			
8063401	↓	>2	↓	↓	↓	10 AM		
806411	>1	<2	↓	↓	↓			
806416 (1-2,4)	<1	>2	↓	↓	NO	1300		
806427 (1-3,4)	<1	>2	2-20-13	BE	NO	8:00		
806433 (1-4)	<1	<2	↓	↓	yes			
806431 (10-11)	↓	>2	↓	↓	↓	11:00		Acidified metal part
806432 (1-5)	↓	<2	↓	↓	↓			
806461 (4-15)	<1	>2	2-21-13	BE	yes			Acid after filter
806462 (+ 3-8-14)	↓	>2	↓	↓	↓	13:AM		
806463 (1-3,8-14)	↓	<2	↓	↓	↓			
806464 (1-8)	↓	↓	↓	↓	↓			
806465 (1-10)	↓	↓	↓	↓	↓			
806467 (1-5)	↓	↓	↓	↓	↓			
806440	<1	>2	2/21/13	DC	yes			
806456 (10-12)	<1	>2	2/21/13	ES	NO	15:00		
806454 (1-3)	↓	↓	↓	↓	↓	↓		
806438 (1-4)	>1	<2	↓	↓	yes			
806441	↓	↓	↓	↓	↓			
806442	↓	↓	↓	↓	↓			
806443	↓	↓	↓	↓	↓			
806444	↓	↓	↓	↓	↓			
806445	↓	↓	↓	↓	↓			
806468	↓	↓	↓	↓	↓			
806474	↓	↓	↓	↓	↓			
806469-2	SLUDGE	↓	↓	↓	↓			
806482 (1-2)	>1	<2	2/25/13	DC	yes			
806486	>1	<2	↓	↓	↓			
806522 (1-4)	<1	>2	↓	↓	NO	14:15	1-26-13	pH < 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: E2806464
Lab # _____Date Delivered: 02/20/13 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)? 3.9 °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

March 14, 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-191SAMPLEMETHODT,
GROUNDWATER MONITORING PROJECT, TLI NO.: 806553

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-191SAMPLEMETHODT 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.

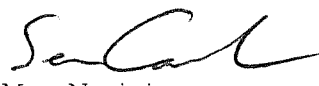
The samples were received and delivered with the chain of custody February 26, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

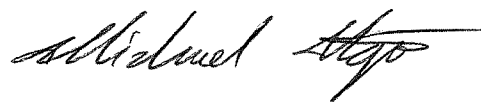
Due to the discrepancy between the Total Dissolved Chromium (32.2 ug/L) and Hexavalent Chromium (ND<0.20 ug/L) results for sample MW-204-191, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 47.8 ug/L and 23.3 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and yielded a result of 32.2 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.

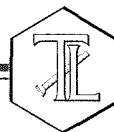
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

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.02.GM.03

P.O. No.: 423575.MP.02.GM.03

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

Laboratory No.: 806553

Date Received: February 26, 2013

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806553-001	MW-46-175-191	E218.6	FLDFLT	2/25/2013	16:24	Chromium, Hexavalent	50.4	ug/L	1.0
806553-001	MW-46-175-191	SW6010B	FLDFLT	2/25/2013	16:24	Calcium	93800	ug/L	25000
806553-001	MW-46-175-191	SW6010B	FLDFLT	2/25/2013	16:24	Iron	ND	ug/L	20.0
806553-001	MW-46-175-191	SW6010B	FLDFLT	2/25/2013	16:24	Magnesium	2770	ug/L	500
806553-001	MW-46-175-191	SW6010B	FLDFLT	2/25/2013	16:24	Sodium	3870000	ug/L	1000000
806553-001	MW-46-175-191	SW6020	FLDFLT	2/25/2013	16:24	Arsenic	2.4	ug/L	0.50
806553-001	MW-46-175-191	SW6020	FLDFLT	2/25/2013	16:24	Chromium	53.7	ug/L	1.0
806553-001	MW-46-175-191	SW6020	FLDFLT	2/25/2013	16:24	Manganese	8.9	ug/L	0.50
806553-001	MW-46-175-191	SW6020	FLDFLT	2/25/2013	16:24	Molybdenum	179	ug/L	2.0
806553-001	MW-46-175-191	SW6020	FLDFLT	2/25/2013	16:24	Selenium	ND	ug/L	5.0
806553-002	MW-61-110-191	E218.6	FLDFLT	2/25/2013	15:23	Chromium, Hexavalent	637	ug/L	10.0
806553-002	MW-61-110-191	SW6010B	FLDFLT	2/25/2013	15:23	Calcium	629000	ug/L	100000
806553-002	MW-61-110-191	SW6010B	FLDFLT	2/25/2013	15:23	Iron	ND	ug/L	20.0
806553-002	MW-61-110-191	SW6010B	FLDFLT	2/25/2013	15:23	Magnesium	23300	ug/L	1000
806553-002	MW-61-110-191	SW6010B	FLDFLT	2/25/2013	15:23	Sodium	2850000	ug/L	200000
806553-002	MW-61-110-191	SW6020	FLDFLT	2/25/2013	15:23	Arsenic	3.4	ug/L	0.50
806553-002	MW-61-110-191	SW6020	FLDFLT	2/25/2013	15:23	Chromium	682	ug/L	5.0
806553-002	MW-61-110-191	SW6020	FLDFLT	2/25/2013	15:23	Manganese	133	ug/L	0.50
806553-002	MW-61-110-191	SW6020	FLDFLT	2/25/2013	15:23	Molybdenum	24.0	ug/L	2.0
806553-002	MW-61-110-191	SW6020	FLDFLT	2/25/2013	15:23	Selenium	ND	ug/L	5.0
806553-003	MW-203-191	E218.6	FLDFLT	2/26/2013	7:35	Chromium, Hexavalent	ND	ug/L	0.20
806553-003	MW-203-191	SW6020	FLDFLT	2/26/2013	7:35	Chromium	ND	ug/L	1.0

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
806553-004	MW-204-191	E218.6	FLDFLT	2/26/2013	7:30	Chromium, Hexavalent	ND	ug/L	0.20
806553-004	MW-204-191	SW6020	FLDFLT	2/26/2013	7:30	Chromium	32.2	ug/L	1.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

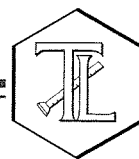
Results below 0.01ppm will have two (2) significant figures.

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

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

TRUESDAIL LABORATORIES, INC.

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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.GM.03

P.O. Number: 423575.MP.02.GM.03

Release Number:

Laboratory No. 806553

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Printed 3/14/2013

Samples Received on 2/26/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-46-175-191	806553-001	02/25/2013 16:24	Water
MW-61-110-191	806553-002	02/25/2013 15:23	Water
MW-203-191	806553-003	02/26/2013 07:35	Water
MW-204-191	806553-004	02/26/2013 07:30	Water

Chrome VI by EPA 218.6

Batch 03CrH13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806553-001 Chromium, Hexavalent	ug/L	03/05/2013 15:21	5.00	0.0460	1.0	50.4
806553-002 Chromium, Hexavalent	ug/L	03/05/2013 15:31	50.0	0.460	10.0	637
806553-003 Chromium, Hexavalent	ug/L	03/05/2013 15:42	1.00	0.00920	0.20	ND
806553-004 Chromium, Hexavalent	ug/L	03/05/2013 15:52	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate

Lab ID = 806465-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	14.6	14.6	0.112	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.202	0.200	101	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.87	5.00	97.4	90 - 110

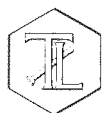
Matrix Spike

Lab ID = 806465-001

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

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/14/2013

Matrix Spike						Lab ID = 806465-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.59	7.69(5.00)	98.0	90 - 110
Matrix Spike						Lab ID = 806465-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.990	1.00(1.00)	99.0	90 - 110
Matrix Spike						Lab ID = 806465-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.58	7.71(5.00)	97.3	90 - 110
Matrix Spike						Lab ID = 806465-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.03	28.0	27.9(15.0)	101	90 - 110
Matrix Spike						Lab ID = 806465-006
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.02	35.5	35.6(20.0)	99.4	90 - 110
Matrix Spike						Lab ID = 806465-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.03	28.0	27.9(15.0)	101	90 - 110
Matrix Spike						Lab ID = 806465-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.02	35.6	35.6(20.0)	100	90 - 110
Matrix Spike						Lab ID = 806465-009
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.03	29.5	29.6(15.0)	99.3	90 - 110
Matrix Spike						Lab ID = 806465-010
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.03	27.9	27.6(15.0)	102	90 - 110
Matrix Spike						Lab ID = 806552-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.07(1.00)	96.9	90 - 110
Matrix Spike						Lab ID = 806553-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	126	125(75.0)	101	90 - 110
Matrix Spike						Lab ID = 806553-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1380	1390(750)	99.7	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/14/2013

Matrix Spike						Lab ID = 806553-003
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 = 806553-004
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 = 806554-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	100	98.5(50.0)	103	90 - 110
Matrix Spike						Lab ID = 806554-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	91.6	90.8(50.0)	102	90 - 110
Matrix Spike						Lab ID = 806554-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	58.0	58.5(50.0)	99.0	90 - 110
Matrix Spike						Lab ID = 806554-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	248	245(125)	102	90 - 110
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.88	5.00	97.5	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	10.2	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	10.2	10.0	102	95 - 105



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/14/2013

Metals by EPA 6020A, Dissolved

Batch 022813A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806553-001 Arsenic	ug/L	02/28/2013 13:01	2.00	0.200	0.50	2.4
Chromium	ug/L	02/28/2013 13:01	2.00	0.184	1.0	53.7
Manganese	ug/L	02/28/2013 13:01	2.00	0.172	0.50	8.9
Molybdenum	ug/L	02/28/2013 13:01	2.00	0.414	2.0	179
806553-002 Arsenic	ug/L	02/28/2013 13:07	2.00	0.200	0.50	3.4
Chromium	ug/L	02/28/2013 14:33	10.0	0.920	5.0	682
Manganese	ug/L	02/28/2013 13:07	2.00	0.172	0.50	133
Molybdenum	ug/L	02/28/2013 13:07	2.00	0.414	2.0	24.0
806553-003 Chromium	ug/L	02/28/2013 14:21	2.00	0.184	1.0	ND
806553-004 Chromium	ug/L	02/28/2013 14:27	2.00	0.184	1.0	32.2

Method Blank

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

Duplicate

Lab ID = 806554-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Molybdenum	ug/L	5.00	190	195	2.34	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.248	0.200	124	70 - 130
Chromium	ug/L	1.00	0.523	0.500	105	70 - 130
Manganese	ug/L	1.00	0.219	0.200	110	70 - 130
Molybdenum	ug/L	1.00	0.525	0.500	105	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.00	49.4	50.0	98.7	85 - 115
Chromium	ug/L	2.00	51.0	50.0	102	85 - 115
Manganese	ug/L	2.00	50.0	50.0	99.9	85 - 115
Molybdenum	ug/L	2.00	54.3	50.0	108	85 - 115



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/14/2013

Metals by EPA 6020A, Dissolved

Batch 030113A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806553-001 Selenium	ug/L	03/01/2013 11:43	1.00	0.0800	5.0	ND
806553-002 Selenium	ug/L	03/01/2013 11:49	1.00	0.0800	5.0	ND

Method Blank

Parameter	Unit	DF	Result
Selenium	ug/L	1.00	ND

Duplicate

Lab ID = 806554-001

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	4.91	5.00	98.3	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	45.5	50.0	91.0	85 - 115

Matrix Spike

Lab ID = 806554-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium	ug/L	1.00	46.9	50.0(50.0)	93.7	75 - 125

Matrix Spike Duplicate

Lab ID = 806554-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium	ug/L	1.00	46.8	50.0(50.0)	93.6	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	20.0	20.0	99.9	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	19.5	20.0	97.7	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	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.GM.03
Printed 3/14/2013
Metals by EPA 6010B, Dissolved
Batch 030113A-TH2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806553-001 Calcium	ug/L	03/01/2013 14:50	50.0	600	25000	93800
Magnesium	ug/L	03/01/2013 17:10	1.00	55.4	500	2770
Sodium	ug/L	03/01/2013 13:47	1000	394000	1000000	3870000
806553-002 Calcium	ug/L	03/01/2013 15:14	200	2400	100000	629000
Magnesium	ug/L	03/01/2013 17:41	2.00	111	1000	23300
Sodium	ug/L	03/01/2013 15:14	200	78800	200000	2850000

Method Blank

Parameter	Unit	DF	Result
Calcium	ug/L	1.00	ND
Sodium	ug/L	1.00	ND
Magnesium	ug/L	1.00	ND

Duplicate
Lab ID = 806553-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	ug/L	50.0	92500	93800	1.42	0 - 20
Sodium	ug/L	1000	4010000	3870000	3.45	0 - 20
Magnesium	ug/L	1.00	2760	2770	0.507	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	2140	2000	107	85 - 115
Sodium	ug/L	1.00	2070	2000	104	85 - 115
Magnesium	ug/L	1.00	2120	2000	106	85 - 115

Matrix Spike
Lab ID = 806553-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	ug/L	50.0	188000	194000(100000)	94.2	75 - 125
Sodium	ug/L	1000	5890000	5870000(200000)	101	75 - 125
Magnesium	ug/L	1.00	4820	4770(2000)	102	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	5170	5000	103	90 - 110
Sodium	ug/L	1.00	5030	5000	100	90 - 110
Magnesium	ug/L	1.00	5120	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4920	5000	98.3	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/14/2013

Metals by EPA 6010B, Dissolved

Batch 022813B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806553-001 Iron	ug/L	02/28/2013 15:56	1.00	3.57	20.0	ND
806553-002 Iron	ug/L	02/28/2013 16:31	1.00	3.57	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 806553-001

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	2170	2000	108	85 - 115

Matrix Spike

Lab ID = 806553-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	1770	2000(2000)	88.4	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5100	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5310	5000	106	90 - 110

MRCVS - Primary

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

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2220	2000	111	80 - 120

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2160	2000	108	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2120	2000	106	80 - 120



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.GM.03


Printed 3/14/2013

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2190	2000	109	80 - 120

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services

806553

CH2MHILL

CHAIN OF CUSTODY RECORD

2/26/2013 2:46:00 PM

Page 1 OF 1

Project Name PG&E Topock				Container:	250 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 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	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C			
Project Manager Jay Piper				Filtered:	Field	Field	Field	Field			
Sample Manager Shawn Duffy				Holding Time:	28	180	180	180			
Project Number 423575.MP.00-78 Task Order .0044M.03 Project 2013-GMP-191SAMPLEMETHOD Turnaround Time 10 Days Shipping Date: 2/26/2013 COC Number: 12					Cr6 (E218.6) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6010BFF) Field Filtered Ca, Mg, Na, Fe	Metals (6020AFF) Field Filtered As, Mo, Se, Mn, Cr			
DATE	TIME	Matrix									
MW-46-175-191	2/25/2013	16:24	Water	X		X	X		2		
MW-61-110-191	2/25/2013	15:23	Water	X		X	X		2		
MW-203-191	2/26/2013	7:35	Water	X	X				2	PH=2	
MW-204-191	2/26/2013	7:30	Water	X	X				2	6020.91	
TOTAL NUMBER OF CONTAINERS									8	60105	

For Sample Conditions
 Lab Form Attached

Approved by Sampled by Relinquished by Received by Relinquished by Received by		Signatures   	Date/Time 2-26-13 1530 2/26/13 15:30 2-26-13 21:30 2/26/13 21:30	Shipping Details Method of Shipment: courier On Ice: yes / no Airbill No: Lab Name: Truesdail Laboratories, Inc. Lab Phone: (714) 730-6239	ATTN: Sample Custody	Special Instructions: Feb 4 - Feb 28, 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
2/21/13	806464-5	9.5	N/A	N/A	N/A	TM
	-6	↓	↓	↓	↓	↓
	-7	↓	↓	↓	↓	↓
	-8	↓	↓	↓	↓	↓
2/21/13	806465-1	9.5	N/A	N/A	N/A	TM
	-2	↓	↓	↓	↓	↓
	-3	↓	↓	↓	↓	↓
	-4	↓	↓	↓	↓	↓
	-5	↓	↓	↓	↓	↓
	-6	↓	↓	↓	↓	↓
	-7	↓	↓	↓	↓	↓
	-8	↓	↓	↓	↓	↓
	-9	↓	↓	↓	↓	↓
	-10	↓	↓	↓	↓	↓
2/27/13	806552-	7	2 mL	9.5	10:15	RB
2/27/13	806553-1	9.5	N/A	N/A	N/A	RB
	-2	↓	↓	↓	↓	↓
	-3	↓	↓	↓	↓	↓
	-4	↓	↓	↓	↓	↓
2/27/13	806554-1	9.5	N/A	N/A	N/A	RB
	-2	↓	↓	↓	↓	↓
	-3	↓	↓	↓	↓	↓
	-4	↓	↓	↓	↓	↓
2/27/13	806555-1	9.5	N/A	N/A	N/A	RB
	-2	↓	↓	↓	↓	↓
	-3	↓	↓	↓	↓	↓
	-4	↓	↓	↓	↓	↓
	-5	↓	↓	↓	↓	↓
	-6	↓	↓	↓	↓	↓
	-7	↓	↓	↓	↓	↓
	-8	↓	↓	↓	↓	↓



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806497(1,2)	<1	<2	2/25/13	DC	yes			
806520	>1	<2						
806493(1-5)	>1	<2						
806494(1-5)	>1	<2						
806552	<1	>2	2-27-13	BE	yes	11:00		
806553(1-4)		<2						
806554(1-4)								
806555(1,4-7)								
806542(1-3)		>2			no	12:00	2/29/13 @ 15:35	
806545								
806537	<1	<2		DC	yes			
806565	<1	>2			yes	14:00	2/28/13 @ 15:30	
806562(1-14)	<1	>2	2/28/13	ES	no	9:30	3/1/13 @ 16:00	pH < 2
806567(10-12)								
806570(1-2)	>1	<2			yes			
806572(1-2)	>1	<2			yes			
806586(1,2)	<1	>2		DC	yes	15:30		
806617	>1	<2	3/4/13	DC	yes			
806632(1-12)	<1		3-5-13	BE				
806633(1-12)								
806634(1,3-6)								
806635(1-5,8-14)								
806620(1-2,4)	<1	>2	3/5/13	ES	no	12:00		
806627(16,23)								
806625		<2			yes			
806626								
806688(1-2,5,12)	<1	<2	3-6-13	BE	yes			
806669(1-2)		>2						Lab Error A significant
806670(1-2)								
806679(1-5)		<2						
806643	>1	<2		DC	yes			
806651	<1							
806688	>1	>2				12:30		
806667	<1	>2		BE	no	14:00		
806663(1-3)						15:00		
806694(10-12)								
806682(4-6)								
806650	<1	<2	3/4/13	DC	yes			
806649								
806648								
806647								
806646								
806652								
806671								

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: E 2

Lab # 806553

Date Delivered: 02/26/13 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)? 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]

ALERT !!
Level III QC

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

March 29, 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-191SAMPLEMETHODT,
GROUNDWATER MONITORING PROJECT, TLI NO.: 806632

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-191SAMPLEMETHODT 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 March 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.

Due to carry-over from the high concentrations of Total Dissolved Chromium in the samples, the Low Level Calibration Verification recovery at 0.200 ug/L for batch 031313A exceeded the acceptance limits. The Low Level Calibration Verification analyzed at 1.00 ug/L was within acceptable limits and therefore still met the contract required detection limit. After discussing the results with Mr. Duffy, samples MW-208-191, MW-207-191, MW-44-115-191, MW-47-115-191, MW-206-191, MW-209-191, MW-205-191, and MW-210-191 were re-analyzed in other batches and reported. The remaining samples were reported from batch 031313A, as the Total Dissolved Chromium results were sufficiently high to not be affected by small amounts of carry-over. All blanks and all other QA/QC were within acceptable limits.

Due to the discrepancy between the Total Dissolved Chromium (17.8 ug/L) and Hexavalent Chromium (ND<0.20 ug/L) results for sample MW-207-191, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 27.6 ug/L and 8.5 ug/L, respectively. After discussing the results with Mr. Duffy, the original results were reported.

Due to the discrepancy between the Total Dissolved Chromium (4030 ug/L) and Hexavalent Chromium (3290 ug/L) results for sample MW-59-100-191, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 3760 ug/L and 3520 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and yielded a result of 4050 ug/L. After discussing the results with Mr. Duffy, the original results were reported.

Due to the discrepancy between the Total Dissolved Chromium (30.5 ug/L) and Hexavalent Chromium (ND<0.20 ug/L) results for sample MW-206-191, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 27.0 ug/L and 53.9 ug/L, respectively. After discussing the results with Mr. Duffy, the original results were reported.

Due to the discrepancy between the Total Dissolved Chromium (1.1 ug/L) and Hexavalent Chromium (ND<0.20 ug/L) results for sample MW-209-191, 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 4.0 ug/L, respectively. After discussing the results with Mr. Duffy, the original results were reported.



March 29, 2013


Due to the discrepancy between the Total Dissolved Chromium 5.7 ug/L and Hexavalent Chromium (ND<0.20 ug/L) results for sample MW-205-191, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 5.0 ug/L and 3.3 ug/L, respectively. After discussing the results with Mr. Duffy, the original results were reported.

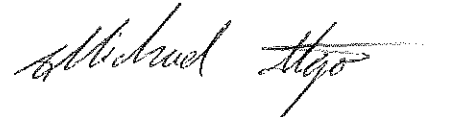
On March 14, 2013, Mr. Duffy requested that the analysis for Total Dissolved Calcium, Magnesium, Sodium, Iron, and Manganese be added to samples MW-110-191 and MW-12-191 and provided a revised chain-of-custody.

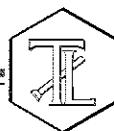
No other violations or non-conformance actions occurred for this data package.

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.: 806632
Date Received: March 4, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.03
P.O. No.: 423575.MP.02.GM.03

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806632-001	MW-208-191	E218.6	FLDFLT	2/28/2013	8:40	Chromium, Hexavalent	ND	ug/L	0.20
806632-001	MW-208-191	SW6020	FLDFLT	2/28/2013	8:40	Chromium	ND	ug/L	1.0
806632-002	MW-207-191	E218.6	FLDFLT	2/28/2013	8:45	Chromium, Hexavalent	ND	ug/L	0.20
806632-002	MW-207-191	SW6020	FLDFLT	2/28/2013	8:45	Chromium	17.8	ug/L	1.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806632-003	MW-110-191	E218.6	FLDFLT	2/26/2013	15:03	Chromium, Hexavalent	2570	ug/L	20.0
806632-003	MW-110-191	SW6010B	FLDFLT	2/26/2013	15:03	Calcium	32400	ug/L	2500
806632-003	MW-110-191	SW6010B	FLDFLT	2/26/2013	15:03	Iron	ND	ug/L	20.0
806632-003	MW-110-191	SW6010B	FLDFLT	2/26/2013	15:03	Magnesium	6630	ug/L	2500
806632-003	MW-110-191	SW6010B	FLDFLT	2/26/2013	15:03	Sodium	1390000	ug/L	100000
806632-003	MW-110-191	SW6010B	FLDFLT	2/26/2013	15:03	Zinc	ND	ug/L	20.0
806632-003	MW-110-191	SW6020	FLDFLT	2/26/2013	15:03	Antimony	ND	ug/L	2.0
806632-003	MW-110-191	SW6020	FLDFLT	2/26/2013	15:03	Arsenic	45.9	ug/L	0.50
806632-003	MW-110-191	SW6020	FLDFLT	2/26/2013	15:03	Barium	53.9	ug/L	5.0
806632-003	MW-110-191	SW6020	FLDFLT	2/26/2013	15:03	Beryllium	ND	ug/L	0.50
806632-003	MW-110-191	SW6020	FLDFLT	2/26/2013	15:03	Cadmium	ND	ug/L	1.0
806632-003	MW-110-191	SW6020	FLDFLT	2/26/2013	15:03	Chromium	2850	ug/L	50.0
806632-003	MW-110-191	SW6020	FLDFLT	2/26/2013	15:03	Cobalt	ND	ug/L	5.0
806632-003	MW-110-191	SW6020	FLDFLT	2/26/2013	15:03	Copper	ND	ug/L	5.0
806632-003	MW-110-191	SW6020	FLDFLT	2/26/2013	15:03	Lead	ND	ug/L	1.0
806632-003	MW-110-191	SW6020	FLDFLT	2/26/2013	15:03	Manganese	ND	ug/L	0.50
806632-003	MW-110-191	SW6020	FLDFLT	2/26/2013	15:03	Mercury	ND	ug/L	0.20
806632-003	MW-110-191	SW6020	FLDFLT	2/26/2013	15:03	Molybdenum	11.2	ug/L	2.0
806632-003	MW-110-191	SW6020	FLDFLT	2/26/2013	15:03	Nickel	ND	ug/L	2.0
806632-003	MW-110-191	SW6020	FLDFLT	2/26/2013	15:03	Selenium	14.0	ug/L	5.0
806632-003	MW-110-191	SW6020	FLDFLT	2/26/2013	15:03	Silver	ND	ug/L	5.0
806632-003	MW-110-191	SW6020	FLDFLT	2/26/2013	15:03	Thallium	ND	ug/L	1.0
806632-003	MW-110-191	SW6020	FLDFLT	2/26/2013	15:03	Vanadium	20.2	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806632-004	MW-12-191	E218.6	FLDFLT	2/26/2013	14:58	Chromium, Hexavalent	2580	ug/L	20
806632-004	MW-12-191	SW6010B	FLDFLT	2/26/2013	14:58	Calcium	31900	ug/L	2500
806632-004	MW-12-191	SW6010B	FLDFLT	2/26/2013	14:58	Iron	ND	ug/L	20.0
806632-004	MW-12-191	SW6010B	FLDFLT	2/26/2013	14:58	Magnesium	6740	ug/L	2500
806632-004	MW-12-191	SW6010B	FLDFLT	2/26/2013	14:58	Sodium	1340000	ug/L	100000
806632-004	MW-12-191	SW6010B	FLDFLT	2/26/2013	14:58	Zinc	ND	ug/L	20.0
806632-004	MW-12-191	SW6020	FLDFLT	2/26/2013	14:58	Antimony	ND	ug/L	2.0
806632-004	MW-12-191	SW6020	FLDFLT	2/26/2013	14:58	Arsenic	46.5	ug/L	0.50
806632-004	MW-12-191	SW6020	FLDFLT	2/26/2013	14:58	Barium	54.0	ug/L	5.0
806632-004	MW-12-191	SW6020	FLDFLT	2/26/2013	14:58	Beryllium	ND	ug/L	0.50
806632-004	MW-12-191	SW6020	FLDFLT	2/26/2013	14:58	Cadmium	ND	ug/L	1.0
806632-004	MW-12-191	SW6020	FLDFLT	2/26/2013	14:58	Chromium	2610	ug/L	50.0
806632-004	MW-12-191	SW6020	FLDFLT	2/26/2013	14:58	Cobalt	ND	ug/L	5.0
806632-004	MW-12-191	SW6020	FLDFLT	2/26/2013	14:58	Copper	ND	ug/L	5.0
806632-004	MW-12-191	SW6020	FLDFLT	2/26/2013	14:58	Lead	ND	ug/L	1.0
806632-004	MW-12-191	SW6020	FLDFLT	2/26/2013	14:58	Manganese	ND	ug/L	0.50
806632-004	MW-12-191	SW6020	FLDFLT	2/26/2013	14:58	Mercury	ND	ug/L	0.20
806632-004	MW-12-191	SW6020	FLDFLT	2/26/2013	14:58	Molybdenum	8.8	ug/L	2.0
806632-004	MW-12-191	SW6020	FLDFLT	2/26/2013	14:58	Nickel	ND	ug/L	2.0
806632-004	MW-12-191	SW6020	FLDFLT	2/26/2013	14:58	Selenium	14.6	ug/L	5.0
806632-004	MW-12-191	SW6020	FLDFLT	2/26/2013	14:58	Silver	ND	ug/L	5.0
806632-004	MW-12-191	SW6020	FLDFLT	2/26/2013	14:58	Thallium	ND	ug/L	1.0
806632-004	MW-12-191	SW6020	FLDFLT	2/26/2013	14:58	Vanadium	21.0	ug/L	5.0
806632-005	MW-44-115-191	E218.6	FLDFLT	2/26/2013	12:35	Chromium, Hexavalent	75.9	ug/L	1.0
806632-005	MW-44-115-191	SW6010B	FLDFLT	2/26/2013	12:35	Calcium	115000	ug/L	5000
806632-005	MW-44-115-191	SW6010B	FLDFLT	2/26/2013	12:35	Iron	ND	ug/L	20.0
806632-005	MW-44-115-191	SW6010B	FLDFLT	2/26/2013	12:35	Magnesium	7340	ug/L	5000
806632-005	MW-44-115-191	SW6010B	FLDFLT	2/26/2013	12:35	Sodium	2450000	ug/L	100000
806632-005	MW-44-115-191	SW6020	FLDFLT	2/26/2013	12:35	Arsenic	5.9	ug/L	0.50
806632-005	MW-44-115-191	SW6020	FLDFLT	2/26/2013	12:35	Chromium	78.9	ug/L	1.0
806632-005	MW-44-115-191	SW6020	FLDFLT	2/26/2013	12:35	Manganese	4.2	ug/L	0.50
806632-005	MW-44-115-191	SW6020	FLDFLT	2/26/2013	12:35	Molybdenum	69.1	ug/L	2.0
806632-005	MW-44-115-191	SW6020	FLDFLT	2/26/2013	12:35	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806632-006	MW-47-115-191	E218.6	FLDFLT	2/27/2013	15:09	Chromium, Hexavalent	21.0	ug/L	1.0
806632-006	MW-47-115-191	SW6010B	FLDFLT	2/27/2013	15:09	Calcium	316000	ug/L	50000
806632-006	MW-47-115-191	SW6010B	FLDFLT	2/27/2013	15:09	Iron	ND	ug/L	20.0
806632-006	MW-47-115-191	SW6010B	FLDFLT	2/27/2013	15:09	Magnesium	33300	ug/L	5000
806632-006	MW-47-115-191	SW6010B	FLDFLT	2/27/2013	15:09	Sodium	2550000	ug/L	500000
806632-006	MW-47-115-191	SW6020	FLDFLT	2/27/2013	15:09	Arsenic	2.3	ug/L	0.50
806632-006	MW-47-115-191	SW6020	FLDFLT	2/27/2013	15:09	Chromium	22.8	ug/L	1.0
806632-006	MW-47-115-191	SW6020	FLDFLT	2/27/2013	15:09	Manganese	1.6	ug/L	0.50
806632-006	MW-47-115-191	SW6020	FLDFLT	2/27/2013	15:09	Molybdenum	17.1	ug/L	2.0
806632-006	MW-47-115-191	SW6020	FLDFLT	2/27/2013	15:09	Selenium	ND	ug/L	5.0
806632-007	MW-50-200-191	E218.6	FLDFLT	2/27/2013	15:53	Chromium, Hexavalent	7410	ug/L	100
806632-007	MW-50-200-191	SW6010B	FLDFLT	2/27/2013	15:53	Calcium	576000	ug/L	250000
806632-007	MW-50-200-191	SW6010B	FLDFLT	2/27/2013	15:53	Iron	ND	ug/L	20.0
806632-007	MW-50-200-191	SW6010B	FLDFLT	2/27/2013	15:53	Magnesium	34800	ug/L	5000
806632-007	MW-50-200-191	SW6010B	FLDFLT	2/27/2013	15:53	Sodium	4910000	ug/L	250000
806632-007	MW-50-200-191	SW6020	FLDFLT	2/27/2013	15:53	Arsenic	4.1	ug/L	0.50
806632-007	MW-50-200-191	SW6020	FLDFLT	2/27/2013	15:53	Chromium	7510	ug/L	100
806632-007	MW-50-200-191	SW6020	FLDFLT	2/27/2013	15:53	Manganese	ND	ug/L	0.50
806632-007	MW-50-200-191	SW6020	FLDFLT	2/27/2013	15:53	Molybdenum	38.4	ug/L	2.0
806632-007	MW-50-200-191	SW6020	FLDFLT	2/27/2013	15:53	Selenium	5.3	ug/L	5.0
806632-008	MW-59-100-191	E218.6	FLDFLT	2/27/2013	10:25	Chromium, Hexavalent	3920	ug/L	50.0
806632-008	MW-59-100-191	SW6010B	FLDFLT	2/27/2013	10:25	Calcium	637000	ug/L	100000
806632-008	MW-59-100-191	SW6010B	FLDFLT	2/27/2013	10:25	Iron	ND	ug/L	20.0
806632-008	MW-59-100-191	SW6010B	FLDFLT	2/27/2013	10:25	Magnesium	23400	ug/L	5000
806632-008	MW-59-100-191	SW6010B	FLDFLT	2/27/2013	10:25	Sodium	1590000	ug/L	100000
806632-008	MW-59-100-191	SW6020	FLDFLT	2/27/2013	10:25	Arsenic	2.6	ug/L	0.50
806632-008	MW-59-100-191	SW6020	FLDFLT	2/27/2013	10:25	Chromium	4030	ug/L	50.0
806632-008	MW-59-100-191	SW6020	FLDFLT	2/27/2013	10:25	Manganese	ND	ug/L	0.50
806632-008	MW-59-100-191	SW6020	FLDFLT	2/27/2013	10:25	Molybdenum	3.8	ug/L	2.0
806632-008	MW-59-100-191	SW6020	FLDFLT	2/27/2013	10:25	Selenium	ND	ug/L	5.0
806632-009	MW-206-191	E218.6	FLDFLT	2/27/2013	10:14	Chromium, Hexavalent	ND	ug/L	0.20
806632-009	MW-206-191	SW6020	FLDFLT	2/27/2013	10:14	Chromium	30.5	ug/L	1.0
806632-010	MW-209-191	E218.6	FLDFLT	2/28/2013	8:48	Chromium, Hexavalent	ND	ug/L	0.20
806632-010	MW-209-191	SW6020	FLDFLT	2/28/2013	8:48	Chromium	1.1	ug/L	1.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806632-011	MW-205-191	E218.6	FLDFLT	2/26/2013	15:40	Chromium, Hexavalent	ND	ug/L	0.20
806632-011	MW-205-191	SW6020	FLDFLT	2/26/2013	15:40	Chromium	5.7	ug/L	1.0
806632-012	MW-210-191	E218.6	FLDFLT	2/28/2013	8:51	Chromium, Hexavalent	ND	ug/L	0.20
806632-012	MW-210-191	SW6020	FLDFLT	2/28/2013	8:51	Chromium	ND	ug/L	1.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

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

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

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

TRUESDAIL LABORATORIES, INC.

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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.GM.03

P.O. Number: 423575.MP.02.GM.03

Release Number:

Laboratory No. 806632

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Printed 3/28/2013

Samples Received on 3/4/2013 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-208-191	806632-001	02/28/2013 08:40	Water
MW-207-191	806632-002	02/28/2013 08:45	Water
MW-110-191	806632-003	02/26/2013 15:03	Water
MW-12-191	806632-004	02/26/2013 14:58	Water
MW-44-115-191	806632-005	02/26/2013 12:35	Water
MW-47-115-191	806632-006	02/27/2013 15:09	Water
MW-50-200-191	806632-007	02/27/2013 15:53	Water
MW-59-100-191	806632-008	02/27/2013 10:25	Water
MW-206-191	806632-009	02/27/2013 10:14	Water
MW-209-191	806632-010	02/28/2013 08:48	Water
MW-205-191	806632-011	02/26/2013 15:40	Water
MW-210-191	806632-012	02/28/2013 08:51	Water

Chrome VI by EPA 218.6

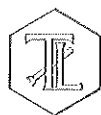
Batch 03CrH13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806632-001 Chromium, Hexavalent	ug/L	03/08/2013 17:47	1.00	0.00920	0.20	ND
806632-002 Chromium, Hexavalent	ug/L	03/08/2013 17:58	1.00	0.00920	0.20	ND
806632-004 Chromium, Hexavalent	ug/L	03/08/2013 18:18	100	0.920	20.0	2580
806632-007 Chromium, Hexavalent	ug/L	03/08/2013 19:21	500	4.60	100	7410
806632-009 Chromium, Hexavalent	ug/L	03/08/2013 19:42	1.00	0.00920	0.20	ND
806632-010 Chromium, Hexavalent	ug/L	03/08/2013 19:52	1.00	0.00920	0.20	ND
806632-011 Chromium, Hexavalent	ug/L	03/08/2013 20:02	1.00	0.00920	0.20	ND
806632-012 Chromium, Hexavalent	ug/L	03/08/2013 20:13	1.00	0.00920	0.20	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

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Project Number: 423575.MP.02.GM.03

Printed 3/28/2013

Duplicate

Lab ID = 806632-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	500	7470	7410	0.776	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

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 = 806632-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.982	1.00(1.00)	98.2	90 - 110

Matrix Spike

Lab ID = 806632-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.16	1.17(1.00)	99.2	90 - 110

Matrix Spike

Lab ID = 806632-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4500	4580(2000)	96.0	90 - 110

Matrix Spike

Lab ID = 806632-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	500	15100	14900(7500)	103	90 - 110

Matrix Spike

Lab ID = 806632-009

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 = 806632-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.982	1.00(1.00)	98.2	90 - 110

Matrix Spike

Lab ID = 806632-011

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 = 806632-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.988	1.00(1.00)	98.8	90 - 110

Matrix Spike

Lab ID = 806669-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	16.6	16.5(10.0)	101	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/28/2013

Chrome VI by EPA 218.6

Batch 03CrH13H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806632-003 Chromium, Hexavalent	ug/L	03/13/2013 02:44	100	0.920	20.0	2570
806632-005 Chromium, Hexavalent	ug/L	03/13/2013 02:55	5.00	0.0460	1.0	75.9
806632-006 Chromium, Hexavalent	ug/L	03/13/2013 03:16	5.00	0.0460	1.0	21.0
806632-008 Chromium, Hexavalent	ug/L	03/13/2013 03:36	250	2.30	50.0	3920

Method Blank

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

Duplicate

Lab ID = 806632-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	100	2590	2570	0.635	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.211	0.200	105	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.89	5.00	97.8	90 - 110

Matrix Spike

Lab ID = 806632-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4460	4570(2000)	94.6	90 - 110

Matrix Spike

Lab ID = 806632-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	175	176(100)	99.4	90 - 110

Matrix Spike

Lab ID = 806632-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	45.4	46.0(25.0)	97.7	90 - 110

Matrix Spike

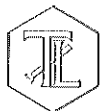
Lab ID = 806632-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	8830	8920(5000)	98.1	90 - 110

Matrix Spike

Lab ID = 806633-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4500	4560(2000)	97.1	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/28/2013

Metals by EPA 6020A, Dissolved

Batch 030613B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806632-003 Antimony	ug/L	03/06/2013 18:27	1.00	0.332	2.0	ND
Barium	ug/L	03/06/2013 18:27	1.00	0.188	5.0	53.9
Cadmium	ug/L	03/06/2013 18:27	1.00	0.0870	1.0	ND
Lead	ug/L	03/06/2013 18:27	1.00	0.0740	1.0	ND
806632-004 Antimony	ug/L	03/06/2013 18:39	1.00	0.332	2.0	ND
Barium	ug/L	03/06/2013 18:39	1.00	0.188	5.0	54.0
Cadmium	ug/L	03/06/2013 18:39	1.00	0.0870	1.0	ND
Lead	ug/L	03/06/2013 18:39	1.00	0.0740	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Barium	ug/L	1.00	ND
Cadmium	ug/L	1.00	ND
Antimony	ug/L	1.00	ND
Lead	ug/L	1.00	ND

Duplicate

Lab ID = 806632-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	1.00	19.3	19.6	1.49	0 - 20
Cadmium	ug/L	1.00	ND	0	0	0 - 20
Antimony	ug/L	1.00	ND	0	0	0 - 20
Lead	ug/L	1.00	ND	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	1.05	1.00	105	70 - 130
Cadmium	ug/L	1.00	0.214	0.200	107	70 - 130
Antimony	ug/L	1.00	1.10	1.00	110	70 - 130
Lead	ug/L	1.00	0.214	0.200	107	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	47.4	50.0	94.8	85 - 115
Cadmium	ug/L	1.00	49.3	50.0	98.7	85 - 115
Antimony	ug/L	1.00	46.4	50.0	92.8	85 - 115
Lead	ug/L	1.00	49.2	50.0	98.4	85 - 115



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Project Number: 423575.MP.02.GM.03

Printed 3/28/2013

Matrix Spike

Lab ID = 806632-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Barium	ug/L	1.00	65.5	69.6(50.0)	91.9	75 - 125
Cadmium	ug/L	1.00	44.0	50.0(50.0)	88.1	75 - 125
Antimony	ug/L	1.00	47.0	50.0(50.0)	93.9	75 - 125
Lead	ug/L	1.00	44.6	50.0(50.0)	89.2	75 - 125

Matrix Spike Duplicate

Lab ID = 806632-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Barium	ug/L	1.00	67.1	69.6(50.0)	94.9	75 - 125
Cadmium	ug/L	1.00	44.1	50.0(50.0)	88.1	75 - 125
Antimony	ug/L	1.00	47.9	50.0(50.0)	95.7	75 - 125
Lead	ug/L	1.00	44.9	50.0(50.0)	89.9	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	20.6	20.0	103	90 - 110
Cadmium	ug/L	1.00	21.0	20.0	105	90 - 110
Antimony	ug/L	1.00	19.6	20.0	98.0	90 - 110
Lead	ug/L	1.00	20.8	20.0	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	19.7	20.0	98.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	20.5	20.0	102	90 - 110
Cadmium	ug/L	1.00	20.9	20.0	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Cadmium	ug/L	1.00	19.9	20.0	99.7	90 - 110
Antimony	ug/L	1.00	19.6	20.0	98.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Antimony	ug/L	1.00	19.8	20.0	99.3	90 - 110
Lead	ug/L	1.00	20.7	20.0	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Lead	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 10 of 41****Project Number: 423575.MP.02.GM.03****Printed 3/28/2013****Interference Check Standard AB**

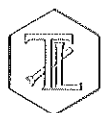
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Antimony	ug/L	1.00	ND	0		
Lead	ug/L	1.00	ND	0		

Interference Check Standard AB

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

Serial Dilution**Lab ID = 806632-003**

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	5.00	52.9	53.9	1.92	0 - 10



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Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/28/2013

Metals by EPA 6020A, Dissolved

Batch 030813A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806632-003 Cobalt	ug/L	03/08/2013 16:44	1.00	0.0790	5.0	ND
Manganese	ug/L	03/08/2013 16:44	1.00	0.0860	0.50	ND
Nickel	ug/L	03/08/2013 16:44	1.00	0.786	2.0	ND
806632-004 Cobalt	ug/L	03/08/2013 17:02	1.00	0.0790	5.0	ND
Manganese	ug/L	03/08/2013 17:02	1.00	0.0860	0.50	ND
Nickel	ug/L	03/08/2013 17:02	1.00	0.786	2.0	ND

Method Blank

Parameter	Unit	DF	Result
Cobalt	ug/L	1.00	ND
Nickel	ug/L	1.00	ND
Manganese	ug/L	1.00	ND

Duplicate

Lab ID = 806632-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Cobalt	ug/L	1.00	ND	0	0	0 - 20
Nickel	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	4.09	4.15	1.48	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Cobalt	ug/L	1.00	0.155	0.200	77.5	70 - 130
Nickel	ug/L	1.00	2.33	2.00	116	70 - 130
Manganese	ug/L	1.00	0.217	0.200	108	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Cobalt	ug/L	1.00	47.8	50.0	95.7	85 - 115
Nickel	ug/L	1.00	49.9	50.0	99.8	85 - 115
Manganese	ug/L	1.00	49.1	50.0	98.3	85 - 115

Matrix Spike

Lab ID = 806632-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Cobalt	ug/L	1.00	38.8	50.0(50.0)	77.7	75 - 125
Nickel	ug/L	1.00	41.3	50.0(50.0)	82.5	75 - 125
Manganese	ug/L	1.00	45.8	54.2(50.0)	83.2	75 - 125

*Report Continued***Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 12 of 41****Project Number: 423575.MP.02.GM.03****Printed 3/28/2013****Matrix Spike Duplicate**

Lab ID = 806632-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Cobalt	ug/L	1.00	41.0	50.0(50.0)	82.1	75 - 125
Nickel	ug/L	1.00	43.1	50.0(50.0)	86.3	75 - 125
Manganese	ug/L	1.00	48.9	54.2(50.0)	89.4	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Cobalt	ug/L	1.00	19.9	20.0	99.3	90 - 110
Nickel	ug/L	1.00	19.9	20.0	99.6	90 - 110
Manganese	ug/L	1.00	20.0	20.0	100	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	21.0	20.0	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	20.8	20.0	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	21.3	20.0	106	90 - 110



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Project Number: 423575.MP.02.GM.03

Printed 3/28/2013

Metals by EPA 6020A, Dissolved

Batch 031113B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806632-003 Mercury	ug/L	03/12/2013 01:11	1.00	0.0400	0.20	ND
806632-004 Mercury	ug/L	03/12/2013 01:29	1.00	0.0400	0.20	ND

Method Blank

Parameter	Unit	DF	Result
Mercury	ug/L	1.00	ND

Duplicate

Lab ID = 806632-005

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Mercury	ug/L	1.00	0.178	0.200	89.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Mercury	ug/L	1.00	4.66	5.00	93.3	85 - 115

Matrix Spike

Lab ID = 806632-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Mercury	ug/L	1.00	3.88	5.00(5.00)	77.7	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Mercury	ug/L	1.00	2.02	2.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Mercury	ug/L	1.00	1.88	2.00	94.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Mercury	ug/L	1.00	2.02	2.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Mercury	ug/L	1.00	1.88	2.00	93.8	90 - 110

Interference Check Standard A

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



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Project Number: 423575.MP.02.GM.03

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Metals by EPA 6020A, Dissolved		Batch 031313A				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
806632-003 Arsenic	ug/L	03/13/2013 15:30	1.00	0.100	0.50	45.9
Chromium	ug/L	03/13/2013 15:18	50.0	4.60	50.0	2850
Copper	ug/L	03/13/2013 15:30	1.00	0.257	5.0	ND
Selenium	ug/L	03/13/2013 15:30	1.00	0.0800	5.0	14.0
Vanadium	ug/L	03/13/2013 15:30	1.00	0.181	5.0	20.2
806632-004 Arsenic	ug/L	03/13/2013 15:48	1.00	0.100	0.50	46.5
Chromium	ug/L	03/13/2013 15:36	50.0	4.60	50.0	2610
Copper	ug/L	03/13/2013 15:48	1.00	0.257	5.0	ND
Selenium	ug/L	03/13/2013 15:48	1.00	0.0800	5.0	14.6
Vanadium	ug/L	03/13/2013 15:48	1.00	0.181	5.0	21.0
806632-005 Arsenic	ug/L	03/13/2013 13:13	1.00	0.100	0.50	5.9
Selenium	ug/L	03/13/2013 13:13	1.00	0.0800	5.0	ND
806632-006 Arsenic	ug/L	03/13/2013 15:54	1.00	0.100	0.50	2.3
Selenium	ug/L	03/13/2013 15:54	1.00	0.0800	5.0	ND
806632-007 Arsenic	ug/L	03/13/2013 16:13	1.00	0.100	0.50	4.1
Chromium	ug/L	03/13/2013 16:01	100	9.20	100	7510
Selenium	ug/L	03/13/2013 16:13	1.00	0.0800	5.0	5.3
806632-008 Arsenic	ug/L	03/13/2013 16:43	1.00	0.100	0.50	2.6
Chromium	ug/L	03/13/2013 16:37	50.0	4.60	50.0	4030
Selenium	ug/L	03/13/2013 16:43	1.00	0.0800	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
Copper	ug/L	1.00	ND
Vanadium	ug/L	1.00	ND

Duplicate

Lab ID = 806632-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	1.00	6.02	5.94	1.30	0 - 20
Chromium	ug/L	2.00	83.3	81.5	2.20	0 - 20
Selenium	ug/L	1.00	ND	0	0	0 - 20
Copper	ug/L	1.00	ND	0	0	0 - 20
Vanadium	ug/L	1.00	7.34	7.21	1.75	0 - 20



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Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.157	0.200	78.5	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	1.17	1.00	117	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	0.384	0.400	96.0	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	0.957	1.00	95.7	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Vanadium	ug/L	1.00	0.464	0.400	116	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	48.7	50.0	97.4	85 - 115
Chromium	ug/L	1.00	50.5	50.0	101	85 - 115
Selenium	ug/L	1.00	46.6	50.0	93.2	85 - 115
Copper	ug/L	1.00	52.1	50.0	104	85 - 115
Vanadium	ug/L	1.00	50.2	50.0	100	85 - 115

Matrix Spike

Lab ID = 806632-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	55.5	55.9(50.0)	99.1	75 - 125
Chromium	ug/L	2.00	138	132(50.0)	114	75 - 125
Selenium	ug/L	1.00	48.4	50.0(50.0)	96.8	75 - 125
Copper	ug/L	1.00	44.6	50.0(50.0)	89.2	75 - 125
Vanadium	ug/L	1.00	59.2	57.2(50.0)	104	75 - 125

Matrix Spike Duplicate

Lab ID = 806632-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	55.2	55.9(50.0)	98.5	75 - 125
Chromium	ug/L	2.00	139	132(50.0)	115	75 - 125
Selenium	ug/L	1.00	47.7	50.0(50.0)	95.4	75 - 125
Copper	ug/L	1.00	44.7	50.0(50.0)	89.5	75 - 125
Vanadium	ug/L	1.00	59.5	57.2(50.0)	105	75 - 125

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 22 of 41****Project Number: 423575.MP.02.GM.03****Printed 3/28/2013****Interference Check Standard AB**

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
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		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	19.6	20.0	98.1	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	22.8	20.0	114	80 - 120

Interference Check Standard AB

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

Interference Check Standard AB

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

Serial Dilution

Lab ID = 806632-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	5.00	46.7	45.9	1.68	0 - 10

Serial Dilution

Lab ID = 806632-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	10.0	83.5	81.5	2.43	0 - 10



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Printed 3/28/2013

Metals by EPA 6020A, Dissolved

Batch 031513B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806632-003 Beryllium	ug/L	03/15/2013 17:53	2.00	0.0600	0.50	ND
Molybdenum	ug/L	03/15/2013 17:53	2.00	0.414	2.0	11.2
Silver	ug/L	03/15/2013 17:53	2.00	0.108	5.0	ND
806632-004 Beryllium	ug/L	03/15/2013 18:05	2.00	0.0600	0.50	ND
Molybdenum	ug/L	03/15/2013 18:05	2.00	0.414	2.0	8.8
Silver	ug/L	03/15/2013 18:05	2.00	0.108	5.0	ND
806632-005 Molybdenum	ug/L	03/15/2013 16:53	2.00	0.414	2.0	69.1
806632-006 Molybdenum	ug/L	03/15/2013 18:17	2.00	0.414	2.0	17.1
806632-007 Molybdenum	ug/L	03/15/2013 18:23	2.00	0.414	2.0	38.4
806632-008 Molybdenum	ug/L	03/15/2013 18:29	2.00	0.414	2.0	3.8

Method Blank

Parameter	Unit	DF	Result
Beryllium	ug/L	1.00	ND
Silver	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Duplicate

Lab ID = 806632-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Beryllium	ug/L	2.00	ND	0	0	0 - 20
Silver	ug/L	2.00	ND	0	0	0 - 20
Molybdenum	ug/L	2.00	73.0	69.1	5.45	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	1.00	0.184	0.200	92.0	70 - 130
Silver	ug/L	1.00	0.230	0.200	115	70 - 130
Molybdenum	ug/L	1.00	0.503	0.500	101	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	1.00	44.6	50.0	89.3	85 - 115
Silver	ug/L	1.00	43.8	50.0	87.5	85 - 115
Molybdenum	ug/L	1.00	47.8	50.0	95.5	85 - 115



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Matrix Spike

Lab ID = 806632-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Beryllium	ug/L	2.00	37.8	50.0(50.0)	75.6	75 - 125
Silver	ug/L	2.00	40.0	50.0(50.0)	80.0	75 - 125
Molybdenum	ug/L	2.00	127	119(50.0)	116	75 - 125

Matrix Spike Duplicate

Lab ID = 806632-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Beryllium	ug/L	2.00	37.7	50.0(50.0)	75.4	75 - 125
Silver	ug/L	2.00	39.5	50.0(50.0)	78.9	75 - 125
Molybdenum	ug/L	2.00	126	119(50.0)	115	75 - 125

MRCVS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	1.00	18.5	20.0	92.4	90 - 110
Silver	ug/L	1.00	19.6	20.0	98.1	90 - 110
Molybdenum	ug/L	1.00	19.0	20.0	95.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	1.00	18.6	20.0	93.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	1.00	18.1	20.0	90.4	90 - 110
Silver	ug/L	1.00	19.1	20.0	95.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	19.4	20.0	97.2	90 - 110
Molybdenum	ug/L	1.00	20.3	20.0	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	21.3	20.0	106	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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



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Project Number: 423575.MP.02.GM.03

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Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	1.00	ND	0		
Silver	ug/L	1.00	20.0	20.0	100.	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	19.4	20.0	97.0	80 - 120
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 = 806632-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Molybdenum	ug/L	10.0	69.9	69.1	1.10	0 - 10



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Metals by EPA 6020A, Dissolved

Batch 031813A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806632-002 Chromium	ug/L	03/18/2013 17:36	2.00	0.184	1.0	17.8
806632-003 Thallium	ug/L	03/18/2013 15:59	1.00	0.113	1.0	ND
806632-004 Thallium	ug/L	03/18/2013 16:05	1.00	0.113	1.0	ND
806632-009 Chromium	ug/L	03/18/2013 18:37	2.00	0.184	1.0	30.5
806632-010 Chromium	ug/L	03/18/2013 17:06	2.00	0.184	1.0	1.1
806632-011 Chromium	ug/L	03/18/2013 18:55	2.00	0.184	1.0	5.7
806632-012 Chromium	ug/L	03/18/2013 19:13	2.00	0.184	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND
Thallium	ug/L	1.00	ND

Duplicate

Lab ID = 806632-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	1.38	1.34	2.65	0 - 20
Thallium	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	0.205	0.200	102	70 - 130
Thallium	ug/L	1.00	0.504	0.500	101	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	51.6	50.0	103	85 - 115
Thallium	ug/L	2.00	51.0	50.0	102	85 - 115

Matrix Spike

Lab ID = 806632-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	50.0	51.3(50.0)	97.3	75 - 125
Thallium	ug/L	2.00	47.1	50.0(50.0)	94.3	75 - 125

Matrix Spike Duplicate

Lab ID = 806632-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	50.6	51.3(50.0)	98.6	75 - 125
Thallium	ug/L	2.00	46.0	50.0(50.0)	91.9	75 - 125



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.GM.03

Printed 3/28/2013

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.7	20.0	93.4	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.9	20.0	94.4	80 - 120

Interference Check Standard AB

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

Interference Check Standard AB

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

Serial Dilution

Lab ID = 806632-008

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	250	3890	4050	3.94	0 - 10



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/28/2013

Metals by EPA 6020A, Dissolved

Batch 032213B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806632-001 Chromium	ug/L	03/22/2013 19:12	2.00	0.184	1.0	ND
806632-005 Chromium	ug/L	03/22/2013 18:18	2.00	0.184	1.0	78.9
Manganese	ug/L	03/22/2013 18:18	2.00	0.172	0.50	4.2
806632-006 Chromium	ug/L	03/22/2013 19:18	2.00	0.184	1.0	22.8
Manganese	ug/L	03/22/2013 19:18	2.00	0.172	0.50	1.6
806632-007 Manganese	ug/L	03/22/2013 19:24	2.00	0.172	0.50	ND
806632-008 Manganese	ug/L	03/22/2013 19:30	2.00	0.172	0.50	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND

Duplicate

Lab ID = 806632-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	77.5	78.9	1.75	0 - 20
Manganese	ug/L	2.00	4.06	4.20	3.41	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.249	0.200	124	70 - 130
Manganese	ug/L	1.00	0.165	0.200	82.5	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	53.9	50.0	108	85 - 115
Manganese	ug/L	2.00	54.0	50.0	108	85 - 115

Matrix Spike

Lab ID = 806632-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	141	129(50.0)	124	75 - 125
Manganese	ug/L	2.00	59.0	54.2(50.0)	110	75 - 125

Matrix Spike Duplicate

Lab ID = 806632-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	128	129(50.0)	97.4	75 - 125
Manganese	ug/L	2.00	52.8	54.2(50.0)	97.2	75 - 125

*Report Continued***Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 31 of 41****Project Number: 423575.MP.02.GM.03****Printed 3/28/2013****Interference Check Standard AB**

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	20.9	20.0	105	80 - 120

Serial Dilution**Lab ID = 806632-005**

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	10.0	75.8	78.9	3.96	0 - 10



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/28/2013

Metals by EPA 6010B, Dissolved

Batch 031813A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806632-003 Sodium	ug/L	03/18/2013 16:05	100	39400	100000	1390000
806632-004 Sodium	ug/L	03/18/2013 16:11	100	39400	100000	1340000

Method Blank

Parameter	Unit	DF	Result
Sodium	ug/L	1.00	ND

Duplicate

Lab ID = 806828-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sodium	ug/L	1000	1590000	1640000	2.84	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	1870	2000	93.5	85 - 115

Matrix Spike

Lab ID = 806828-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sodium	ug/L	1000	3520000	3640000(2000000)	94.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	4900	5000	97.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	4760	5000	95.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	4780	5000	95.6	90 - 110

Interference Check Standard A

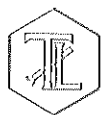
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	1880	2000	93.8	80 - 120

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	1880	2000	94.2	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	1870	2000	93.6	80 - 120



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/28/2013

Metals by EPA 6010B, Dissolved

Batch 031813A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806632-003 Calcium	ug/L	03/18/2013 14:12	5.00	190	2500	32400
Magnesium	ug/L	03/18/2013 14:12	5.00	274	2500	6630
806632-004 Calcium	ug/L	03/18/2013 14:24	5.00	190	2500	31900
Magnesium	ug/L	03/18/2013 14:24	5.00	274	2500	6740

Method Blank

Parameter	Unit	DF	Result
Calcium	ug/L	1.00	ND
Magnesium	ug/L	1.00	ND

Duplicate

Lab ID = 806828-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	ug/L	100	206000	211000	2.64	0 - 20
Magnesium	ug/L	10.0	32200	33300	3.23	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	1950	2000	97.7	85 - 115
Magnesium	ug/L	1.00	1980	2000	98.8	85 - 115

Matrix Spike

Lab ID = 806828-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	ug/L	100	416000	411000(200000)	103	75 - 125
Magnesium	ug/L	10.0	50500	53300(20000)	86.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4970	5000	99.4	90 - 110
Magnesium	ug/L	1.00	5040	5000	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4570	5000	91.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4740	5000	94.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4710	5000	94.1	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/28/2013

Metals by EPA 6010B, Dissolved

Batch 030713A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806632-005 Calcium	ug/L	03/07/2013 16:41	10.0	380	5000	115000
Magnesium	ug/L	03/07/2013 16:41	10.0	549	5000	7340
Sodium	ug/L	03/07/2013 18:39	200	20000	100000	2450000
806632-006 Calcium	ug/L	03/07/2013 17:34	100	3800	50000	316000
Magnesium	ug/L	03/07/2013 16:03	10.0	549	5000	33300
Sodium	ug/L	03/07/2013 17:58	1000	100000	500000	2550000
806632-007 Calcium	ug/L	03/07/2013 18:45	500	19000	250000	576000
Magnesium	ug/L	03/07/2013 16:47	10.0	549	5000	34800
Sodium	ug/L	03/07/2013 18:45	500	50000	250000	4910000
806632-008 Calcium	ug/L	03/07/2013 18:51	200	7600	100000	637000
Magnesium	ug/L	03/07/2013 16:53	10.0	549	5000	23400
Sodium	ug/L	03/07/2013 18:51	200	20000	100000	1590000

Method Blank

Parameter	Unit	DF	Result
Calcium	ug/L	1.00	ND
Sodium	ug/L	1.00	ND
Magnesium	ug/L	1.00	ND

Duplicate

Lab ID = 806632-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	ug/L	100	282000	316000	11.4	0 - 20
Sodium	ug/L	1000	2300000	2550000	10.2	0 - 20
Magnesium	ug/L	10.0	29700	33300	11.4	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	2120	2000	106	85 - 115
Sodium	ug/L	1.00	2140	2000	107	85 - 115
Magnesium	ug/L	1.00	2150	2000	108	85 - 115

Matrix Spike

Lab ID = 806632-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	ug/L	100	522000	516000(200000)	103	75 - 125
Sodium	ug/L	1000	4570000	4550000(200000)	101	75 - 125
Magnesium	ug/L	10.0	52500	53300(20000)	96.0	75 - 125



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/28/2013

Metals by EPA 6010B, Dissolved

Batch 031113A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806632-003 Iron	ug/L	03/11/2013 19:01	1.00	3.57	20.0	ND
Zinc	ug/L	03/11/2013 19:01	1.00	6.95	20.0	ND
806632-004 Iron	ug/L	03/11/2013 19:07	1.00	3.57	20.0	ND
Zinc	ug/L	03/11/2013 19:07	1.00	6.95	20.0	ND
806632-005 Iron	ug/L	03/11/2013 19:14	1.00	3.57	20.0	ND
806632-006 Iron	ug/L	03/11/2013 18:29	1.00	3.57	20.0	ND
806632-007 Iron	ug/L	03/11/2013 19:20	1.00	3.57	20.0	ND
806632-008 Iron	ug/L	03/11/2013 19:27	1.00	3.57	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND
Zinc	ug/L	1.00	ND

Duplicate

Lab ID = 806632-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	ND	0	0	0 - 20
Zinc	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	2180	2000	109	85 - 115
Zinc	ug/L	1.00	2110	2000	106	85 - 115

Matrix Spike

Lab ID = 806632-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	1830	2000(2000)	91.6	75 - 125
Zinc	ug/L	1.00	2370	2000(2000)	118	75 - 125

Matrix Spike Duplicate

Lab ID = 806632-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	1830	2000(2000)	91.6	75 - 125
Zinc	ug/L	1.00	2360	2000(2000)	118	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5200	5000	104	90 - 110
Zinc	ug/L	1.00	5300	5000	106	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.GM.03

Printed 3/28/2013

Interference Check Standard AB


Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	2100	2000	105	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	2140	2000	107	80 - 120

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services

CH2MHILL

CHAIN OF CUSTODY RECORD

806632

Project Name PG&E Topock		Container:	250 ml Poly	2x250 ml Poly	2x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly			
Location Topock		Preservatives:	(NH4)2SO4 4°C	(NH4)2SO4 4°C	HNO3 4°C	HNO3 4°C	HNO3 4°C	HNO3 4°C	HNO3 4°C	HNO3 4°C			
Project Manager Jay Piper		Filtered:	Field	Field	Field	Field	Field	Field	Field	Field			
Sample Manager Shawn Duffy		Holding Time:	28	28	180	180	180	180	180	180			
Project Number 423575.MP.0000													
Task Order 02.G.M. 63													
Project 2013-GMP-191SAMPLEMETHOD													
Turnaround Time 10 Days													
Shipping Date: 1/31/2013													
COC Number: TLJ_GMP-191SMT													
DATE	TIME	Matrix											
-1	2-28-13	0840	Water	X			X						
-2		0845		X			X						
-3	2-26-13	1503		X					X				
-4		1458		X					X				
-5		1235		X				X		X			
-6	2-27-13	1509		X				X		X			
-7		1553		X				X		X			
-8		1025		X				X		X			
-9	2-27-13	1014		X			X						
-10	2-28-13	0848		X			X						
-11	2-26-13	1540		X			X						
-12	2-28-13	0851		X			X						

ALERT !!
Level III QC

Sample ID:

MW-208-191
MW-207-191
MW-110-191**
MW-12-191**
MW-44-115-191
MW-47-115-191
MW-50-200-191
MW-59-100-191
MW-206-191
MW-209-191
MW-205-191
MW-210-191

SPD

pH=

Approved by Sampled by Relinquished by Received by Relinquished by Received by		Signatures Date/Time 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: **Please add Ca, Mg, Na, Fe, & Mn to samples MW-12-191 and MW-110-191 Report Copy to Shawn Duffy (530) 229-3303	
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CH2MHILL

CHAIN OF CUSTODY RECORD

806632

Page 1 OF 1

Project Name PG&E Topock	Container:	250 ml Poly	2x250 ml Poly	2x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly
Location Topock	Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C
Project Manager Jay Piper	Filtered:	Field	Field	Field	Field	Field	Field	Field	Field
Sample Manager Shawn Duffy	Holding Time:	28	28	180	180	180	180	180	180
Project Number 423575.MP.0075				Metals (6020A/F) FF Chromium	Metals (6020A/F) FF Chromium	Metals (6010B/F) FF Ca, Mg, Na, Fe	Metals (6010B/F) FF Ag, Ti, Zn	Metals (6010B/6020A/7470A/81) FF Title	Metals (6020A/F) FF As, Mo, Se, Mn, Cr
Task Order 02.G.M. 63									
Project 2013-GMP-191SAMPLEMETHOD									
Turnaround Time 10 Days									
Shipping Date: 1/31/2013									
COC Number: TLI_GMP-191SMT									
DATE	TIME	MATRIX							

For Sample Conditions
See Form AttachedALERT !!
Level III QC

Sample ID:

-1	2-28-13	0840	Water	X		X				MW-208-191	2	
-2		0845		X		X				MW-207-191	2	
-3	2-26-13	1503		X				X		MW-110-191	2	
-4		1458		X				X		MW-12-191	2	
-5		1235		X			X		X	MW-44-115-191	2	
-6	2-27-13	1509		X			X		X	MW-47-115-191	2	
-7		1553		X			X		X	MW-50-200-191	2	
-8		1025		X			X		X	MW-59-100-191	2	
-9	2-27-13	1014		X		X				MW-206-191	2	
-10	2-28-13	0848		X		X				MW-209-191	2	
-11	2-26-13	1540		X		X				MW-205-191	2	
-12	2-28-13	0851		X		X				MW-210-191	2	

Approved by	Signatures	Date/Time	Shipping Details	ATTN:	Special Instructions:
Sampled by		3-4-13	Method of Shipment: FedEx		
Relinquished by		1630	On Ice: yes / no	Sample Custody	
Received by	Rafael Davila	3-4-13 16:30	Airbill No:		Report Copy to
Relinquished by	Rafael Davila	3-4-13 22:30	Lab Name: Truesdail Laboratories, Inc.		Shawn Duffy
Received by	David, TGI	3/4/13 22:30	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
2/27/13	806555-9	9.5	N/A	N/A	N/A	RB
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
	-17					
	-18					
2/27/13	806573-1	7.0	1mL/50mL	9.5	4:30 ^{16:30}	TM
	-2	7.0	1mL/50mL	9.5	16:30	TM
2/28/13	806591-1	7.0	2mL/100mL	9.5	15:00	TM
	-2	↓	↓	↓	15:00	TM
3/4/13	806624-1	7.0	2mL/100mL	9.5	17:00	TM
	-2	↓	↓	↓	17:00	TM
3/5/13	806632-1	9.5	N/A	N/A	N/A	RB
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
3/5/13	806633-1	9.5	N/A	N/A	N/A	RB
	-2	↓	↓	↓	↓	↓



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806497(1,2)	<1	<2	2/25/13	DC	yes			
806520	>1	<2						
806493(1-5)	>1	<2						
806494(1-5)	>1	<2						
806552	<1	>2	2-27-13	BE	yes	11:00		
806553(1-4)		<2						
806554(1-4)								
806555(1,4-7)								
806542(1-3)		>2			no	12:00	2/29/13 2 15:35	
806545								
806537	<1	<2		DC	yes			
806565	<1	>2			yes	14:00	2/28/13 2 15:30	
806562(1-14)	<1	>2	2/28/13	ES	no	9:30	3/1/13 2 16:20	pH < 2
806567(10-12)								
806570(1-2)	>1	<2			yes			
806572(1-2)	>1	<2			yes			
806586(1,2)	<1	>2		DC	yes	15:30		
806617	>1	<2	3/4/13	DC	yes			
806632(1-12)	<1		3-5-13	BE				
806633(1-12)								
806634(1,3-6)								
806635(1-5,8-14)								
806620(1-2,4)	<1	>2	3/5/13	ES	no	12:00		
806627(16,23)								
806625		<2			yes			
806626								
806688(1-2,5,10-14)	<1	<2	3-6-13	BE	yes			
806669(1-2)		>2						Lab Filter Acidified
806670(1-2)								
806679(1-5)		<2						
806643	>1	<2		DC	yes			
806651	<1							
806688	>1	>2				12:30		
806667	<1	>2		BE	no	14:00		
806663(1-3)						15:00		
806694(10-12)								
806682(4-6)								
806650	<1	<2	3/4/13	DC	yes			
806649								
806648								
806647								
806646								
806652								
806671								

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 # 806632

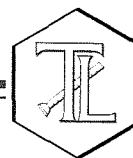
Date Delivered: 03/04/13 Time: 22:30 By: ☐ Mail ☒ Field Service ☐ Client

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)? 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 a.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. Shabunina



TRUESDAIL LABORATORIES, INC.

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Established 1931

March 28, 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-191SAMPLEMETHODT,
GROUNDWATER MONITORING PROJECT, TLI No.: 806828

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-191SAMPLEMETHODT 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 March 12, 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 (1.7 ug/L) and Hexavalent Chromium (ND<0.20 ug/L) results for sample MW-211-191, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 2.4 ug/L and 16.8 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and yielded a result of 2.5 ug/L. After discussing the results with Mr. Duffy, the original results were reported.

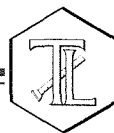
No other violations or non-conformance actions occurred for this data package.

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


f - 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.: 806828
Date Received: March 12, 2013

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.03
P.O. No.: 423575.MP.02.GM.03

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806828-001	MW-211-191	E218.6	FLDFLT	3/11/2013	6:00	Chromium, Hexavalent	ND	ug/L	0.20
806828-001	MW-211-191	SW6020	FLDFLT	3/11/2013	6:00	Chromium	1.7	ug/L	1.0
806828-002	MW-36-100-191	E218.6	FLDFLT	3/11/2013	12:41	Chromium, Hexavalent	58.7	ug/L	1.0
806828-002	MW-36-100-191	SW6010B	FLDFLT	3/11/2013	12:41	Calcium	211000	ug/L	50000
806828-002	MW-36-100-191	SW6010B	FLDFLT	3/11/2013	12:41	Iron	ND	ug/L	20.0
806828-002	MW-36-100-191	SW6010B	FLDFLT	3/11/2013	12:41	Magnesium	33300	ug/L	5000
806828-002	MW-36-100-191	SW6010B	FLDFLT	3/11/2013	12:41	Sodium	1640000	ug/L	1000000
806828-002	MW-36-100-191	SW6020	FLDFLT	3/11/2013	12:41	Arsenic	7.3	ug/L	0.50
806828-002	MW-36-100-191	SW6020	FLDFLT	3/11/2013	12:41	Chromium	58.3	ug/L	1.0
806828-002	MW-36-100-191	SW6020	FLDFLT	3/11/2013	12:41	Manganese	59.6	ug/L	0.50
806828-002	MW-36-100-191	SW6020	FLDFLT	3/11/2013	12:41	Molybdenum	30.3	ug/L	2.0
806828-002	MW-36-100-191	SW6020	FLDFLT	3/11/2013	12:41	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806828-003	MW-47-055-191	E218.6	FLDFLT	3/11/2013	10:00	Chromium, Hexavalent	16.7	ug/L	0.20
806828-003	MW-47-055-191	SW6010B	FLDFLT	3/11/2013	10:00	Calcium	181000	ug/L	5000
806828-003	MW-47-055-191	SW6010B	FLDFLT	3/11/2013	10:00	Iron	ND	ug/L	20.0
806828-003	MW-47-055-191	SW6010B	FLDFLT	3/11/2013	10:00	Magnesium	29500	ug/L	5000
806828-003	MW-47-055-191	SW6010B	FLDFLT	3/11/2013	10:00	Sodium	674000	ug/L	100000
806828-003	MW-47-055-191	SW6020	FLDFLT	3/11/2013	10:00	Arsenic	1.2	ug/L	0.50
806828-003	MW-47-055-191	SW6020	FLDFLT	3/11/2013	10:00	Chromium	16.4	ug/L	1.0
806828-003	MW-47-055-191	SW6020	FLDFLT	3/11/2013	10:00	Manganese	ND	ug/L	0.50
806828-003	MW-47-055-191	SW6020	FLDFLT	3/11/2013	10:00	Molybdenum	8.5	ug/L	2.0
806828-003	MW-47-055-191	SW6020	FLDFLT	3/11/2013	10:00	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:

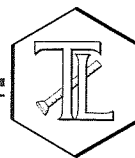
Results below 0.01ppm will have two (2) significant figures.

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.GM.03

P.O. Number: 423575.MP.02.GM.03

Release Number:

Laboratory No. 806828

Page 1 of 16

Printed 3/28/2013

Samples Received on 3/12/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-211-191	806828-001	03/11/2013 06:00	Water
MW-36-100-191	806828-002	03/11/2013 12:41	Water
MW-47-055-191	806828-003	03/11/2013 10:00	Water

Chrome VI by EPA 218.6

Batch 03CrH13J

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806828-001 Chromium, Hexavalent	ug/L	03/14/2013 10:05	1.00	0.00920	0.20	ND
806828-002 Chromium, Hexavalent	ug/L	03/14/2013 12:00	5.00	0.0460	1.0	58.7
806828-003 Chromium, Hexavalent	ug/L	03/14/2013 10:26	1.00	0.00920	0.20	16.7

Method Blank

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

Duplicate

Lab ID = 806858-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.38	1.39	1.02	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.212	0.200	106	70 - 130

Lab Control Sample

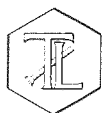
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.98	5.00	99.5	90 - 110

Matrix Spike

Lab ID = 806827-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	1180	1220(625)	93.6	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 16****Project Number: 423575.MP.02.GM.03****Printed 3/28/2013****Matrix Spike**

Lab ID = 806827-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.976	1.02(1.00)	95.2	90 - 110

Matrix Spike

Lab ID = 806828-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.989	1.01(1.00)	97.6	90 - 110

Matrix Spike

Lab ID = 806828-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	131	134(75.0)	96.8	90 - 110

Matrix Spike

Lab ID = 806828-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.02	36.8	36.7(20.0)	100	90 - 110

Matrix Spike

Lab ID = 806829-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	185	186(100)	98.6	90 - 110

Matrix Spike

Lab ID = 806829-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	124	125(75.0)	98.4	90 - 110

Matrix Spike

Lab ID = 806829-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	83.0	84.2(50.0)	97.6	90 - 110

Matrix Spike

Lab ID = 806829-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.02	36.9	36.8(20.0)	100	90 - 110

Matrix Spike

Lab ID = 806858-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.17	7.33(5.00)	96.8	90 - 110

Matrix Spike

Lab ID = 806858-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.44	7.38(5.00)	101	90 - 110

Matrix Spike

Lab ID = 806858-003

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 = 806858-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.988	1.00(1.00)	98.8	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.GM.03

Printed 3/28/2013

Metals by EPA 6020A, Dissolved

Batch 031913A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806828-001 Chromium	ug/L	03/19/2013 12:13	2.00	0.184	1.0	1.7
806828-002 Arsenic	ug/L	03/19/2013 13:25	2.00	0.200	0.50	7.3
Chromium	ug/L	03/19/2013 13:25	2.00	0.184	1.0	58.3
Manganese	ug/L	03/19/2013 13:25	2.00	0.172	0.50	59.6
Molybdenum	ug/L	03/19/2013 13:25	2.00	0.414	2.0	30.3
Selenium	ug/L	03/19/2013 13:25	2.00	0.160	5.0	ND
806828-003 Arsenic	ug/L	03/19/2013 12:31	2.00	0.200	0.50	1.2
Chromium	ug/L	03/19/2013 12:31	2.00	0.184	1.0	16.4
Manganese	ug/L	03/19/2013 12:31	2.00	0.172	0.50	ND
Molybdenum	ug/L	03/19/2013 12:31	2.00	0.414	2.0	8.5
Selenium	ug/L	03/19/2013 12:31	2.00	0.160	5.0	ND

Method Blank

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

Duplicate

Lab ID = 806827-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	1.53	1.50	1.85	0 - 20
Chromium	ug/L	10.0	593	562	5.37	0 - 20
Selenium	ug/L	2.00	ND	2.81	0	0 - 20
Manganese	ug/L	2.00	1.24	1.25	1.04	0 - 20
Molybdenum	ug/L	2.00	2.45	2.40	2.14	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.209	0.200	104	70 - 130
Chromium	ug/L	1.00	0.168	0.200	84.0	70 - 130
Selenium	ug/L	1.00	0.937	1.00	93.7	70 - 130
Manganese	ug/L	1.00	0.141	0.200	70.5	70 - 130
Molybdenum	ug/L	1.00	0.531	0.500	106	70 - 130

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 5 of 16****Project Number: 423575.MP.02.GM.03****Printed 3/28/2013****Lab Control Sample**

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	46.6	50.0	93.2	85 - 115
Chromium	ug/L	1.00	47.4	50.0	94.8	85 - 115
Selenium	ug/L	1.00	45.0	50.0	90.0	85 - 115
Manganese	ug/L	1.00	47.0	50.0	93.9	85 - 115
Molybdenum	ug/L	1.00	49.2	50.0	98.4	85 - 115

Matrix Spike

Lab ID = 806827-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	53.8	51.5(50.0)	104	75 - 125
Chromium	ug/L	10.0	794	812(250)	92.8	75 - 125
Selenium	ug/L	2.00	53.3	52.8(50.0)	101	75 - 125
Manganese	ug/L	2.00	52.5	51.2(50.0)	102	75 - 125
Molybdenum	ug/L	2.00	52.7	52.4(50.0)	101	75 - 125

Matrix Spike Duplicate

Lab ID = 806827-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	50.3	51.5(50.0)	97.6	75 - 125
Chromium	ug/L	10.0	774	812(250)	84.8	75 - 125
Selenium	ug/L	2.00	50.0	52.8(50.0)	94.5	75 - 125
Manganese	ug/L	2.00	49.0	51.2(50.0)	95.4	75 - 125
Molybdenum	ug/L	2.00	52.8	52.4(50.0)	101	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.5	20.0	102	90 - 110
Chromium	ug/L	1.00	20.4	20.0	102	90 - 110
Selenium	ug/L	1.00	20.9	20.0	104	90 - 110
Manganese	ug/L	1.00	20.5	20.0	102	90 - 110
Molybdenum	ug/L	1.00	21.5	20.0	108	90 - 110

MRCVS - Primary

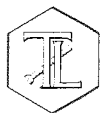
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	18.6	20.0	93.1	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	18.4	20.0	92.1	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.GM.03

Printed 3/28/2013

Serial Dilution

Lab ID = 806827-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	548	562	2.52	0 - 10

Serial Dilution

Lab ID = 806828-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	10.0	58.2	58.3	0.113	0 - 10
Manganese	ug/L	10.0	59.6	59.6	0.0772	0 - 10
Molybdenum	ug/L	10.0	31.2	30.3	2.81	0 - 10



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/28/2013

Metals by EPA 6010B, Dissolved		Batch 031813A-Th2				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
806828-002 Sodium	ug/L	03/18/2013 14:36	1000	394000	1000000	1640000
806828-003 Sodium	ug/L	03/18/2013 15:25	100	39400	100000	674000

Method Blank

Parameter	Unit	DF	Result
Sodium	ug/L	1.00	ND

Duplicate

Lab ID = 806828-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sodium	ug/L	1000	1590000	1640000	2.84	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	1870	2000	93.5	85 - 115

Matrix Spike

Lab ID = 806828-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sodium	ug/L	1000	3520000	3640000(200000)	94.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	4900	5000	97.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	4760	5000	95.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	4780	5000	95.6	90 - 110

Interference Check Standard A

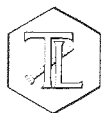
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	1880	2000	93.8	80 - 120

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	1880	2000	94.2	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	1870	2000	93.6	80 - 120


Client: E2 Consulting Engineers, Inc.
Project Name: PG&E Topock Project
Page 12 of 16
Project Number: 423575.MP.02.GM.03
Printed 3/28/2013
Metals by EPA 6010B, Dissolved
Batch 031913A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806828-002 Iron	ug/L	03/19/2013 12:18	1.00	9.50	20.0	ND
806828-003 Iron	ug/L	03/19/2013 13:14	1.00	9.50	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2080	2000	104	85 - 115

Matrix Spike
Lab ID = 806828-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	1780	2000(2000)	89.0	75 - 125

Matrix Spike Duplicate
Lab ID = 806828-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	1760	2000(2000)	88.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5110	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5320	5000	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5170	5000	103	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2230	2000	112	80 - 120

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2140	2000	107	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2230	2000	112	80 - 120



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/28/2013

Metals by EPA 6010B, Dissolved

Batch 031813A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806828-002 Calcium	ug/L	03/18/2013 13:48	100	3800	50000	211000
Magnesium	ug/L	03/18/2013 12:52	10.0	549	5000	33300
806828-003 Calcium	ug/L	03/18/2013 15:09	10.0	380	5000	181000
Magnesium	ug/L	03/18/2013 15:09	10.0	549	5000	29500

Method Blank

Parameter	Unit	DF	Result
Calcium	ug/L	1.00	ND
Magnesium	ug/L	1.00	ND

Duplicate

Lab ID = 806828-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	ug/L	100	206000	211000	2.64	0 - 20
Magnesium	ug/L	10.0	32200	33300	3.23	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	1950	2000	97.7	85 - 115
Magnesium	ug/L	1.00	1980	2000	98.8	85 - 115

Matrix Spike

Lab ID = 806828-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	ug/L	100	416000	411000(200000)	103	75 - 125
Magnesium	ug/L	10.0	50500	53300(20000)	86.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4970	5000	99.4	90 - 110
Magnesium	ug/L	1.00	5040	5000	101	90 - 110

MRCVS - Primary

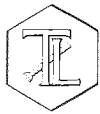
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4570	5000	91.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4740	5000	94.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4710	5000	94.1	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.GM.03

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Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy				Container: 250 ml Poly (NH4)2S O4/NH4O H, 4°C	1x500 ml Poly HNO3, 4°C	1x500 ml Poly HNO3, 4°C	1x500 ml Poly HNO3, 4°C	<div style="border: 2px solid black; padding: 10px; text-align: center;"> ALERT !! Level III QC </div>	Number of Containers	COMMENTS
Preservatives:	Filtered:	Holding Time:								
Project Number 423575.MP.06-78 Task Order .02.GM.03 Project 2013-GMP-191SAMPLEMETHOD Turnaround Time 10 Days Shipping Date: 3/12/2013 COC Number: 26										
DATE	TIME	Matrix								
1 MW-211-191	3/11/2013	6:00	Water	X	X				2	
-2 MW-36-100-191	3/11/2013	12:41	Water	X		X	X		2	PH=2
-3 MW-47-055-191	3/11/2013	10:00	Water	X		X	X		2	6020.41
TOTAL NUMBER OF CONTAINERS									6	6010.0

For Sample Conditions
See Form Attached

Signatures		Date/Time	Shipping Details		Special Instructions:
Approved by	<i>[Signature]</i>	3-12-13	Method of Shipment:	courier	Feb 4 - Feb 28, 2013
Sampled by	<i>[Signature]</i>	1535	On Ice: yes / no		
Relinquished by	<i>[Signature]</i>		Bill No:		
Received by	Rafael Davila	3/12-13 15:35	Lab Name:	Truesdail Laboratories, Inc.	Report Copy to
Relinquished by	Rafael Davila	3-12-13 21:30	Lab Phone:	(714) 730-6239	Shawn Duffy
Received by	Inda, RZ	3/12/13 21:50			(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
3/12/13	806790-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
3/12/13	806791-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
3/12/13	806805	7.0	2mL/100mL	9.5	16:50	TM
3/13/13	806824-1	9.0 9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
3/13/13	806825	9.5	N/A	N/A	N/A	TM
3/13/13	806826	7.0	2mL/100mL	9.5	11:10	TM
3/13/13	806827-1	9.5	N/A	N/A	N/A	TM
	-2					
TM 3/13/13	806828-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
3/13/13	806829-1	9.5	N/A	N/A	N/A	TM
	-2					

TM

3/15/13

TM

03/15/13 063



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806672	<1	<2	3/6/13	DC	yes			
806228	Solid			BE	TTL			
806714	<1	<2			NO			
806686 (1-5)					XCS			
806689 (3-4)		>2						Metal Part Acc
806706								
806720 (1-2)								
806724								
806790 (1-4)	<1	<2	3-12-13	BE	XCS			
806791 (1-9)								
806792 (1-4)								
806771 (1,2,4)		>2			NO	11 AM		
806785 (1-3)						↓		
806745		<2			XCS			
806748								
806747 (1-2)								
806775 (1-4)								
806776								
806777 (1-2)								
806778 (1-2)								
806780								
806786								
806787								
806824 (1-7)	<1	<2	3-13-13	BE	XCS			
806825								
806826								
806827								
806828 (2-3)								
806829 (1-4)	↓	↓	↓	↓	↓			
806814	<1	72	3/12/13	ES	NO	2:07		
806801 (1-4)	↓	↓	↓	↓	↓	↓		
806782		TTL	(501)		yes			
806802	>2	<2	3/12/13		yes			
806815	<2	<2						
806816								
806817								
806818								
806819								
806820								
806847	>1	>2	3/13/13	DC	yes			
806852 (1-3,5)	<1	<2	3-14-13	BE	XCS			
806851 (1-8)	<1	<2	3/14/13	DC	yes			
806850	<1	<2	↓	↓	↓			
806862	<1	<2	↓	DC	yes			

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.



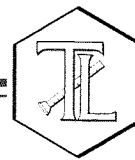
Sample Integrity & Analysis Discrepancy Form

Client: ELLab # 06828Date Delivered: 03/12/13 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)? 3.4 °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.e ☒ 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

March 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-191-Q1, GROUNDWATER MONITORING
PROJECT, TLI NO.: 806910

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-GMP-191-Q1 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 March 15, 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 carry-over from the high concentrations of Total Dissolved Chromium in the samples, the Low Level Calibration Verification recovery at 0.200 ug/L for batch 032113A exceeded the acceptance limits. The Low Level Calibration Verification analyzed at 1.00 ug/L was within acceptable limits and therefore still met the contract required detection limit. After discussing the results with Mr. Duffy, sample MW-213-191 was re-analyzed in another batch and reported. The remaining samples were reported from batch 032113A, as the Total Dissolved Chromium results were sufficiently high to not be affected by small amounts of carry-over. All blanks and all other QA/QC were within acceptable limits.

Due to the discrepancy between the Total Dissolved Chromium (1.3 ug/L) and Hexavalent Chromium (ND<0.20 ug/L) results for sample MW-214-191, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 1.2 ug/L and ND<1.0 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.


Due to the discrepancy between the Total Dissolved Chromium (1.6 ug/L) and Hexavalent Chromium (0.29 ug/L) results for sample MW-216-191, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were both 1.3 ug/L. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and yielded a result of 1.7 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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

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

Attention: Shawn Duffy

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.03
P.O. No.: 423575.MP.02.GM.03

Laboratory No.: 806910
Date Received: March 15, 2013

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806910-001	MW-19-191	E218.6	FLDFLT	3/12/2013	11:27	Chromium, Hexavalent	202	ug/L	2.0
806910-001	MW-19-191	SW6010B	FLDFLT	3/12/2013	11:27	Calcium	103000	ug/L	50000
806910-001	MW-19-191	SW6010B	FLDFLT	3/12/2013	11:27	Iron	ND	ug/L	20.0
806910-001	MW-19-191	SW6010B	FLDFLT	3/12/2013	11:27	Magnesium	16200	ug/L	5000
806910-001	MW-19-191	SW6010B	FLDFLT	3/12/2013	11:27	Sodium	314000	ug/L	100000
806910-001	MW-19-191	SW6020	FLDFLT	3/12/2013	11:27	Arsenic	1.0	ug/L	0.50
806910-001	MW-19-191	SW6020	FLDFLT	3/12/2013	11:27	Chromium	197	ug/L	5.0
806910-001	MW-19-191	SW6020	FLDFLT	3/12/2013	11:27	Manganese	ND	ug/L	0.50
806910-001	MW-19-191	SW6020	FLDFLT	3/12/2013	11:27	Molybdenum	4.9	ug/L	2.0
806910-001	MW-19-191	SW6020	FLDFLT	3/12/2013	11:27	Selenium	ND	ug/L	5.0
806910-002	MW-20-070-191	E218.6	FLDFLT	3/12/2013	16:17	Chromium, Hexavalent	3160	ug/L	50.0
806910-002	MW-20-070-191	SW6010B	FLDFLT	3/12/2013	16:17	Calcium	82800	ug/L	25000
806910-002	MW-20-070-191	SW6010B	FLDFLT	3/12/2013	16:17	Iron	ND	ug/L	20.0
806910-002	MW-20-070-191	SW6010B	FLDFLT	3/12/2013	16:17	Magnesium	22300	ug/L	1000
806910-002	MW-20-070-191	SW6010B	FLDFLT	3/12/2013	16:17	Sodium	358000	ug/L	50000
806910-002	MW-20-070-191	SW6020	FLDFLT	3/12/2013	16:17	Arsenic	2.4	ug/L	0.50
806910-002	MW-20-070-191	SW6020	FLDFLT	3/12/2013	16:17	Chromium	3310	ug/L	50.0
806910-002	MW-20-070-191	SW6020	FLDFLT	3/12/2013	16:17	Manganese	ND	ug/L	0.50
806910-002	MW-20-070-191	SW6020	FLDFLT	3/12/2013	16:17	Molybdenum	35.9	ug/L	2.0
806910-002	MW-20-070-191	SW6020	FLDFLT	3/12/2013	16:17	Selenium	6.5	ug/L	5.0

005

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
806910-003	MW-26-191	E218.6	FLDFLT	3/12/2013	14:03	Chromium, Hexavalent	1820	ug/L	20.0
806910-003	MW-26-191	SW6010B	FLDFLT	3/12/2013	14:03	Calcium	186000	ug/L	25000
806910-003	MW-26-191	SW6010B	FLDFLT	3/12/2013	14:03	Iron	ND	ug/L	20.0
806910-003	MW-26-191	SW6010B	FLDFLT	3/12/2013	14:03	Magnesium	48700	ug/L	2500
806910-003	MW-26-191	SW6010B	FLDFLT	3/12/2013	14:03	Sodium	662000	ug/L	50000
806910-003	MW-26-191	SW6020	FLDFLT	3/12/2013	14:03	Arsenic	1.7	ug/L	0.50
806910-003	MW-26-191	SW6020	FLDFLT	3/12/2013	14:03	Chromium	1710	ug/L	50.0
806910-003	MW-26-191	SW6020	FLDFLT	3/12/2013	14:03	Manganese	ND	ug/L	0.50
806910-003	MW-26-191	SW6020	FLDFLT	3/12/2013	14:03	Molybdenum	26.8	ug/L	2.0
806910-003	MW-26-191	SW6020	FLDFLT	3/12/2013	14:03	Selenium	42.8	ug/L	5.0
806910-004	MW-20-100-191	E218.6	FLDFLT	3/13/2013	13:52	Chromium, Hexavalent	3170	ug/L	50.0
806910-004	MW-20-100-191	SW6010B	FLDFLT	3/13/2013	13:52	Calcium	164000	ug/L	25000
806910-004	MW-20-100-191	SW6010B	FLDFLT	3/13/2013	13:52	Iron	ND	ug/L	20.0
806910-004	MW-20-100-191	SW6010B	FLDFLT	3/13/2013	13:52	Magnesium	27800	ug/L	1000
806910-004	MW-20-100-191	SW6010B	FLDFLT	3/13/2013	13:52	Sodium	388000	ug/L	50000
806910-004	MW-20-100-191	SW6020	FLDFLT	3/13/2013	13:52	Arsenic	2.0	ug/L	0.50
806910-004	MW-20-100-191	SW6020	FLDFLT	3/13/2013	13:52	Chromium	3290	ug/L	50.0
806910-004	MW-20-100-191	SW6020	FLDFLT	3/13/2013	13:52	Manganese	ND	ug/L	0.50
806910-004	MW-20-100-191	SW6020	FLDFLT	3/13/2013	13:52	Molybdenum	3.8	ug/L	2.0
806910-004	MW-20-100-191	SW6020	FLDFLT	3/13/2013	13:52	Selenium	6.5	ug/L	5.0
806910-005	MW-212-191	E218.6	FLDFLT	3/13/2013	8:15	Chromium, Hexavalent	0.48	ug/L	0.20
806910-005	MW-212-191	SW6020	FLDFLT	3/13/2013	8:15	Chromium	1.2	ug/L	1.0
806910-006	MW-213-191	E218.6	FLDFLT	3/13/2013	8:20	Chromium, Hexavalent	ND	ug/L	0.20
806910-006	MW-213-191	SW6020	FLDFLT	3/13/2013	8:20	Chromium	ND	ug/L	1.0
806910-007	MW-20-130-191	E218.6	FLDFLT	3/14/2013	13:10	Chromium, Hexavalent	9870	ug/L	100
806910-007	MW-20-130-191	SW6010B	FLDFLT	3/14/2013	13:10	Calcium	311000	ug/L	25000
806910-007	MW-20-130-191	SW6010B	FLDFLT	3/14/2013	13:10	Iron	ND	ug/L	20.0
806910-007	MW-20-130-191	SW6010B	FLDFLT	3/14/2013	13:10	Magnesium	21700	ug/L	1000
806910-007	MW-20-130-191	SW6010B	FLDFLT	3/14/2013	13:10	Sodium	2260000	ug/L	200000
806910-007	MW-20-130-191	SW6020	FLDFLT	3/14/2013	13:10	Arsenic	5.2	ug/L	0.50
806910-007	MW-20-130-191	SW6020	FLDFLT	3/14/2013	13:10	Chromium	9690	ug/L	200
806910-007	MW-20-130-191	SW6020	FLDFLT	3/14/2013	13:10	Manganese	ND	ug/L	0.50
806910-007	MW-20-130-191	SW6020	FLDFLT	3/14/2013	13:10	Molybdenum	35.6	ug/L	2.0
806910-007	MW-20-130-191	SW6020	FLDFLT	3/14/2013	13:10	Selenium	21.8	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806910-008	MW-214-191	E218.6	FLDFLT	3/14/2013	7:30	Chromium, Hexavalent	ND	ug/L	0.20
806910-008	MW-214-191	SW6020	FLDFLT	3/14/2013	7:30	Chromium	1.3	ug/L	1.0
806910-009	MW-215-191	E218.6	FLDFLT	3/14/2013	7:35	Chromium, Hexavalent	ND	ug/L	0.20
806910-009	MW-215-191	SW6020	FLDFLT	3/14/2013	7:35	Chromium	ND	ug/L	1.0
806910-010	MW-216-191	E218.6	FLDFLT	3/14/2013	13:25	Chromium, Hexavalent	0.29	ug/L	0.20
806910-010	MW-216-191	SW6020	FLDFLT	3/14/2013	13:25	Chromium	1.6	ug/L	1.0
806910-011	MW-217-191	E218.6	FLDFLT	3/14/2013	12:40	Chromium, Hexavalent	ND	ug/L	0.20
806910-011	MW-217-191	SW6020	FLDFLT	3/14/2013	12:40	Chromium	ND	ug/L	1.0
806910-012	MW-51-191	E218.6	FLDFLT	3/14/2013	10:33	Chromium, Hexavalent	4740	ug/L	50.0
806910-012	MW-51-191	SW6010B	FLDFLT	3/14/2013	10:33	Calcium	256000	ug/L	25000
806910-012	MW-51-191	SW6010B	FLDFLT	3/14/2013	10:33	Iron	ND	ug/L	20.0
806910-012	MW-51-191	SW6010B	FLDFLT	3/14/2013	10:33	Magnesium	18100	ug/L	1000
806910-012	MW-51-191	SW6010B	FLDFLT	3/14/2013	10:33	Sodium	2180000	ug/L	200000
806910-012	MW-51-191	SW6020	FLDFLT	3/14/2013	10:33	Arsenic	4.1	ug/L	0.50
806910-012	MW-51-191	SW6020	FLDFLT	3/14/2013	10:33	Chromium	4950	ug/L	100
806910-012	MW-51-191	SW6020	FLDFLT	3/14/2013	10:33	Manganese	ND	ug/L	0.50
806910-012	MW-51-191	SW6020	FLDFLT	3/14/2013	10:33	Molybdenum	38.3	ug/L	2.0
806910-012	MW-51-191	SW6020	FLDFLT	3/14/2013	10:33	Selenium	14.1	ug/L	5.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

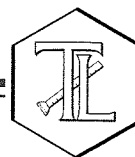
Results below 0.01ppm will have two (2) significant figures.

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

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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.02.GM.03

P.O. Number: 423575.MP.02.GM.03

Release Number:

Laboratory No. 806910

Page 1 of 21

Printed 3/28/2013

Samples Received on 3/15/2013 6:00:00 PM

Field ID	Lab ID	Collected	Matrix
MW-19-191	806910-001	03/12/2013 11:27	Water
MW-20-070-191	806910-002	03/12/2013 16:17	Water
MW-26-191	806910-003	03/12/2013 14:03	Water
MW-20-100-191	806910-004	03/13/2013 13:52	Water
MW-212-191	806910-005	03/13/2013 08:15	Water
MW-213-191	806910-006	03/13/2013 08:20	Water
MW-20-130-191	806910-007	03/14/2013 13:10	Water
MW-214-191	806910-008	03/14/2013 07:30	Water
MW-215-191	806910-009	03/14/2013 07:35	Water
MW-216-191	806910-010	03/14/2013 13:25	Water
MW-217-191	806910-011	03/14/2013 12:40	Water
MW-51-191	806910-012	03/14/2013 10:33	Water

Chrome VI by EPA 218.6

Batch 03CrH13N

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806910-006 Chromium, Hexavalent	ug/L	03/20/2013 11:07	1.00	0.00920	0.20	ND
806910-012 Chromium, Hexavalent	ug/L	03/20/2013 11:17	250	2.30	50.0	4740

Method Blank

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

Duplicate

Lab ID = 806966-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.534	0.516	3.33	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

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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Project Number: 423575.MP.02.GM.03

Printed 3/28/2013

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.00	5.00	100	90 - 110

Matrix Spike

Lab ID = 806910-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.19	1.19(1.00)	99.7	90 - 110

Matrix Spike

Lab ID = 806910-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	9770	9740(5000)	100	90 - 110

Matrix Spike

Lab ID = 806965-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.00(1.00)	106	90 - 110

Matrix Spike

Lab ID = 806966-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.50	1.52(1.00)	98.3	90 - 110

Matrix Spike

Lab ID = 806966-002

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 = 806966-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.52	1.54(1.00)	98.3	90 - 110

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.81	5.00	96.2	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	10.3	10.0	103	95 - 105



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/28/2013

Chrome VI by EPA 218.6

Batch 03CrH13M

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806910-001 Chromium, Hexavalent	ug/L	03/19/2013 16:33	10.0	0.0920	2.0	202
806910-002 Chromium, Hexavalent	ug/L	03/19/2013 11:29	250	2.30	50.0	3160
806910-003 Chromium, Hexavalent	ug/L	03/19/2013 11:40	100	0.920	20.0	1820
806910-004 Chromium, Hexavalent	ug/L	03/19/2013 12:13	250	2.30	50.0	3170
806910-005 Chromium, Hexavalent	ug/L	03/19/2013 12:24	1.00	0.00920	0.20	0.48
806910-007 Chromium, Hexavalent	ug/L	03/19/2013 12:44	500	4.60	100	9870
806910-008 Chromium, Hexavalent	ug/L	03/19/2013 12:55	1.00	0.00920	0.20	ND
806910-009 Chromium, Hexavalent	ug/L	03/19/2013 13:05	1.00	0.00920	0.20	ND
806910-010 Chromium, Hexavalent	ug/L	03/19/2013 13:16	1.00	0.00920	0.20	0.29
806910-011 Chromium, Hexavalent	ug/L	03/19/2013 13:26	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate

Lab ID = 806910-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.474	0.476	0.505	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.213	0.200	106	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.04	5.00	101	90 - 110

Matrix Spike

Lab ID = 806908-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.96	5.00(5.00)	99.3	90 - 110

Matrix Spike

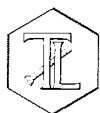
Lab ID = 806908-001

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 = 806908-002

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



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/28/2013

Matrix Spike

Lab ID = 806908-002

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 = 806908-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	195	191(100)	104	90 - 110

Matrix Spike

Lab ID = 806908-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	198	194(100)	104	90 - 110

Matrix Spike

Lab ID = 806909-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	7050	6740(3750)	108	90 - 110

Matrix Spike

Lab ID = 806910-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	467	454(250)	105	90 - 110

Matrix Spike

Lab ID = 806910-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	7260	6910(3750)	109	90 - 110

Matrix Spike

Lab ID = 806910-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	3930	3820(2000)	105	90 - 110

Matrix Spike

Lab ID = 806910-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	6670	6920(3750)	93.4	90 - 110

Matrix Spike

Lab ID = 806910-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.46	1.48(1.00)	98.6	90 - 110

Matrix Spike

Lab ID = 806910-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	500	20300	19900(10000)	104	90 - 110

Matrix Spike

Lab ID = 806910-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.09	1.09(1.00)	99.5	90 - 110

Matrix Spike

Lab ID = 806910-009

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

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 5 of 21****Project Number: 423575.MP.02.GM.03****Printed 3/28/2013****Matrix Spike**

Lab ID = 806910-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.28	1.29(1.00)	99.6	90 - 110

Matrix Spike

Lab ID = 806910-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.990	1.00(1.00)	99.0	90 - 110

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.81	5.00	96.2	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	10.2	10.0	102	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

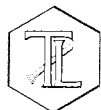
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.2	10.0	102	95 - 105

MRCVS - Primary

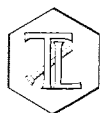
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.3	10.0	103	95 - 105

MRCVS - Primary

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

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 6 of 21****Project Number: 423575.MP.02.GM.03****Printed 3/28/2013****Metals by EPA 6020A, Dissolved****Batch 032113A**

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806910-001 Arsenic	ug/L	03/21/2013 14:24	2.00	0.200	0.50	1.0
Chromium	ug/L	03/21/2013 14:30	5.00	0.460	5.0	197
Manganese	ug/L	03/21/2013 14:24	2.00	0.172	0.50	ND
Molybdenum	ug/L	03/21/2013 14:24	2.00	0.414	2.0	4.9
Selenium	ug/L	03/21/2013 14:24	2.00	0.160	5.0	ND
806910-002 Arsenic	ug/L	03/21/2013 14:49	2.00	0.200	0.50	2.4
Chromium	ug/L	03/21/2013 14:55	50.0	4.60	50.0	3310
Manganese	ug/L	03/21/2013 14:49	2.00	0.172	0.50	ND
Molybdenum	ug/L	03/21/2013 14:49	2.00	0.414	2.0	35.9
Selenium	ug/L	03/21/2013 14:49	2.00	0.160	5.0	6.5
806910-003 Arsenic	ug/L	03/21/2013 15:01	2.00	0.200	0.50	1.7
Chromium	ug/L	03/21/2013 15:07	50.0	4.60	50.0	1710
Manganese	ug/L	03/21/2013 15:01	2.00	0.172	0.50	ND
Molybdenum	ug/L	03/21/2013 15:01	2.00	0.414	2.0	26.8
806910-004 Arsenic	ug/L	03/21/2013 15:19	2.00	0.200	0.50	2.0
Chromium	ug/L	03/21/2013 15:43	50.0	4.60	50.0	3290
Manganese	ug/L	03/21/2013 15:19	2.00	0.172	0.50	ND
Molybdenum	ug/L	03/21/2013 15:19	2.00	0.414	2.0	3.8
Selenium	ug/L	03/21/2013 15:19	2.00	0.160	5.0	6.5
806910-007 Arsenic	ug/L	03/21/2013 15:49	2.00	0.200	0.50	5.2
Chromium	ug/L	03/21/2013 15:55	200	18.4	200	9690
Manganese	ug/L	03/21/2013 15:49	2.00	0.172	0.50	ND
Molybdenum	ug/L	03/21/2013 15:49	2.00	0.414	2.0	35.6
Selenium	ug/L	03/21/2013 15:49	2.00	0.160	5.0	21.8
806910-012 Arsenic	ug/L	03/21/2013 16:01	2.00	0.200	0.50	4.1
Chromium	ug/L	03/21/2013 16:07	100	9.20	100	4950
Manganese	ug/L	03/21/2013 16:01	2.00	0.172	0.50	ND
Molybdenum	ug/L	03/21/2013 16:01	2.00	0.414	2.0	38.3
Selenium	ug/L	03/21/2013 16:01	2.00	0.160	5.0	14.1



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.GM.03

Printed 3/28/2013

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 = 806910-006

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.170	0.200	85.0	70 - 130
Chromium	ug/L	1.00	1.05	1.00	105	70 - 130
Selenium	ug/L	1.00	0.856	1.00	85.6	70 - 130
Manganese	ug/L	1.00	0.197	0.200	98.5	70 - 130
Molybdenum	ug/L	1.00	0.977	1.00	97.7	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.00	50.5	50.0	101	85 - 115
Chromium	ug/L	2.00	50.7	50.0	101	85 - 115
Selenium	ug/L	2.00	49.7	50.0	99.4	85 - 115
Manganese	ug/L	2.00	51.2	50.0	102	85 - 115
Molybdenum	ug/L	2.00	53.4	50.0	107	85 - 115

Matrix Spike

Lab ID = 806910-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	52.0	50.0(50.0)	104	75 - 125
Chromium	ug/L	2.00	52.3	50.0(50.0)	105	75 - 125
Selenium	ug/L	2.00	50.1	50.0(50.0)	100	75 - 125
Manganese	ug/L	2.00	52.9	50.0(50.0)	106	75 - 125
Molybdenum	ug/L	2.00	49.5	50.0(50.0)	99.1	75 - 125

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 8 of 21****Project Number: 423575.MP.02.GM.03****Printed 3/28/2013****Matrix Spike Duplicate**

Lab ID = 806910-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	48.5	50.0(50.0)	97.0	75 - 125
Chromium	ug/L	2.00	49.8	50.0(50.0)	99.5	75 - 125
Selenium	ug/L	2.00	46.2	50.0(50.0)	92.5	75 - 125
Manganese	ug/L	2.00	49.5	50.0(50.0)	99.0	75 - 125
Molybdenum	ug/L	2.00	50.4	50.0(50.0)	101	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.9	20.0	99.4	90 - 110
Chromium	ug/L	1.00	19.8	20.0	99.2	90 - 110
Selenium	ug/L	1.00	20.1	20.0	100	90 - 110
Manganese	ug/L	1.00	19.8	20.0	99.2	90 - 110
Molybdenum	ug/L	1.00	19.6	20.0	98.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.6	20.0	98.0	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	19.4	20.0	96.9	90 - 110

MRCVS - Primary

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	20.1	20.0	101	90 - 110

MRCVS - Primary

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
Selenium	ug/L	1.00	19.3	20.0	96.6	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 11 of 21****Project Number: 423575.MP.02.GM.03****Printed 3/28/2013****Interference Check Standard AB**

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	20.6	20.0	103	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 = 806910-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	25.0	199	197	1.06	0 - 10

Serial Dilution

Lab ID = 806910-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Molybdenum	ug/L	10.0	33.8	35.9	6.07	0 - 10


Client: E2 Consulting Engineers, Inc.
Project Name: PG&E Topock Project
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Project Number: 423575.MP.02.GM.03
Printed 3/28/2013
Metals by EPA 6020A, Dissolved
Batch 032213A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806910-003 Selenium	ug/L	03/22/2013 11:21	2.00	0.160	5.0	42.8

Method Blank

Parameter	Unit	DF	Result
Selenium	ug/L	1.00	ND

Duplicate
Lab ID = 806910-006

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	0.876	1.00	87.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	2.00	50.3	50.0	101	85 - 115

Matrix Spike
Lab ID = 806910-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium	ug/L	2.00	45.5	50.0(50.0)	91.0	75 - 125

Matrix Spike Duplicate
Lab ID = 806910-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium	ug/L	2.00	44.7	50.0(50.0)	89.5	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	18.7	20.0	93.6	90 - 110

MRCVS - Primary

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


Client: E2 Consulting Engineers, Inc.
Project Name: PG&E Topock Project
Page 14 of 21
Project Number: 423575.MP.02.GM.03
Printed 3/28/2013
Metals by EPA 6020A, Dissolved
Batch 032513A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806910-005 Chromium	ug/L	03/25/2013 11:53	2.00	0.184	1.0	1.2
806910-006 Chromium	ug/L	03/25/2013 11:05	2.00	0.184	1.0	ND
806910-008 Chromium	ug/L	03/25/2013 11:59	2.00	0.184	1.0	1.3
806910-009 Chromium	ug/L	03/25/2013 12:05	2.00	0.184	1.0	ND
806910-010 Chromium	ug/L	03/25/2013 12:11	2.00	0.184	1.0	1.6
806910-011 Chromium	ug/L	03/25/2013 12:17	2.00	0.184	1.0	ND

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	0.188	0.200	94.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	54.0	50.0	108	85 - 115

Matrix Spike
Lab ID = 806910-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	49.5	50.0(50.0)	99.0	75 - 125

Matrix Spike Duplicate
Lab ID = 806910-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	48.4	50.0(50.0)	96.8	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

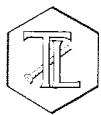
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.7	20.0	103	90 - 110

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		



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 16 of 21

Project Number: 423575.MP.02.GM.03

Printed 3/28/2013

Metals by EPA 6010B, Dissolved

Batch 032213A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806910-001 Calcium	ug/L	03/22/2013 14:19	100	1200	50000	103000
Sodium	ug/L	03/22/2013 14:19	100	39400	100000	314000
806910-002 Calcium	ug/L	03/22/2013 15:01	50.0	600	25000	82800
Sodium	ug/L	03/22/2013 15:01	50.0	19700	50000	358000
806910-003 Calcium	ug/L	03/22/2013 15:07	50.0	600	25000	186000
Sodium	ug/L	03/22/2013 15:07	50.0	19700	50000	662000
806910-004 Calcium	ug/L	03/22/2013 15:14	50.0	600	25000	164000
Sodium	ug/L	03/22/2013 15:14	50.0	19700	50000	388000
806910-007 Calcium	ug/L	03/22/2013 15:20	50.0	600	25000	311000
Sodium	ug/L	03/22/2013 17:03	200	78800	200000	2260000
806910-012 Calcium	ug/L	03/22/2013 15:26	50.0	600	25000	256000
Sodium	ug/L	03/22/2013 17:09	200	78800	200000	2180000

Method Blank

Parameter	Unit	DF	Result
Calcium	ug/L	1.00	ND
Sodium	ug/L	1.00	ND

Duplicate

Lab ID = 806910-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	ug/L	100	101000	103000	2.06	0 - 20
Sodium	ug/L	100	310000	314000	1.38	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	2140	2000	107	85 - 115
Sodium	ug/L	1.00	2170	2000	108	85 - 115

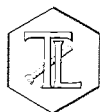
Matrix Spike

Lab ID = 806910-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	ug/L	100	307000	303000(200000)	102	75 - 125
Sodium	ug/L	100	506000	514000(200000)	96.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	5310	5000	106	90 - 110
Sodium	ug/L	1.00	5110	5000	102	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.GM.03

Printed 3/28/2013

Metals by EPA 6010B, Dissolved		Batch 032513A-Th2				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
806910-001 Iron	ug/L	03/25/2013 14:19	1.00	9.50	20.0	ND
Magnesium	ug/L	03/25/2013 13:38	10.0	554	5000	16200
806910-002 Iron	ug/L	03/25/2013 17:12	1.00	9.50	20.0	ND
Magnesium	ug/L	03/25/2013 14:38	2.00	111	1000	22300
806910-003 Iron	ug/L	03/25/2013 17:19	1.00	9.50	20.0	ND
Magnesium	ug/L	03/25/2013 14:44	5.00	277	2500	48700
806910-004 Iron	ug/L	03/25/2013 17:25	1.00	9.50	20.0	ND
Magnesium	ug/L	03/25/2013 14:50	2.00	111	1000	27800
806910-007 Iron	ug/L	03/25/2013 17:31	1.00	9.50	20.0	ND
Magnesium	ug/L	03/25/2013 14:57	2.00	111	1000	21700
806910-012 Iron	ug/L	03/25/2013 17:38	1.00	9.50	20.0	ND
Magnesium	ug/L	03/25/2013 15:03	2.00	111	1000	18100

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND
Magnesium	ug/L	1.00	ND

Duplicate

Lab ID = 806910-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	ND	0	0	0 - 20
Magnesium	ug/L	10.0	16100	16200	0.433	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2070	2000	104	85 - 115
Magnesium	ug/L	1.00	1950	2000	97.7	85 - 115

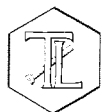
Matrix Spike

Lab ID = 806910-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	1930	2000(2000)	96.6	75 - 125
Magnesium	ug/L	10.0	36300	36200(20000)	101	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5060	5000	101	90 - 110
Magnesium	ug/L	1.00	5010	5000	100	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 21 of 21

Project Number: 423575.MP.02.GM.03

Printed 3/28/2013

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	ug/L	1.00	1890	2000	94.4	80 - 120

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	ug/L	1.00	2070	2000	104	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2200	2000	110	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2120	2000	106	80 - 120

Interference Check Standard AB


Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	ug/L	1.00	1880	2000	93.8	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	ug/L	1.00	1970	2000	98.3	80 - 120

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.


for Mona Nassimi
Manager, Analytical Services

806 910

CH2MHILL

CHAIN OF CUSTODY RECORD

3/15/2013 12:05:30 PM

Page 1 OF 1

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.06-78 Task Order 02.GM.03 Project 2013-GMP-191SAMPLEMETHOD Turnaround Time 10 Days Shipping Date: 3/15/2013 COC Number: 28				Container: 250 ml Poly Preservatives: (NH4)2S O4/NH4O H, 4°C Filtered: Field Holding Time: 28	1x500 ml Poly HNO3, 4°C Field 180	1x500 ml Poly HNO3, 4°C Field 180	1x500 ml Poly HNO3, 4°C Field 180	Metals (6020A/F) Field Filtered As, Mo, Se, Mn, Cr Metals (6010B/F) Field Filtered Ca, Mg, Na, Fe Metals (6020A/F) Field Filtered Chromium Cr6 (E218.6) Field Filtered	Number of Containers COMMENTS
DATE	TIME	Matrix							
MW-19-191	3/12/2013	11:27	Water	X		X	2		
MW-20-070-191	3/12/2013	16:17	Water	X		X	2		
MW-26-191	3/12/2013	14:03	Water	X		X	2		
MW-20-100-191	3/13/2013	13:52	Water	X		X	2		
MW-212-191	3/13/2013	8:15	Water	X	X		2		
MW-213-191	3/13/2013	8:20	Water	X	X		2		
MW-20-130-191	3/14/2013	13:10	Water	X		X	2		
MW-214-191	3/14/2013	7:30	Water	X	X		2		
MW-215-191	3/14/2013	7:35	Water	X	X		2		
MW-216-191	3/14/2013	13:25	Water	X	X		2		
MW-217-191	3/14/2013	12:40	Water	X	X		2		
MW-51-191	3/14/2013	10:33	Water	X		X	2		
TOTAL NUMBER OF CONTAINERS							24		

ALERT !!
Level III QC

Signatures
 Approved by: [Signature]
 Relinquished by: [Signature]
 Received by: [Signature]
Date/Time
 3-15-13 12:30
 3-15-13 6:00
 3/15/13 12:30
 3-15-13 6:00
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:

Feb 4 - Feb 28, 2013

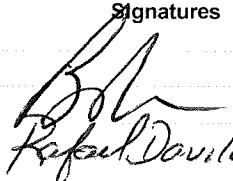
Report Copy to

 Shawn Duffy
 (530) 229-3303

Sample Conditions
 See Form Attached

Project Name PG&E Topock				Container:	250 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly		Number of Containers	COMMENTS
Location Topock				Preservatives:	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C			
Project Manager Jay Piper				Filtered:	Field	Field	Field	Field			
Sample Manager Shawn Duffy				Holding Time:	28	180	180	180			
Project Number 423575.MP.06.TS					C16 (E218.6) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6010BFF) Field Filtered Ca, Mg, Na, Fe	Metals (6020AFF) Field Filtered As, Ito, Se, Mn, Cr			
Task Order											
Project 2013-GMP-191SAMPLEMETHOD											
Turnaround Time 10 Days											
Shipping Date: 3/15/2013											
COC Number: 28											
DATE	TIME	Matrix									
MW-19-191	3/12/2013	11:27	Water	X		X	X			2	
MW-20-070-191	3/12/2013	16:17	Water	X		X	X			2	
MW-26-191	3/12/2013	14:03	Water	X		X	X			2	
MW-20-100-191	3/13/2013	13:52	Water	X		X	X			2	
MW-212-191	3/13/2013	8:15	Water	X	X					2	
MW-213-191	3/13/2013	8:20	Water	X	X					2	
MW-20-130-191	3/14/2013	13:10	Water	X		X	X			2	
MW-214-191	3/14/2013	7:30	Water	X	X					2	
MW-215-191	3/14/2013	7:35	Water	X	X					2	
MW-216-191	3/14/2013	13:25	Water	X	X					2	
MW-217-191	3/14/2013	12:40	Water	X	X					2	
MW-51-191	3/14/2013	10:33	Water	X		X	X			2	
TOTAL NUMBER OF CONTAINERS										24	

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

Signatures

Date/Time
 3-15-13
 1230
 3/15/13 12:30

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

ATTN:

Special Instructions:

Feb 4 - Feb 28, 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
3/13/12	806829-3	9.5	N/A	N/A	N/A	TM
↓	-4	↓	↓	↓	↓	↓
3/13/13	806855-1	7.0	2 mL/100 mL	9.5	17:15	TM
↓	-2	↓	↓	↓	↓	↓
3/14/13	806858-1	9.5	N/A	N/A	N/A	HAV
↓	-2	↓	↓	↓	↓	↓
↓	-3	↓	↓	↓	↓	↓
↓	-4	↓	↓	↓	↓	↓
↓	-5	↓	↓	↓	↓	↓
3/14/13	806872-1	8.0	1 mL/100 mL	9.5	18:15	TM
↓	-2	7.0	2 mL/100 mL	9.5	↓	↓
3/18/13	806908-1	9.5	N/A	N/A	N/A	RB
↓	-2	↓	↓	↓	↓	↓
↓	-3	↓	↓	↓	↓	↓
↓	-4	↓	↓	↓	↓	↓
3/18/13	806909-1	9.5	N/A	N/A	N/A	RB
↓	-2	↓	↓	↓	↓	↓
↓	-3	↓	↓	↓	↓	↓
↓	-4	↓	↓	↓	↓	↓
↓	-5	↓	↓	↓	↓	↓
↓	-6	↓	↓	↓	↓	↓
↓	-7	↓	↓	↓	↓	↓
↓	-8	↓	↓	↓	↓	↓
↓	-9	↓	↓	↓	↓	↓
↓	-10	↓	↓	↓	↓	↓
↓	-11	↓	↓	↓	↓	↓
↓	-12	↓	↓	↓	↓	↓
3/18/13	806910-1	9.5	N/A	N/A	N/A	RB
↓	910-2	↓	↓	↓	↓	↓
↓	910-3	↓	↓	↓	↓	↓
↓	910-4	↓	↓	↓	↓	↓

RB
3/18/13

RB
3/21/13

03/22/13

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

[illegible]



TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806861	<2	<2	3/14/13	DC	yes			
806862	<1	<2	3/14/13	DC	yes			
806848 (10-12)	<1	>2		BC	no	13:30		
806849 (1-7)	1	1		1	no			
806726 (1-5)	<1	<2	3/8/13	BE	yes			
806826	<1	>2	3/15/13	ES	yes	9:00		
806827-1	<1	<2						
806828 (1-3)								
806829 (1-4)								
806877 (1-6)	<1	<2	3/19/13	ES	yes			
806908 (1-4)								
806909 (1-12)								
806910 (1-12)								
806933 (1-7)								
806965	<1	>2	3/20/13	ES	yes	9:30		
806966 (1,3)		<2						
806963	<1	>2	3/20/13	DC	NO	12:10	3/20/13 1:00	pH <2
806918 (1,2,4)	<1	>2			NO	12:10		
806958 (1,2,3)					NO	12:10		
806953 (1,3,4)					NO			
806903	<1	<2			yes			
806904								
806923								
806925								
806926								
806939								
806959								
806960								
806961								
806962								
806963								
806964	>1							
806897	<1							
806899								
806873	>1	<2						
806985	<1	<2	3/21/13	DC	yes			
806999	>1	>2				14:25		
806987	<1	<2	3-22-13	BC	yes			
806982 (1-3)		>2			no	9:30	3/26/13 10:00	pH <2
806983 (1-12)								
807008								
806994	<1	>2		DC	NO	12:10		
807029 (1-8)	<1	>2	3/22/13	DC	NO	16:05		
807011	<1	<2	3/25/13	DC	yes			

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 # 806910

Date Delivered: 03/15/13 Time: 18:00 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)? 4.2 °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





CH2MHILL

Applied Sciences Laboratory

ANALYTICAL REPORT

For:

PGE Topock

ASL Report #: M1240

Project ID: 423575.MP.02.GM.03

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

March 19, 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 #: M1240

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
M124001	MW-112-191	02/13/13 17:46	02/19/13
M124002	MW-44-125-191	02/13/13 15:32	02/19/13
M124003	MW-111-191	02/14/13 14:58	02/19/13
M124004	MW-33-090-191	02/14/13 14:53	02/19/13
M124005	MW-50-095-191	02/14/13 10:15	02/19/13
M124006	MW-44-125MD-191S	02/13/13 11:10	02/19/13
M124007	MW-111H-191SMT	02/14/13 17:00	02/19/13
M124008	MW-111MD-191SMT	02/14/13 12:36	02/19/13
M124009	MW-112H-191SMT	02/14/13 06:52	02/19/13
M124010	MW-112MD-191SMT	02/14/13 07:56	02/19/13
M124011	MW-33-090H-191SMT	02/14/13 11:46	02/19/13
M124012	MW-33-090MD-191S	02/14/13 12:32	02/19/13
M124013	MW-44-125H-191SMT	02/14/13 09:40	02/19/13
M124014	MW-50-095H-191SMT	02/14/13 08:27	02/19/13
M124015	MW-50-095MD-191S	02/14/13 09:29	02/19/13

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO

ASL SDG#: M1240

Project: PGE Topock

Project #: 423575.MP.02.GM.03

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:

Emily Chen

Date:

3/5/13

Reviewed by:

Kathy McKens

Date:

3/6/13

1A-WC

MW-112-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M124001

Date Received: 02/19/13

[illegible]

1A-WC

MW-44-125-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M124002

Date Received: 02/19/13

[illegible]

1A-WC

MW-111-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M124003

[illegible]

1A-WC

MW-33-090-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M124004

Date Received: 02/19/13

[illegible]

MW-50-095-191

Date Received: 02/19/13

[illegible]

WB5-030413

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB5-030413

Date Received: / /

[illegible]

Lab Name: CH2M HILL/LAB/CVO

LCS ID: BS5W0304

Date Analyzed: 03/04/13

Time Analyzed: 1814Concentration Units: MG/L[illegible]

* Values outside of QC limits

Comments:

M1240

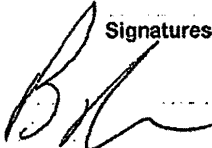
CH2MHILL

CHAIN OF CUSTODY RECORD

2/14/2013 4:47:15 PM

Page 1 OF 1

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.06-78 Task Order 02.GM.03 Project 2013-GMP-191SAMPLEMETHOD Turnaround Time 10 Days Shipping Date: 2/14/2013 COC Number: 3				Container: 250 ml Poly Preservatives: H2SO4, pH<2, 4°C Filtered: NA Holding Time: 28	Nitrate/Nitrite (E353.3)			Number of Containers COMMENTS			
DATE	TIME	MATRIX									
MW-112-191	2/13/2013	17:46	Water	X						1	1
MW-44-125-191	2/13/2013	15:32	Water	X						1	2
MW-111-191	2/14/2013	14:58	Water	X						1	3
MW-33-090-191	2/14/2013	14:53	Water	X						1	4
MW-50-095-191	2/14/2013	10:15	Water	X		1	5				
TOTAL NUMBER OF CONTAINERS							5				

Approved by  Signatures
 Sampled by
 Relinquished by
 Received by
 Relinquished by
 Received by
 Date/Time 2-14-13 1655
 Shipping Details
 Method of Shipment: courier
 On Ice: yes / no 3.4°C
 Airbill No: 124
 Lab Name: CH2M HILL Applied Sciences Lab
 Lab Phone: (541) 752-4271
 REL: M1240-191 2/14/13 e 1700

Special Instructions:
 Feb 4 - Feb 28, 2013
 ATTN:
 Sample Custody
 and
 Kathy McKinley
 Report Copy to
 Shawn Duffy
 (530) 229-3303

McKinley, Kathy/CVO

From: Duffy, Shawn/RDD
Sent: Thursday, March 14, 2013 10:48 AM
To: Contreras, Erlene/RDD; McKinley, Kathy/CVO
Cc: Kumar, Priya/BAO
Subject: RE: Topock M1240 revised COC needed
Attachments: M1240-COC-2013-GMP-191SMT-Topock_03-13-2013spd.pdf

Hi Kathy,

There were three samples is SDG M1240 with the wrong sampling date. I have made corrections on the attached COC, can you please make the corrections in the EDD and hard copy?

Shawn

From: Contreras, Erlene/RDD
Sent: Tuesday, March 12, 2013 12:40 PM
To: Duffy, Shawn/RDD
Cc: Kumar, Priya/BAO
Subject: FW: Topock M1240 revised COC needed
Importance: High

Shawn,

We need to get revised COC for M1240 to correct the sample date.

Erlene

Erlene Contreras
Project Assistant 6
CH2M Hill
2525 Airpark Drive
Redding, CA 96001-2443
Phone 530-229-3247
Fax 530-339-3247
erlene.contreras@ch2m.com

From: Kumar, Priya/BAO
Sent: Tuesday, March 12, 2013 11:47 AM
To: Contreras, Erlene/RDD; Duffy, Shawn/RDD
Subject: RE: Topock M1240 revised COC needed

Hi Erlene,
I checked the purge form for MW-44-125MD (MW-112MD field dup) and it shows the date as 2/13. I think we should go with this date and get the M1240 COC date revised. ATL COC N009613 shows the correct sample date.

Thanks!

Priya Kumar/BAO

qryFieldsample						
COC Number	Location	Field ID	Sample Date	Sample Time	Parent Sample	QAQC Type
M1240	MW-44-125	MW-44-125MD-191SMT	13-Feb-13	11:10		N

Erlene Contreras
Project Assistant 6
CH2M Hill
2525 Airpark Drive
Redding, CA 96001-2443
Phone 530-229-3247
Fax 530-339-3247
erlene.contreras@ch2m.com

From: Contreras, Erlene/RDD
Sent: Friday, March 08, 2013 2:42 PM
To: Duffy, Shawn/RDD
Cc: Kumar, Priya/BAO
Subject: Topock M1240 revised COC needed
Importance: High

Shawn,

Part of the sample IDs have the last two letters "MT" cut off on three samples on COC. Please revise ASAP, then send to ASL to revise IDs for samples M1240006, M1240012 and M1240015.

Thanks,
Erlene

Erlene Contreras
Project Assistant 6
CH2M Hill
2525 Airpark Drive
Redding, CA 96001-2443
Phone 530-229-3247
Fax 530-339-3247
erlene.contreras@ch2m.com



CH2MHILL

Applied Sciences Laboratory

ANALYTICAL REPORT

For:

PGE Topock

ASL Report #: M1333

Project ID: 423575.MP.02.GM.03

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

April 02, 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 #: M1333

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
M133301	MW-46-175-191	02/25/13 16:24	03/05/13
M133302	MW-61-110-191	02/25/13 15:23	03/05/13
M133303	MW-110-191	02/26/13 15:03	03/05/13
M133304	MW-12-191	02/26/13 14:58	03/05/13
M133305	MW-44-115-191	02/26/13 12:35	03/05/13
M133306	MW-46-175H-191SMT	02/25/13 11:25	03/05/13
M133307	MW-46-175MD-191SMT	02/25/13 14:13	03/05/13
M133308	MW-61-110H-191SMT	02/25/13 13:00	03/05/13
M133309	MW-61-110MD-191SMT	02/25/13 14:31	03/05/13
M133310	MW-110H-191SMT	02/26/13 15:03	03/05/13
M133311	MW-110MD-191SMT	02/26/13 14:20	03/05/13
M133312	MW-12H-191SMT	02/26/13 13:26	03/05/13
M133313	MW-12MD-191SMT	02/26/13 14:18	03/05/13
M133314	MW-44-115H-191SMT	02/26/13 09:15	03/05/13
M133315	MW-44-115MD-191SMT	02/26/13 10:55	03/05/13
M133316	MW-33-040-191	02/25/13 10:47	03/05/13
M133317	MW-62-110-191	02/26/13 15:59	03/05/13
M133318	MW-62-190-191	02/26/13 16:05	03/05/13
M133319	MW-70BR-225-191	02/26/13 11:16	03/05/13
M133320	MW-47-115-191	02/27/13 15:09	03/05/13
M133321	MW-50-200-191	02/27/13 15:53	03/05/13
M133322	MW-59-100-191	02/27/13 10:25	03/05/13
M133323	MW-47-115H-191SMT	02/27/13 12:05	03/05/13
M133324	MW-47-115MD-191SMT	02/27/13 13:11	03/05/13
M133325	MW-50-200H-191SMT	02/27/13 11:30	03/05/13
M133326	MW-50-200MD-191SMT	02/27/13 13:30	03/05/13
M133327	MW-59-100H-191SMT	02/27/13 08:26	03/05/13
M133328	MW-59-100MD-191SMT	02/27/13 09:47	03/05/13
M133329	MW-74-240-191	03/01/13 08:15	03/05/13

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO

ASL SDG#: M1333

Project: PGE Topock

Project #: 423575.MP.02.GM.03

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):

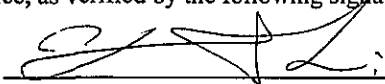
None.

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:

3/26/2013

Reviewed by:

Kathryn McKene

Date:

3/29/13

1A-WC

MW-61-110-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M133302

Date Received: 03/05/13

[illegible]

1A-WC

MW-110-191

Date Received: 03/05/13

[illegible]

1A-WC

MW-12-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M133304

Date Received: 03/05/13

[illegible]

1A-WC

MW-44-115-191

Date Received: 03/05/13

1A-WC

MW-62-110-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M133317

Date Received: 03/05/13

[illegible]

1A-WC

MW-62-190-191

1A-WC

MW-70BR-225-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M133319

Date Received: 03/05/13

[illegible]

1A-WC

MW-47-115-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M133320

Date Received: 03/05/13

[illegible]

1A-WC

MW-50-200-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M133321

Date Received: 03/05/13

[illegible]

1A-WC

MW-59-100-191

1A-WC

MW-74-240-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M133329

Date Received: 03/05/13

[illegible]

1A-WC

WB1-0313

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB1-0313

Date Received: / /

[illegible]

1A-WC

WB1-0322

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB1-0322

Date Received: / /

[illegible]

Concentration Units: MG/L

[illegible]

Comments:

Concentration Units: MG/L[illegible]

Comments:

Concentration Units: MG/L[illegible]

Comments:

m1333

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.06-75 Task Order 02-11-03 Project 2013-GMP-191SAMPLEMETHOD Turnaround Time 10 Days Shipping Date: 2/26/2013 COC Number: 10								
DATE	TIME	Matrix						
MW-46-175-191	2/25/2013	16:24	Water	X			1	1
MW-61-110-191	2/25/2013	15:23	Water	X			1	2
MW-110-191	2/26/2013	15:03	Water	X			1	3
MW-12-191	2/26/2013	14:58	Water	X			1	4
MW-44-115-191	2/26/2013	12:35	Water	X			1	5
TOTAL NUMBER OF CONTAINERS							5	09/20/13

Signatures Approved by <i>[Signature]</i> Sampled by <i>[Signature]</i> Relinquished by <i>[Signature]</i> Received by <i>[Signature]</i> Relinquished by <i>[Signature]</i> Received by <i>[Signature]</i>		Date/Time 2-26-13 1705 2/26/13 1705 2/26/13 1700 2/26/13 1700		Shipping Details Method of Shipment: courier On Ice: yes no 1-6°C Airbill No: 1E#1 Lab Name: CH2M HILL Applied Sciences Lab Lab Phone: (541) 752-4271		ATTN: Sample Custody and Kathy McKinley		Special Instructions: Feb 4 - Feb 28, 2013 Report Copy to Shawn Duffy (530) 229-3303	
--	--	---	--	--	--	---	--	---	--

REL: *[Signature]* 3/4/13 @ 700

Carmen Bell 3/5/13 1030

m1333

CH2MHILL

CHAIN OF CUSTODY RECORD

2/26/2013 4:26:35 PM

Page 1 OF 1

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.02.GM.03 Task Order Project 2013-GMP-191-Q1 Turnaround Time 10 Days Shipping Date: 2/26/2013 COC Number: 14				Container: 1 Liter Poly Preservatives: H2SO4, pH<2, 4°C Filtered: NA Holding Time: 28	Nitrate/Nitrite (SM4500NO3) Nitrate			Number of Containers COMMENTS			
DATE	TIME	MATRIX									
MW-33-040-191	2/25/2013 10:47	Water	X						16	1	17
MW-62-110-191	2/26/2013 15:59	Water	X						17	1	18
MW-62-190-191	2/26/2013 16:05	Water	X						18	1	19
MW-70BR-225-191	2/26/2013 11:16	Water	X		19	1	20				
TOTAL NUMBER OF CONTAINERS						4					

Approved by Sampled by Relinquished by Received by Relinquished by Received by	Signatures 	Date/Time 2/26/13 1705 2/26/13 1705 2/26/13 1705 2/26/13 1705 2/26/13 1705	Shipping Details Method of Shipment: courier On Ice: yes no 1.6°C Airbill No: Lab Name: CH2M HILL Applied Sciences Lab Lab Phone: (541) 752-4271	ATTN: Sample Custody and Kathy McKinley	Special Instructions: Feb 4 - Feb 28, 2013 Report Copy to Shawn Duffy (530) 229-3303
---	----------------------------	---	--	--	--

12EL? 3/4/13 1700 Carmen Bell 3/5/13 1520

M1333

CH2MHILL

CHAIN OF CUSTODY RECORD

3/1/2013 4:28:38 PM

Page 1 OF 1

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.00.15 Task Order 02.6W.03		Nitrate/Nitrite (E353.3)	
Project 2013-GMP-191SAMPLEMETHOD			
Turnaround Time 10 Days			
Shipping Date: 3/1/2013			
COC Number: 17			
DATE TIME Matrix			
MW-47-115-191	2/27/2013 15:09	Water	X
MW-50-200-191	2/27/2013 15:53	Water	X
MW-59-100-191	2/27/2013 10:25	Water	X
TOTAL NUMBER OF CONTAINERS			3

Signatures		Date/Time	Shipping Details		ATTN: Sample Custody and Kathy McKinley	Special Instructions:
Approved by		3-1-13	Method of Shipment: courier			Feb 4 - Feb 28, 2013
Sampled by		1645	On Ice: yes / no 3-4°C			
Relinquished by		3/1/13 1645	Airbill No: 1241			
Received by		3/1/13 1645	Lab Name: CH2M HILL Applied Sciences Lab			
Relinquished by		3/1/13 1645	Lab Phone: (541) 752-4271			
Received by		3/1/13 1645				Report Copy to Shawn Duffy (530) 229-3303
REL: 3/4/13 @ 1700						

CH2MHILL

CHAIN OF CUSTODY RECORD

3/1/2013 4:44:53 PM

Page 1 OF 1

DATE				TIME	Matrix	Number of Containers	COMMENTS
MW-74-240-191	3/1/2013	8:15	Water	X			
TOTAL NUMBER OF CONTAINERS						1	30

Signatures Approved by _____ Sampled by _____ Relinquished by _____ Received by _____ Relinquished by _____ Received by _____ PE: _____	Date/Time 3-1-13 1645 3/1/13 1645 3/1/13 1645 3/1/13 1645 3/4/13 @ 1700	Shipping Details Method of Shipment: courier On Ice: yes / no 5-400 1241 Airbill No: Lab Name: CH2M HILL Applied Sciences Lab Lab Phone: (541) 752-4271 (Doreen Ball 3/5/13 1030)	ATTN: Sample Custody and Kathy McKinley	Special Instructions: Feb 4 - Feb 28, 2013 Report Copy to Shawn Duffy (530) 229-3303
---	--	--	---	---



Batch Number: M1333
Client/Project: TODCK

Date received: 3/5/13
Checked by: on
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		✓	

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 #: M1447

Project ID: 423575.MP.06.TS

Attn: Jay Piper

cc:

Data Center/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager

Kathy McKinley

(541) 758-0235 ext.23144

April 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 #: M1447

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
M144701	MW-20-100H-191SMT	03/13/13 12:04	03/19/13
M144702	MW-20-100MD-191S	03/13/13 12:40	03/19/13
M144703	MW-20-130H-191SMT	03/14/13 11:26	03/19/13
M144704	MW-20-130MD-191S	03/14/13 12:11	03/19/13
M144705	MW-51H-191SMT	03/14/13 08:27	03/19/13
M144706	MW-51MD-191SMT	03/14/13 09:05	03/19/13
M144707	MW-20-100-191	03/13/13 13:52	03/19/13
M144708	MW-20-130-191	03/14/13 13:10	03/19/13
M144709	MW-51-191	03/14/13 10:33	03/19/13

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO

ASL SDG#: M1447

Project: PGE Topock

Project #: 423575.MP.06.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):

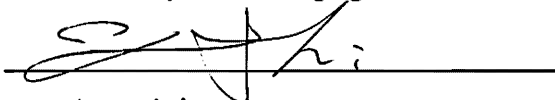
None.

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:

4/3/2013

Reviewed by:

Kathy McKens

Date:

4/3/13

1A-WC

MW-20-100-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M144707

Date Received: 03/19/13

[illegible]

1A-WC

MW-51-191

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M144709

Date Received: 03/19/13

[illegible]

1A-WC

WB1-0322

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB1-0322

Date Received: / /

[illegible]

1A-WC

WB1-0329

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB1-0329

Date Received: / /

[illegible]

Concentration Units: mg/L

Concentration Units: mg/L[illegible]

Comments:

CH2MHILL

CHAIN OF CUSTODY RECORD

3/15/2013 12:12:48 PM

Page 1 OF 1

Project Name PG&E Topock Container: 250 ml Poly					Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
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.06.TS								
Task Order								
Project 2013-GMP-191SAMPLEMETHOD								
Turnaround Time 10 Days								
Shipping Date: 3/15/2013								
COC Number: 32								
DATE TIME Matrix								
MW-20-100-191	3/13/2013	13:52	Water	X			1	7
MW-20-130-191	3/14/2013	13:10	Water	X			1	8
MW-51-191	3/14/2013	10:33	Water	X			1	9
TOTAL NUMBER OF CONTAINERS							3	

	Signatures	Date/Time
Approved by		3-15-13
Sampled by		1230
Relinquished by		
Received by		3/15/13 1
Relinquished by		3/15/13 1
Received by		
2nd: 		3/16/13 @1700

Shipping Details

Method of Shipment: courier

On Ice: ~~yes~~ / no 4-600

Airbill No: 1241

Lab Name: CH2M HILL Applied Sciences Lab

Lab Phone: (541) 752-4271

Special Instructions:
Feb 4 - Feb 28, 2013

ATTN:

Sample Custody
and
Kathy McKinley

Report Copy to
Shawn Duffy
(530) 229-3303

Curran Bell 3/9/13 1030



Batch Number: m1447
Client/Project: Topock

Date received: 3/19/13
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		✓	

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]

March 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.: N009612

RE: PG&E Topock, 423575.MP.06.TS

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on February 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

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



Advanced Technology
Laboratories, Inc.

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.06.TS
Lab Order: N009612

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.06.TS
Lab Order: N009612
Contract No: 2013-GMP-191S

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009612-001A	MW-112-191	Water	2/13/2013 5:46:00 PM	2/14/2013	3/4/2013
N009612-002A	MW-44-125-191	Water	2/13/2013 3:32:00 PM	2/14/2013	3/4/2013
N009612-003A	MW-111-191	Water	2/14/2013 2:58:00 PM	2/14/2013	3/4/2013
N009612-004A	MW-33-090-191	Water	2/14/2013 2:53:00 PM	2/14/2013	3/4/2013
N009612-005A	MW-50-095-191	Water	2/14/2013 10:15:00 AM	2/14/2013	3/4/2013



Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 04-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-112-191
Lab Order:	N009612	Collection Date:	2/13/2013 5:46:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	Matrix:	WATER
Lab ID:	N009612-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130215A	QC Batch: R87640	PrepDate:	Analyst: QBM
Specific Conductance	12000	0.10	0.10
		umhos/cm	1
			2/15/2013

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-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-44-125-191
Lab Order:	N009612	Collection Date:	2/13/2013 3:32:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	Matrix:	WATER
Lab ID:	N009612-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130215A	QC Batch: R87640	PrepDate:	Analyst: QBM
Specific Conductance	12000	0.10	0.10
		umhos/cm	1
			2/15/2013

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-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-111-191
Lab Order:	N009612	Collection Date:	2/14/2013 2:58:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	Matrix:	WATER
Lab ID:	N009612-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130215A	QC Batch: R87640	PrepDate:	Analyst: QBM
Specific Conductance	8800	0.10	0.10
		umhos/cm	1
			2/15/2013

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-Mar-13

CLIENT: CH2M HILL
Lab Order: N009612
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N009612-004

Client Sample ID: MW-33-090-191
Collection Date: 2/14/2013 2:53:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130215A	QC Batch: R87640			PrepDate:		Analyst: QBM
Specific Conductance	8700	0.10	0.10	umhos/cm	1	2/15/2013

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-Mar-13

CLIENT: CH2M HILL
Lab Order: N009612
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N009612-005

Client Sample ID: MW-50-095-191
Collection Date: 2/14/2013 10:15:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130215A	QC Batch: R87640			PrepDate:		Analyst: QBM
Specific Conductance	4600	0.10	0.10	umhos/cm	1	2/15/2013

Qualifiers: B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
E Value above quantitation range
ND Not Detected at the Reporting Limit
Results are wet unless otherwise specified



**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: N009612
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT**TestCode: 120.1_WPGE**

Sample ID: LCS-R87640	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87640			
Client ID: LCSW	Batch ID: R87640	TestNo: EPA 120.1			Analysis Date: 2/15/2013				SeqNo: 1526970		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	9690.000	0.10	9992	0	97.0	85	115				

Sample ID: N009612-003A MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87640			
Client ID: ZZZZZZ	Batch ID: R87640	TestNo: EPA 120.1			Analysis Date: 2/15/2013				SeqNo: 1526973		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	17780.000	0.20	9992	8760	90.3	75	125				

Sample ID: N009612-003A MSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87640			
Client ID: ZZZZZZ	Batch ID: R87640	TestNo: EPA 120.1			Analysis Date: 2/15/2013				SeqNo: 1526974		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	17600.000	0.20	9992	8760	88.5	75	125	17780	1.02	10	

Sample ID: N009612-003A-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87640			
Client ID: ZZZZZZ	Batch ID: R87640	TestNo: EPA 120.1			Analysis Date: 2/15/2013				SeqNo: 1526975		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	8820.000	0.10						8760	0.683	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: 04-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-112-191
Lab Order:	N009612	Collection Date:	2/13/2013 5:46:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	Matrix:	WATER
Lab ID:	N009612-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_130215B	QC Batch: R87653	PrepDate:	Analyst: QBM			
Alkalinity, Bicarbonate (As CaCO3)	76	1.2	5.0	mg/L	1	2/15/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0	mg/L	1	2/15/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	mg/L	1	2/15/2013
Alkalinity, Total (As CaCO3)	76	1.2	5.0	mg/L	1	2/15/2013

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-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-44-125-191
Lab Order:	N009612	Collection Date:	2/13/2013 3:32:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	Matrix:	WATER
Lab ID:	N009612-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_130215B	QC Batch: R87653	PrepDate:	Analyst: QBM			
Alkalinity, Bicarbonate (As CaCO3)	78	1.2	5.0	mg/L	1	2/15/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0	mg/L	1	2/15/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	mg/L	1	2/15/2013
Alkalinity, Total (As CaCO3)	78	1.2	5.0	mg/L	1	2/15/2013

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-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-111-191
Lab Order:	N009612	Collection Date:	2/14/2013 2:58:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	Matrix:	WATER
Lab ID:	N009612-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_130215B	QC Batch: R87653	PrepDate:	Analyst: QBM			
Alkalinity, Bicarbonate (As CaCO3)	67	1.2	5.0	mg/L	1	2/15/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0	mg/L	1	2/15/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	mg/L	1	2/15/2013
Alkalinity, Total (As CaCO3)	67	1.2	5.0	mg/L	1	2/15/2013

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-Mar-13

CLIENT: CH2M HILL
Lab Order: N009612
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N009612-004

Client Sample ID: MW-33-090-191
Collection Date: 2/14/2013 2:53:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_130215B	QC Batch: R87653			PrepDate:		Analyst: QBM
Alkalinity, Bicarbonate (As CaCO3)	67	1.2	5.0	mg/L	1	2/15/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0	mg/L	1	2/15/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	mg/L	1	2/15/2013
Alkalinity, Total (As CaCO3)	67	1.2	5.0	mg/L	1	2/15/2013

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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Laboratories, Inc.**

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 04-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-50-095-191
Lab Order:	N009612	Collection Date:	2/14/2013 10:15:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	Matrix:	WATER
Lab ID:	N009612-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_130215B	QC Batch: R87653	PrepDate:	Analyst: QBM			
Alkalinity, Bicarbonate (As CaCO3)	76	1.2	5.0	mg/L	1	2/15/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0	mg/L	1	2/15/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	mg/L	1	2/15/2013
Alkalinity, Total (As CaCO3)	76	1.2	5.0	mg/L	1	2/15/2013

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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3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N009612
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: LCS-R87653	SampType: LCS	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 87653						
Client ID: LCSW	Batch ID: R87653	TestNo: SM 2320 B		Analysis Date: 2/15/2013	SeqNo: 1527002						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	99.785	5.0	100.0	0	99.8	85	115				
Alkalinity, Total (As CaCO3)	99.785	5.0	100.0	0	99.8	85	115				

Sample ID: MB-R86753	SampType: MBLK	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 87653						
Client ID: PBW	Batch ID: R87653	TestNo: SM 2320 B		Analysis Date: 2/15/2013	SeqNo: 1527003						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	ND	5.0									

Sample ID: N009612-001A MS	SampType: MS	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 87653						
Client ID: ZZZZZZ	Batch ID: R87653	TestNo: SM 2320 B		Analysis Date: 2/15/2013	SeqNo: 1527005						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	174.893	5.0	100.0	76.18	98.7	75	125				
Alkalinity, Total (As CaCO3)	174.893	5.0	100.0	76.18	98.7	75	125				

Sample ID: N009612-001A MSD	SampType: MSD	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 87653						
Client ID: ZZZZZZ	Batch ID: R87653	TestNo: SM 2320 B		Analysis Date: 2/15/2013	SeqNo: 1527006						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	175.966	5.0	100.0	76.18	99.8	75	125	174.9	0.612	20	
Alkalinity, Total (As CaCO3)	175.966	5.0	100.0	76.18	99.8	75	125	174.9	0.612	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		



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: N009612
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: N009612-001A-DUP	SampType: DUP	TestCode: 2320_W_SP	Units: mg/L	Prep Date:					RunNo: 87653		
Client ID: ZZZZZZ	Batch ID: R87653	TestNo: SM 2320 B		Analysis Date: 2/15/2013					SeqNo: 1527007		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	78.326	5.0						76.18	2.78	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	78.326	5.0						76.18	2.78	30	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference



**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-Mar-13

CLIENT: CH2M HILL
Lab Order: N009612
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N009612-001

Client Sample ID: MW-112-191
Collection Date: 2/13/2013 5:46:00 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_130222A	QC Batch: R87832			PrepDate:		Analyst: QBM
Chloride	3900	11	500	mg/L	1000	2/22/2013 12:10 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130222A	QC Batch: R87832			PrepDate:		Analyst: QBM
Sulfate	650	3.5	50	mg/L	100	2/22/2013 01:55 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



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-Mar-13

CLIENT: CH2M HILL
Lab Order: N009612
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N009612-002

Client Sample ID: MW-44-125-191
Collection Date: 2/13/2013 3:32:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	-----	------	-------	----	---------------

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130222A	QC Batch: R87832			PrepDate:	Analyst: QBM		
Chloride	3900	11	500	mg/L	1000	2/22/2013 12:22 PM	

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130222A	QC Batch: R87832			PrepDate:	Analyst: QBM		
Sulfate	640	3.5	50	mg/L	100	2/22/2013 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



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-Mar-13

CLIENT: CH2M HILL
Lab Order: N009612
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N009612-003

Client Sample ID: MW-111-191
Collection Date: 2/14/2013 2:58:00 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_130222A	QC Batch: R87832			PrepDate:		Analyst: QBM
Chloride	3100	11	500	mg/L	1000	2/22/2013 12:34 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130222A	QC Batch: R87832			PrepDate:		Analyst: QBM
Fluoride	5.1	0.12	5.0	mg/L	10	2/22/2013 03:40 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130222A	QC Batch: R87832			PrepDate:		Analyst: QBM
Sulfate	690	3.5	50	mg/L	100	2/22/2013 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-Mar-13

CLIENT: CH2M HILL
Lab Order: N009612
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N009612-004

Client Sample ID: MW-33-090-191
Collection Date: 2/14/2013 2:53:00 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_130222A	QC Batch: R87832			PrepDate:		Analyst: QBM
Chloride	3100	11	500	mg/L	1000	2/22/2013 12:45 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130222A	QC Batch: R87832			PrepDate:		Analyst: QBM
Fluoride	5.7	0.12	5.0	mg/L	10	2/22/2013 03:51 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130222A	QC Batch: R87832			PrepDate:		Analyst: QBM
Sulfate	680	3.5	50	mg/L	100	2/22/2013 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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 04-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-50-095-191
Lab Order:	N009612	Collection Date:	2/14/2013 10:15:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	Matrix:	WATER
Lab ID:	N009612-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
				EPA 300.0			
RunID: IC2_130222A	QC Batch: R87832		PrepDate:		Analyst: QBM		
Chloride	1400	5.5	250		mg/L	500	2/22/2013 04:53 PM
ANIONS BY ION CHROMATOGRAPHY							
				EPA 300.0			
RunID: IC2_130222A	QC Batch: R87832		PrepDate:		Analyst: QBM		
Sulfate	260	1.8	25		mg/L	50	2/22/2013 04:42 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		



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: N009612
 Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT**TestCode: 300_W_CLPGE**

Sample ID: MB-R87832_CL	SampType: MBLK	TestCode: 300_W_CLPG	Units: mg/L	Prep Date:	RunNo: 87832
Client ID: PBW	Batch ID: R87832	TestNo: EPA 300.0		Analysis Date: 2/22/2013	SeqNo: 1534385
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	ND	0.50			

Sample ID: LCS-R87832_CL	SampType: LCS	TestCode: 300_W_CLPG	Units: mg/L	Prep Date:	RunNo: 87832
Client ID: LCSW	Batch ID: R87832	TestNo: EPA 300.0		Analysis Date: 2/22/2013	SeqNo: 1534386
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	2.426	0.50	2.500	0	97.0 90 110

Sample ID: N009612-001ADUP	SampType: DUP	TestCode: 300_W_CLPG	Units: mg/L	Prep Date:	RunNo: 87832
Client ID: ZZZZZZ	Batch ID: R87832	TestNo: EPA 300.0		Analysis Date: 2/22/2013	SeqNo: 1534393
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	3901.000	500			3911 0.256 20

Sample ID: N009612-002AMS	SampType: MS	TestCode: 300_W_CLPG	Units: mg/L	Prep Date:	RunNo: 87832
Client ID: ZZZZZZ	Batch ID: R87832	TestNo: EPA 300.0		Analysis Date: 2/22/2013	SeqNo: 1534394
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	6398.000	500	2500	3911	99.5 80 120

Sample ID: N009612-002AMSD	SampType: MSD	TestCode: 300_W_CLPG	Units: mg/L	Prep Date:	RunNo: 87832
Client ID: ZZZZZZ	Batch ID: R87832	TestNo: EPA 300.0		Analysis Date: 2/22/2013	SeqNo: 1534395
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	6386.000	500	2500	3911	99.0 80 120 6398 0.188 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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Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N009612
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPGE

Sample ID: MB-R87832_F	SampType: MBLK	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 87832						
Client ID: PBW	Batch ID: R87832	TestNo: EPA 300.0	Analysis Date: 2/22/2013	SeqNo: 1534447							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.50									

Sample ID: LCS-R87832_F	SampType: LCS	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 87832						
Client ID: LCSW	Batch ID: R87832	TestNo: EPA 300.0	Analysis Date: 2/22/2013	SeqNo: 1534448							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.456	0.50	2.500	0	98.2	90	110				

Sample ID: N009612-003AMS	SampType: MS	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 87832						
Client ID: ZZZZZZ	Batch ID: R87832	TestNo: EPA 300.0	Analysis Date: 2/22/2013	SeqNo: 1534457							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	30.420	5.0	25.00	5.100	101	80	120				

Sample ID: N009612-003AMSD	SampType: MSD	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 87832						
Client ID: ZZZZZZ	Batch ID: R87832	TestNo: EPA 300.0	Analysis Date: 2/22/2013	SeqNo: 1534458							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	30.160	5.0	25.00	5.100	100	80	120	30.42	0.858	20	

Sample ID: N009612-004ADUP	SampType: DUP	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 87832						
Client ID: ZZZZZZ	Batch ID: R87832	TestNo: EPA 300.0	Analysis Date: 2/22/2013	SeqNo: 1534459							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	4.910	5.0						5.650	0	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		



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: N009612
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: MB-R87832_SO4	SampType: MBLK	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 87832						
Client ID: PBW	Batch ID: R87832	TestNo: EPA 300.0	Analysis Date: 2/22/2013	SeqNo: 1534468							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: LCS-R87832_SO4	SampType: LCS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 87832						
Client ID: LCSW	Batch ID: R87832	TestNo: EPA 300.0	Analysis Date: 2/22/2013	SeqNo: 1534469							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.875	0.50	5.000	0	97.5	90	110				

Sample ID: N009612-001ADUP	SampType: DUP	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 87832						
Client ID: ZZZZZZ	Batch ID: R87832	TestNo: EPA 300.0	Analysis Date: 2/22/2013	SeqNo: 1534478							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	660.800	50						649.3	1.76	20	

Sample ID: N009612-002AMS	SampType: MS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 87832						
Client ID: ZZZZZZ	Batch ID: R87832	TestNo: EPA 300.0	Analysis Date: 2/22/2013	SeqNo: 1534479							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1166.700	50	500.0	641.9	105	80	120				

Sample ID: N009612-002AMSD	SampType: MSD	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 87832						
Client ID: ZZZZZZ	Batch ID: R87832	TestNo: EPA 300.0	Analysis Date: 2/22/2013	SeqNo: 1534480							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1140.500	50	500.0	641.9	99.7	80	120	1167	2.27	20	

Qualifiers:

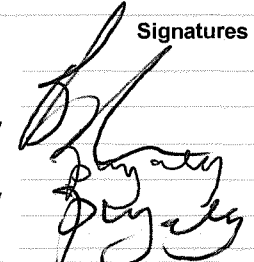
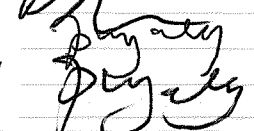
B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



Advanced Technology
Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.06.TS Task Order Project 2013-GMP-191SAMPLEMETHOD Turnaround Time 10 Days Shipping Date: 2/14/2013 COC Number: 1				Container: 1x1 Liter Preservatives: 4°C Filtered: NA Holding Time: 14				Specific Conductance (E120,1) Anions (E300,0) Chloride,Sulfate Anions (E300,0) Chloride,Sulfate,Fluoride Alkalinity (SM2320B)				Number of Containers COMMENTS	
DATE	TIME	Matrix											
MW-112-191	2/13/2013	17:46	Water	X	X		X				1		
MW-44-125-191	2/13/2013	15:32	Water		X		X				1		
MW-44-125-191	2/13/2013	15:32	Water	X							1		
MW-111-191	2/14/2013	14:58	Water	X		X	X				1		
MW-33-090-191	2/14/2013	14:53	Water	X		X	X				1		
MW-50-095-191	2/14/2013	10:15	Water	X	X		X				1		
TOTAL NUMBER OF CONTAINERS											6		

Approved by Sampled by Relinquished by Received by Relinquished by Received by		Signatures  		Date/Time 2-14-13 1655 2/14/13 1655 2/14/13 1701		Shipping Details Method of Shipment: courier On Ice: yes / no 3. yes Airbill No: 1247 Lab Name: ADVANCED TECHNOLOGY LABORATO Lab Phone: (702) 307-2659		ATTN: Sample Custody and Marlon		Special Instructions: Feb 4 - Feb 28, 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: 2/14/2013

Workorder: N009612

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 type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" 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 2/18/13

Reviewed By:

[Signature]

Sample ID: **N009612-001A @ pH 7.69**

A. Standardization of Sulfuric Acid (titrant):

$$\text{Normality of acid} = (A)(B)/(53.00)(C)$$

Where:

A, grams weighed for Na₂CO₃ solution (MS/MSD Stock Solution)

B, mL Na₂CO₃ solution taken for titration, and

C, ml of sulfuric acid used to inflection point

Spike Standards

MS/MSD Stock Na₂CO₃, ACS Grade (1.00 ml = 2500 ug as CaCO₃): Dissolve 2.650 grams of Na₂CO₃ in distilled water and dilute to 1 liter.

LCS Na₂CO₃, ACS Grade (1.00 ml = 2500 ug as CaCO₃): Dissolve 2.650 grams of Na₂CO₃ in distilled water and dilute to 1 liter. The reagent must be purchased from a secondary source

Therefore,

$$\begin{aligned}\text{Normality of Acid} &= (2.65\text{g/L}) (5\text{mL}) / (53.00) (11.65 \text{ mL}) \\ &= \mathbf{0.02146 \text{ N}}\end{aligned}$$

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

$$\text{Total Alkalinity (as CaCO}_3\text{), mg/L} = M_{\text{vol.}} * N \text{ H}_2\text{SO}_4 * \text{DF} * 1000$$

Where:

M_{vol.}, volume titrant used to reach pH 4.5, ml

N, Normality of H₂SO₄

DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

$$\begin{aligned}\text{Total Alkalinity (as CaCO}_3\text{), mg/L} &= (3.55\text{mL}) (0.02146\text{N}) (1) * 1000 \\ &= \mathbf{76.183\text{mg/L}}\end{aligned}$$

NS for
3/1/13

Reporting results in two significant figures,

$$= 76 \text{ mg/L as CaCO}_3$$

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

$$P \text{ alkalinity, mg/L as CaCO}_3 = P_{\text{vol.}} * N \text{ H}_2\text{SO}_4 * DF * 1000$$

$$= (0) (0.02146) (1) * 1000$$

$$= 0$$

Total Alkalinity

$$T \text{ alkalinity, mg/L as CaCO}_3 = M_{\text{vol.}} * N \text{ H}_2\text{SO}_4 * DF * 1000$$

$$= (3.55 \text{ mL}) (0.02146) (1) * 1000$$

$$= 76.183 \text{ mg/L as CaCO}_3$$

Where:

$P_{\text{vol.}}$ - volume titrant used to reach pH 8.3, ml

$M_{\text{vol.}}$ - volume titrant used to reach pH 4.5, ml

N - Normality of H_2SO_4

DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3 , HCO_3 alkalinities as CaCO_3 will be calculated as follows:

Result of Titration	OH Alkalinity as CaCO_3	CO_3 Alkalinity as CaCO_3	HCO_3 Alkalinity as CaCO_3
$P = 0$	0	0	T
$P < \frac{1}{2} T$	0	2P	$T - 2P$
$P = \frac{1}{2} T$	0	2P	0
$P > \frac{1}{2} T$	$2P - T$	$2(T - P)$	0
$P = T$	T	0	0

Therefore,

$$\text{OH Alkalinity as CaCO}_3 = 0$$

$$\text{CO}_3 \text{ Alkalinity as CaCO}_3 = 0$$

$$\text{HCO}_3 \text{ Alkalinity as CaCO}_3 = 76.183 \text{ mg/L}$$

Reporting results in two significant figures,

OH Alkalinity as $\text{CaCO}_3 = 0$

CO_3 Alkalinity as $\text{CaCO}_3 = 0$

HCO_3 Alkalinity as $\text{CaCO}_3 = 76 \text{ mg/L}$

Sample Calculation

METHOD: EPA 300

TEST NAME: INORGANIC ANIONS BY IC

MATRIX: WATER

FORMULA:

Calculate the Nitrate concentration, in mg/L, in the original sample as follows:

$$\text{Chloride, mg/L} = A * DF$$

where:

A = mg/L, IC calculated concentration

DF = dilution factor

For **N009612-001A**, concentration in mg/L are calculated as follows:

$$\begin{aligned}\text{Chloride, mg/L} &= 3.911 * 1000 \\ &= 3911 \text{ mg/L}\end{aligned}$$

Reporting **N009612-001A** results in two significant figures,

$$\text{Chloride, mg/L} = 3900$$

A36/13

March 12, 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.: N009707

RE: PG&E Topock, 423575.MP.02.GM.03

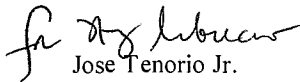
Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on February 26, 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.02.GM.03
Lab Order: N009707

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.02.GM.03
Lab Order: N009707
Contract No: 2013-GMP-191S

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009707-001A	MW-46-175-191	Water	2/25/2013 4:24:00 PM	2/26/2013	3/12/2013
N009707-002A	MW-61-110-191	Water	2/25/2013 3:23:00 PM	2/26/2013	3/12/2013
N009707-003A	MW-110-191	Water	2/26/2013 3:03:00 PM	2/26/2013	3/12/2013
N009707-004A	MW-12-191	Water	2/26/2013 2:58:00 PM	2/26/2013	3/12/2013
N009707-005A	MW-44-115-191	Water	2/26/2013 12:35:00 PM	2/26/2013	3/12/2013



Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-46-175-191
Lab Order:	N009707	Collection Date:	2/25/2013 4:24:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009707-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130227D	QC Batch: R87837	PrepDate:	Analyst: QBM			
Specific Conductance	18000	0.10	0.10	umhos/cm	1	2/27/2013

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: 12-Mar-13

CLIENT: CH2M HILL
Lab Order: N009707
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009707-002

Client Sample ID: MW-61-110-191
Collection Date: 2/25/2013 3:23:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130227D	QC Batch: R87837			PrepDate:		Analyst: QBM
Specific Conductance	15000	0.10	0.10	umhos/cm	1	2/27/2013

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: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-110-191
Lab Order:	N009707	Collection Date:	2/26/2013 3:03:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009707-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130227D	QC Batch: R87837	PrepDate:	Analyst: QBM			
Specific Conductance	6500	0.10	0.10	umhos/cm	1	2/27/2013

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: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-12-191
Lab Order:	N009707	Collection Date:	2/26/2013 2:58:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009707-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130227D	QC Batch: R87837	PrepDate:	Analyst: QBM
Specific Conductance	6500	0.10	0.10
		umhos/cm	1
			2/27/2013

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: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-44-115-191
Lab Order:	N009707	Collection Date:	2/26/2013 12:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009707-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130227D	QC Batch: R87837	PrepDate:	Analyst: QBM			
Specific Conductance	11000	0.10	0.10	umhos/cm	1	2/27/2013

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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CLIENT: CH2M HILL
Work Order: N009707
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: LCS-R87837	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87837			
Client ID: LCSW	Batch ID: R87837	TestNo: EPA 120.1			Analysis Date: 2/27/2013				SeqNo: 1533476		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	9640.000	0.10	9992	0	96.5	85	115				

Sample ID: N009707-003A-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87837			
Client ID: ZZZZZZ	Batch ID: R87837	TestNo: EPA 120.1			Analysis Date: 2/27/2013				SeqNo: 1533479		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6540.000	0.10						6490	0.767	10	

Sample ID: N009707-003A MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87837			
Client ID: ZZZZZZ	Batch ID: R87837	TestNo: EPA 120.1			Analysis Date: 2/27/2013				SeqNo: 1533480		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	16120.000	0.20	9992	6490	96.4	75	125				

Sample ID: N009707-003A MSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87837			
Client ID: ZZZZZZ	Batch ID: R87837	TestNo: EPA 120.1			Analysis Date: 2/27/2013				SeqNo: 1533481		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	16140.000	0.20	9992	6490	96.6	75	125	16120	0.124	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: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-46-175-191
Lab Order:	N009707	Collection Date:	2/25/2013 4:24:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009707-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_130301D	QC Batch: R87860	PrepDate:	Analyst: QBM
Alkalinity, Bicarbonate (As CaCO3)	40	1.2	5.0
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0
Alkalinity, Total (As CaCO3)	40	1.2	5.0

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	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: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-61-110-191
Lab Order:	N009707	Collection Date:	2/25/2013 3:23:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009707-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_130301D	QC Batch: R87860	PrepDate:	Analyst: QBM			
Alkalinity, Bicarbonate (As CaCO3)	53	1.2	5.0	mg/L	1	3/1/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0	mg/L	1	3/1/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	mg/L	1	3/1/2013
Alkalinity, Total (As CaCO3)	53	1.2	5.0	mg/L	1	3/1/2013

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		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-110-191
Lab Order:	N009707	Collection Date:	2/26/2013 3:03:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009707-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_130301D	QC Batch: R87860	PrepDate:	Analyst: QBM			
Alkalinity, Bicarbonate (As CaCO3)	120	1.2	5.0	mg/L	1	3/1/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0	mg/L	1	3/1/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	mg/L	1	3/1/2013
Alkalinity, Total (As CaCO3)	120	1.2	5.0	mg/L	1	3/1/2013

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		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-12-191
Lab Order:	N009707	Collection Date:	2/26/2013 2:58:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009707-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_130301D	QC Batch: R87860	PrepDate:	Analyst: QBM			
Alkalinity, Bicarbonate (As CaCO3)	120	1.2	5.0	mg/L	1	3/1/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0	mg/L	1	3/1/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	mg/L	1	3/1/2013
Alkalinity, Total (As CaCO3)	120	1.2	5.0	mg/L	1	3/1/2013

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		



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ANALYTICAL RESULTS

Print Date: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-44-115-191
Lab Order:	N009707	Collection Date:	2/26/2013 12:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009707-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_130301D	QC Batch: R87860	PrepDate:	Analyst: QBM			
Alkalinity, Bicarbonate (As CaCO3)	72	1.2	5.0	mg/L	1	3/1/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0	mg/L	1	3/1/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	mg/L	1	3/1/2013
Alkalinity, Total (As CaCO3)	72	1.2	5.0	mg/L	1	3/1/2013

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		



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CLIENT: CH2M HILL
 Work Order: N009707
 Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT**TestCode: 2320_W_SP**

Sample ID: LCS-R87860	SampType: LCS	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 87860						
Client ID: LCSW	Batch ID: R87860	TestNo: SM 2320 B		Analysis Date: 3/1/2013	SeqNo: 1534314						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	95.339	5.0	100.0	0	95.3	85	115				
Alkalinity, Total (As CaCO3)	99.576	5.0	100.0	0	99.6	85	115				

Sample ID: MB-R87860	SampType: MBLK	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 87860						
Client ID: PBW	Batch ID: R87860	TestNo: SM 2320 B		Analysis Date: 3/1/2013	SeqNo: 1534315						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.119	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.119	5.0									

Sample ID: N009707-001AMS	SampType: MS	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 87860						
Client ID: ZZZZZZ	Batch ID: R87860	TestNo: SM 2320 B		Analysis Date: 3/1/2013	SeqNo: 1534329						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	137.712	5.0	100.0	40.25	97.5	75	125				
Alkalinity, Total (As CaCO3)	137.712	5.0	100.0	40.25	97.5	75	125				

Sample ID: N009707-001AMSD	SampType: MSD	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 87860						
Client ID: ZZZZZZ	Batch ID: R87860	TestNo: SM 2320 B		Analysis Date: 3/1/2013	SeqNo: 1534330						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	137.712	5.0	100.0	40.25	97.5	75	125	137.7	0	20	
Alkalinity, Total (As CaCO3)	137.712	5.0	100.0	40.25	97.5	75	125	137.7	0	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: N009707
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: N009707-005A-DUP	SampType: DUP	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 87860						
Client ID: ZZZZZZ	Batch ID: R87860	TestNo: SM 2320 B	Analysis Date: 3/1/2013	SeqNo: 1534335							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	72.034	5.0						72.03	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	72.034	5.0						72.03	0	30	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference



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ANALYTICAL RESULTS

Print Date: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-46-175-191
Lab Order:	N009707	Collection Date:	2/25/2013 4:24:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009707-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130301A	QC Batch: R87949	PrepDate:	Analyst: QBM
Chloride	6100 11	500	mg/L 1000 3/1/2013 05:43 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130301A	QC Batch: R87949	PrepDate:	Analyst: QBM
Sulfate	740 3.5	50	mg/L 100 3/1/2013 07:04 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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-61-110-191
Lab Order:	N009707	Collection Date:	2/25/2013 3:23:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009707-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130301A	QC Batch: R87949	PrepDate:	Analyst: QBM
Chloride	5300 11	500	mg/L 1000 3/1/2013 05:55 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130301A	QC Batch: R87949	PrepDate:	Analyst: QBM
Sulfate	660 3.5	50	mg/L 100 3/1/2013 07:28 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: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-110-191
Lab Order:	N009707	Collection Date:	2/26/2013 3:03:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009707-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130301A	QC Batch: R87949	PrepDate:	Analyst: QBM
Chloride	1800 5.5	250	mg/L 500 3/1/2013 06:06 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130301A	QC Batch: R87949	PrepDate:	Analyst: QBM
Sulfate	450 1.8	25	mg/L 50 3/1/2013 07:51 PM

Qualifiers:	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-12-191
Lab Order:	N009707	Collection Date:	2/26/2013 2:58:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009707-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130301A	QC Batch: R87949	PrepDate:	Analyst: QBM
Chloride	1800 5.5	250	mg/L 500 3/1/2013 06:18 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130301A	QC Batch: R87949	PrepDate:	Analyst: QBM
Sulfate	450 1.8	25	mg/L 50 3/1/2013 08:03 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	



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: 12-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-44-115-191
Lab Order:	N009707	Collection Date:	2/26/2013 12:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009707-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130301A	QC Batch: R87949	PrepDate:	Analyst: QBM
Chloride	3300 11	500	mg/L 1000 3/1/2013 06:53 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130301A	QC Batch: R87949	PrepDate:	Analyst: QBM
Sulfate	730 3.5	50	mg/L 100 3/1/2013 08:14 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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3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N009707
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT**TestCode: 300_W_CLPGE**

Sample ID: MB-R87949_CL	SampType: MBLK	TestCode: 300_W_CLPG Units: mg/L				Prep Date:				RunNo: 87949		
Client ID: PBW	Batch ID: R87949	TestNo: EPA 300.0				Analysis Date: 3/1/2013				SeqNo: 1537442		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chloride	ND	0.50										

Sample ID: LCS-R87949_CL	SampType: LCS	TestCode: 300_W_CLPG Units: mg/L				Prep Date:				RunNo: 87949		
Client ID: LCSW	Batch ID: R87949	TestNo: EPA 300.0				Analysis Date: 3/1/2013				SeqNo: 1537443		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chloride	2.390	0.50	2.500	0	95.6	90	110					

Sample ID: N009705-010ADUP	SampType: DUP	TestCode: 300_W_CLPG Units: mg/L				Prep Date:				RunNo: 87949		
Client ID: ZZZZZZ	Batch ID: R87949	TestNo: EPA 300.0				Analysis Date: 3/1/2013				SeqNo: 1537455		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chloride	3604.000	250						3672	1.86	20		

Sample ID: N009705-009AMS	SampType: MS	TestCode: 300_W_CLPG Units: mg/L				Prep Date:				RunNo: 87949		
Client ID: ZZZZZZ	Batch ID: R87949	TestNo: EPA 300.0				Analysis Date: 3/1/2013				SeqNo: 1537458		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chloride	2937.000	250	1250	1706	98.5	80	120					

Sample ID: N009705-009AMSD	SampType: MSD	TestCode: 300_W_CLPG Units: mg/L				Prep Date:				RunNo: 87949		
Client ID: ZZZZZZ	Batch ID: R87949	TestNo: EPA 300.0				Analysis Date: 3/1/2013				SeqNo: 1537459		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chloride	2947.000	250	1250	1706	99.3	80	120	2937	0.340	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		



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: N009707
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: N009707-002AMS	SampType: MS	TestCode: 300_W_CLPG	Units: mg/L	Prep Date:	RunNo: 87949						
Client ID: ZZZZZZ	Batch ID: R87949	TestNo: EPA 300.0		Analysis Date: 3/1/2013	SeqNo: 1537467						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	8047.000	500	2500	5295	110	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference



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CLIENT: CH2M HILL
Work Order: N009707
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: MB-R87949_SO4	SampType: MBLK	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 87949						
Client ID: PBW	Batch ID: R87949	TestNo: EPA 300.0	Analysis Date: 3/1/2013	SeqNo: 1537554							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: LCS-R87949_SO4	SampType: LCS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 87949						
Client ID: LCSW	Batch ID: R87949	TestNo: EPA 300.0	Analysis Date: 3/1/2013	SeqNo: 1537555							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.816	0.50	5.000	0	96.3	90	110				

Sample ID: N009705-010ADUP	SampType: DUP	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 87949						
Client ID: ZZZZZZ	Batch ID: R87949	TestNo: EPA 300.0	Analysis Date: 3/1/2013	SeqNo: 1537564							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	723.600	50						717.4	0.861	20	

Sample ID: N009705-009AMS	SampType: MS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 87949						
Client ID: ZZZZZZ	Batch ID: R87949	TestNo: EPA 300.0	Analysis Date: 3/1/2013	SeqNo: 1537568							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	703.500	25	250.0	456.6	98.8	80	120				

Sample ID: N009705-009AMSD	SampType: MSD	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 87949						
Client ID: ZZZZZZ	Batch ID: R87949	TestNo: EPA 300.0	Analysis Date: 3/1/2013	SeqNo: 1537569							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	705.900	25	250.0	456.6	99.7	80	120	703.5	0.341	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		



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: N009707
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: N009707-002AMS	SampType: MS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 87949						
Client ID: ZZZZZZ	Batch ID: R87949	TestNo: EPA 300.0	Analysis Date: 3/1/2013	SeqNo: 1537575							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1150.300	50	500.0	663.2	97.4	80	120				

Qualifiers:

B	Analyte detected in 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

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.0075 Task Order 102.GM.A3 Project 2013-GMP-191SAMPLEMETHOD Turnaround Time 10 Days Shipping Date: 2/26/2013 COC Number: 8				Container: 1x1 Liter Preservatives: 4°C Filtered: NA Holding Time: 14			Specific Conductance (E120.1) Anions (E300.0) Chloride, Sulfate Alkalinity (SM2320B)			Number of Containers		COMMENTS	
DATE TIME Matrix							1009707						
MW-46-175-191	2/25/2013	16:24	Water	X	X	X	- 1		1				
MW-61-110-191	2/25/2013	15:23	Water	X	X	X	- 2		1				
MW-110-191	2/26/2013	15:03	Water	X	X	X	- 3		1				
MW-12-191	2/26/2013	14:58	Water	X	X	X	- 4		1				
MW-44-115-191	2/26/2013	12:35	Water	X	X	X	- 5		1				
TOTAL NUMBER OF CONTAINERS									5				

Approved by Sampled by Relinquished by Received by Relinquished by Received by		Signatures Date/Time 2-26-13 1705 2/26/13 1700 2/26/13 1700 2/26/13 1700		Shipping Details Method of Shipment: courier On Ice: yes / no 2.2°C / 2.4°C Airbill No: 1R#1 Lab Name: ADVANCED TECHNOLOGY LABORATO Lab Phone: (702) 307-2659		ATTN: Sample Custody and Marion		Special Instructions: Feb 4 - Feb 28, 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: 2/26/2013

Workorder: N009707

Rep sample Temp (Deg C): 2.2, 2.4

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 type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" 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

2/27/13

Reviewed By:



Sample ID: N009707-001^A @ pH 8.19

ns for 3/12/13

A. Standardization of Sulfuric Acid (titrant):

$$\text{Normality of acid} = (A)(B)/(53.00)(C)$$

Where:

A, grams weighed for Na₂CO₃ solution (MS/MSD Stock Solution)

B, mL Na₂CO₃ solution taken for titration, and

C, ml of sulfuric acid used to inflection point

Spike Standards

MS/MSD Stock Na₂CO₃, ACS Grade (1.00 ml = 2500 ug as CaCO₃): Dissolve 2.650 grams of Na₂CO₃ in distilled water and dilute to 1 liter.

LCS Na₂CO₃, ACS Grade (1.00 ml = 2500 ug as CaCO₃): Dissolve 2.650 grams of Na₂CO₃ in distilled water and dilute to 1 liter. The reagent must be purchased from a secondary source

Therefore,

$$\begin{aligned}\text{Normality of Acid} &= (2.65\text{g/L}) (5\text{mL}) / (53.00) (11.80 \text{ mL}) \\ &= 0.02119 \text{ N}\end{aligned}$$

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

$$\text{Total Alkalinity (as CaCO}_3\text{), mg/L} = M_{\text{vol.}} * N \text{ H}_2\text{SO}_4 * \text{DF} * 1000$$

Where:

M_{vol.}, volume titrant used to reach pH 4.5, ml

N, Normality of H₂SO₄

DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

$$\begin{aligned}\text{Total Alkalinity (as CaCO}_3\text{), mg/L} &= (1.90\text{mL}) (0.02119\text{N}) (1) * 1000 \\ &= 40.261\text{mg/L}\end{aligned}$$

ns for
3/12/13
47

Reporting results in two significant figures,

$$= 40 \text{ mg/L as CaCO}_3$$

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

$$P \text{ alkalinity, mg/L as CaCO}_3 = P_{\text{vol.}} * N \text{ H}_2\text{SO}_4 * DF * 1000$$

$$= (0) (0.02119) (1) * 1000$$

$$= 0$$

Total Alkalinity

$$T \text{ alkalinity, mg/L as CaCO}_3 = M_{\text{vol.}} * N \text{ H}_2\text{SO}_4 * DF * 1000$$

$$= (1.90\text{mL}) (0.02119) (1) * 1000$$

$$= 40.261 \text{ mg/L as CaCO}_3$$

Where:

$P_{\text{vol.}}$ - volume titrant used to reach pH 8.3, ml

$M_{\text{vol.}}$ - volume titrant used to reach pH 4.5, ml

N - Normality of H_2SO_4

DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3 , HCO_3 alkalinities as CaCO_3 will be calculated as follows:

Result of Titration	OH Alkalinity as CaCO_3	CO_3 Alkalinity as CaCO_3	HCO_3 Alkalinity as CaCO_3
$P = 0$	0	0	T
$P < \frac{1}{2} T$	0	2P	$T - 2P$
$P = \frac{1}{2} T$	0	2P	0
$P > \frac{1}{2} T$	$2P - T$	$2(T - P)$	0
$P = T$	T	0	0

Therefore,

$$\text{OH Alkalinity as CaCO}_3 = 0$$

$$\text{CO}_3 \text{ Alkalinity as CaCO}_3 = 0$$

$$\text{HCO}_3 \text{ Alkalinity as CaCO}_3 = 40.261 \text{ mg/L}$$

Reporting results in two significant figures,

OH Alkalinity as $\text{CaCO}_3 = 0$

CO_3 Alkalinity as $\text{CaCO}_3 = 0$

HCO_3 Alkalinity as $\text{CaCO}_3 = 40 \text{ mg/L}$

Sample Calculation

METHOD: EPA 300

TEST NAME: INORGANIC ANIONS BY IC

MATRIX: WATER

FORMULA:

Calculate the Chloride concentration, in mg/L, in the original sample as follows:

$$\text{Chloride, mg/L} = A * DF$$

where:

A = mg/L, IC calculated concentration

DF = dilution factor

For **N009707-001A**, concentration in mg/L are calculated as follows:

$$\begin{aligned}\text{Chloride, mg/L} &= 6.067 * 1000 \\ &= 6067 \text{ mg/L}\end{aligned}$$

Reporting **N009707-001A** results in two significant figures,

$$\text{Chloride, mg/L} = 6100$$

A3/11/13

March 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.: N009742

RE: PG&E Topock, 423575.MP.02.GM.03

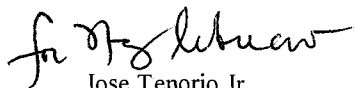
Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on March 01, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,



Jose Tenorio Jr.

Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



**Advanced Technology
Laboratories, Inc.**

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.02.GM.03
Lab Order: N009742

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.02.GM.03
Lab Order: N009742
Contract No: 2013-GMP-191S

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009742-001A	MW-47-115-191	Water	2/27/2013 3:09:00 PM	3/1/2013	3/15/2013
N009742-002A	MW-50-200-191	Water	2/27/2013 3:53:00 PM	3/1/2013	3/15/2013
N009742-003A	MW-59-100-191	Water	2/27/2013 10:25:00 AM	3/1/2013	3/15/2013



Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 15-Mar-13

CLIENT: CH2M HILL
Lab Order: N009742
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009742-001

Client Sample ID: MW-47-115-191
Collection Date: 2/27/2013 3:09:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130304B	QC Batch: R87879			PrepDate:		Analyst: QBM
Specific Conductance	13000	0.10	0.10	umhos/cm	1	3/4/2013

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-Mar-13

CLIENT: CH2M HILL
Lab Order: N009742
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009742-002

Client Sample ID: MW-50-200-191
Collection Date: 2/27/2013 3:53:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130304B	QC Batch: R87879			PrepDate:		Analyst: QBM
Specific Conductance	20000	0.10	0.10	umhos/cm	1	3/4/2013

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-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-59-100-191
Lab Order:	N009742	Collection Date:	2/27/2013 10:25:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009742-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130304B	QC Batch: R87879	PrepDate:	Analyst: QBM			
Specific Conductance	9800	0.10	0.10	umhos/cm	1	3/4/2013

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: N009742
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT**TestCode: 120.1_WPGE**

Sample ID: LCS-R87879	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87879			
Client ID: LCSW	Batch ID: R87879	TestNo: EPA 120.1			Analysis Date: 3/4/2013				SeqNo: 1535302		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	95600.000	0.10	100000	0	95.6	85	115				

Sample ID: N009742-003A-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87879			
Client ID: ZZZZZZ	Batch ID: R87879	TestNo: EPA 120.1			Analysis Date: 3/4/2013				SeqNo: 1535306		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	9130.000	0.10						9820	7.28	10	

Sample ID: N009742-003A MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87879			
Client ID: ZZZZZZ	Batch ID: R87879	TestNo: EPA 120.1			Analysis Date: 3/4/2013				SeqNo: 1535308		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	117600.000	0.20	100000	9820	108	75	125				

Sample ID: N009742-003A MSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 87879			
Client ID: ZZZZZZ	Batch ID: R87879	TestNo: EPA 120.1			Analysis Date: 3/4/2013				SeqNo: 1535309		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	117200.000	0.20	100000	9820	107	75	125	117600	0.341	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-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-47-115-191
Lab Order:	N009742	Collection Date:	2/27/2013 3:09:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009742-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_130304D	QC Batch: R87887	PrepDate:	Analyst: QBM			
Alkalinity, Bicarbonate (As CaCO3)	49	1.2	5.0	mg/L	1	3/4/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0	mg/L	1	3/4/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	mg/L	1	3/4/2013
Alkalinity, Total (As CaCO3)	49	1.2	5.0	mg/L	1	3/4/2013

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: 15-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-50-200-191
Lab Order:	N009742	Collection Date:	2/27/2013 3:53:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009742-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_130304D	QC Batch: R87887	PrepDate:	Analyst: QBM			
Alkalinity, Bicarbonate (As CaCO3)	35	1.2	5.0	mg/L	1	3/4/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0	mg/L	1	3/4/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	mg/L	1	3/4/2013
Alkalinity, Total (As CaCO3)	35	1.2	5.0	mg/L	1	3/4/2013

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: 15-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-59-100-191
Lab Order:	N009742	Collection Date:	2/27/2013 10:25:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009742-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_130304D	QC Batch: R87887	PrepDate:	Analyst: QBM			
Alkalinity, Bicarbonate (As CaCO3)	120	1.2	5.0	mg/L	1	3/4/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0	mg/L	1	3/4/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	mg/L	1	3/4/2013
Alkalinity, Total (As CaCO3)	120	1.2	5.0	mg/L	1	3/4/2013

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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3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
 Work Order: N009742
 Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT**TestCode: 2320_W_SP**

Sample ID: LCS-R87887	SampType: LCS	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 87887						
Client ID: LCSW	Batch ID: R87887	TestNo: SM 2320 B		Analysis Date: 3/4/2013	SeqNo: 1535558						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	91.476	5.0	100.0	0	91.5	85	115				
Alkalinity, Total (As CaCO3)	97.713	5.0	100.0	0	97.7	85	115				

Sample ID: MB-R87887	SampType: MBLK	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 87887						
Client ID: PBW	Batch ID: R87887	TestNo: SM 2320 B		Analysis Date: 3/4/2013	SeqNo: 1535559						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.079	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.079	5.0									

Sample ID: N009742-001A DUP	SampType: DUP	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 87887						
Client ID: ZZZZZZ	Batch ID: R87887	TestNo: SM 2320 B		Analysis Date: 3/4/2013	SeqNo: 1535561						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	48.857	5.0						48.86	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	48.857	5.0						48.86	0	30	

Sample ID: N009743-004A MS	SampType: MS	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 87887						
Client ID: ZZZZZZ	Batch ID: R87887	TestNo: SM 2320 B		Analysis Date: 3/4/2013	SeqNo: 1535568						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	133.056	5.0	100.0	37.42	95.6	75	125				
Alkalinity, Total (As CaCO3)	133.056	5.0	100.0	37.42	95.6	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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CLIENT: CH2M HILL
Work Order: N009742
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: N009743-004A MSD	SampType: MSD	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 87887						
Client ID: ZZZZZZ	Batch ID: R87887	TestNo: SM 2320 B	Analysis Date: 3/4/2013	SeqNo: 1535569							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	133.056	5.0	100.0	37.42	95.6	75	125	133.1	0	20	
Alkalinity, Total (As CaCO3)	133.056	5.0	100.0	37.42	95.6	75	125	133.1	0	20	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 15-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-47-115-191
Lab Order:	N009742	Collection Date:	2/27/2013 3:09:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009742-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130305A	QC Batch: R87988	PrepDate:	Analyst: QBM
Chloride	4200 11	500	mg/L 1000 3/5/2013 02:39 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130305A	QC Batch: R87988	PrepDate:	Analyst: QBM
Sulfate	700 3.5	50	mg/L 100 3/5/2013 03:49 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: 15-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-50-200-191
Lab Order:	N009742	Collection Date:	2/27/2013 3:53:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009742-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130305A	QC Batch: R87988	PrepDate:	Analyst: QBM
Chloride	7200 11	500	mg/L 1000 3/5/2013 02:51 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130305A	QC Batch: R87988	PrepDate:	Analyst: QBM
Sulfate	980 3.5	50	mg/L 100 3/5/2013 04:12 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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 15-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-59-100-191
Lab Order:	N009742	Collection Date:	2/27/2013 10:25:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009742-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130305A	QC Batch: R87988	PrepDate:	Analyst: QBM
Chloride	3100 11	500	mg/L 1000 3/5/2013 03:02 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130305A	QC Batch: R87988	PrepDate:	Analyst: QBM
Sulfate	660 3.5	50	mg/L 100 3/5/2013 04:47 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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CLIENT: CH2M HILL
Work Order: N009742
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT**TestCode: 300_W_CLPGE**

Sample ID: MB-R87988_CL	SampType: MBLK	TestCode: 300_W_CLPG Units: mg/L				Prep Date:				RunNo: 87988		
Client ID: PBW	Batch ID: R87988	TestNo: EPA 300.0				Analysis Date: 3/5/2013				SeqNo: 1539008		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chloride	ND	0.50										

Sample ID: LCS-R87988_CL	SampType: LCS	TestCode: 300_W_CLPG Units: mg/L				Prep Date:				RunNo: 87988		
Client ID: LCSW	Batch ID: R87988	TestNo: EPA 300.0				Analysis Date: 3/5/2013				SeqNo: 1539009		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chloride	2.442	0.50	2.500	0	97.7	90	110					

Sample ID: N009753-005DMS	SampType: MS	TestCode: 300_W_CLPG Units: mg/L				Prep Date:				RunNo: 87988		
Client ID: ZZZZZZ	Batch ID: R87988	TestNo: EPA 300.0				Analysis Date: 3/5/2013				SeqNo: 1539017		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chloride	65.150	5.0	25.00	39.03	104	80	120					

Sample ID: N009753-005DMSD	SampType: MSD	TestCode: 300_W_CLPG Units: mg/L				Prep Date:				RunNo: 87988		
Client ID: ZZZZZZ	Batch ID: R87988	TestNo: EPA 300.0				Analysis Date: 3/5/2013				SeqNo: 1539018		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chloride	64.950	5.0	25.00	39.03	104	80	120	65.15	0.307	20		

Sample ID: N009753-005DDUP	SampType: DUP	TestCode: 300_W_CLPG Units: mg/L				Prep Date:				RunNo: 87988		
Client ID: ZZZZZZ	Batch ID: R87988	TestNo: EPA 300.0				Analysis Date: 3/5/2013				SeqNo: 1539021		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chloride	39.190	5.0						39.03	0.409	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: N009742
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: N009742-001AMS	SampType: MS	TestCode: 300_W_CLPG Units: mg/L			Prep Date:			RunNo: 87988			
Client ID: ZZZZZZ	Batch ID: R87988	TestNo: EPA 300.0			Analysis Date: 3/5/2013			SeqNo: 1539027			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	6748.000	500	2500	4152	104	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference



**Advanced Technology
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CLIENT: CH2M HILL
Work Order: N009742
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: MB-R87988_SO4	SampType: MBLK	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:				RunNo: 87988			
Client ID: PBW	Batch ID: R87988	TestNo: EPA 300.0		Analysis Date: 3/5/2013				SeqNo: 1539067			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: LCS-R87988_SO4	SampType: LCS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:				RunNo: 87988			
Client ID: LCSW	Batch ID: R87988	TestNo: EPA 300.0		Analysis Date: 3/5/2013				SeqNo: 1539068			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.947	0.50	5.000	0	98.9	90	110				

Sample ID: N009753-005DDUP	SampType: DUP	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:				RunNo: 87988			
Client ID: ZZZZZZ	Batch ID: R87988	TestNo: EPA 300.0		Analysis Date: 3/5/2013				SeqNo: 1539075			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	5.380	0.50					5.469	1.64	20		

Sample ID: N009753-005DMS	SampType: MS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:				RunNo: 87988			
Client ID: ZZZZZZ	Batch ID: R87988	TestNo: EPA 300.0		Analysis Date: 3/5/2013				SeqNo: 1539076			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	10.396	0.50	5.000	5.469	98.5	80	120				

Sample ID: N009753-005DMSD	SampType: MSD	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:				RunNo: 87988			
Client ID: ZZZZZZ	Batch ID: R87988	TestNo: EPA 300.0		Analysis Date: 3/5/2013				SeqNo: 1539077			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	10.242	0.50	5.000	5.469	95.5	80	120	10.40	1.49	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: N009742
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: N009742-001AMS	SampType: MS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 87988						
Client ID: ZZZZZZ	Batch ID: R87988	TestNo: EPA 300.0	Analysis Date: 3/5/2013	SeqNo: 1539082							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1175.800	50	500.0	695.3	96.1	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference



**Advanced Technology
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Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.02.GM.03 Task Order Project 2013-GMP-191SAMPLEMETHOD Turnaround Time 10 Days Shipping Date: 3/1/2013 COC Number: 15				Container: 1x1 Liter Preservatives: 4°C Filtered: NA Holding Time: 14 Specific Conductance (E120.1) Anions (E300.0) Chloride, Sulfate Alkalinity (SM2320B)			DATE TIME Matrix MW-47-115-191 2/27/2013 15:09 Water MW-50-200-191 2/27/2013 15:53 Water MW-59-100-191 2/27/2013 10:25 Water				Number of Containers COMMENTS		
				X X X X X X X X X			N009742 -1 -2 -3				1 1 1		
TOTAL NUMBER OF CONTAINERS											3		

Approved by Sampled by Relinquished by Received by Relinquished by Received by		Signatures Date/Time 3-1-13 1645 3/1/13 1645 3/1/13 1900		Shipping Details Method of Shipment: courier On Ice: yes / no 2.6°C Airbill No: 1241 Lab Name: ADVANCED TECHNOLOGY LABORATO Lab Phone: (702) 307-2659		ATTN: Sample Custody and Marlon		Special Instructions: Feb 4 - Feb 28, 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: 3/1/2013

Workorder: N009742

Rep sample Temp (Deg C): 2.6

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 type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" 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

3/4/13

Reviewed By:

[Signature]

Sample ID: **N009742-001A @ pH 7.63**

A. Standardization of Sulfuric Acid (titrant):

$$\text{Normality of acid} = (A)(B)/(53.00)(C)$$

Where:

A, grams weighed for Na_2CO_3 solution (MS/MSD Stock Solution)

B, mL Na_2CO_3 solution taken for titration, and

C, ml of sulfuric acid used to inflection point

Spike Standards

MS/MSD Stock Na_2CO_3 , ACS Grade (1.00 ml = 2500 ug as CaCO_3): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS Na_2CO_3 , ACS Grade (1.00 ml = 2500 ug as CaCO_3): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter. The reagent must be purchased from a secondary source

Therefore,

$$\begin{aligned}\text{Normality of Acid} &= (2.65\text{g/L}) (5\text{mL}) / (53.00) (12.025 \text{ mL}) \\ &= \mathbf{0.02079 \text{ N}}\end{aligned}$$

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

$$\text{Total Alkalinity (as } \text{CaCO}_3\text{), mg/L} = M_{\text{vol.}} * N \text{ H}_2\text{SO}_4 * \text{DF} * 1000$$

Where:

$M_{\text{vol.}}$, volume titrant used to reach pH 4.5, ml

N, Normality of H_2SO_4

DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

$$\begin{aligned}\text{Total Alkalinity (as } \text{CaCO}_3\text{), mg/L} &= (2.35\text{mL}) (0.02079\text{N}) (1) * 1000 \\ &= \mathbf{48.86 \text{ mg/L}}\end{aligned}$$

by
3/13/13

Reporting results in two significant figures,

$$= 49 \text{ mg/L as CaCO}_3$$

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

$$P \text{ alkalinity, mg/L as CaCO}_3 = P_{\text{vol.}} \cdot N \text{ H}_2\text{SO}_4 \cdot DF \cdot 1000$$

$$= (0) (0.02079) (1) \cdot 1000$$

$$= 0$$

Total Alkalinity

$$T \text{ alkalinity, mg/L as CaCO}_3 = M_{\text{vol.}} \cdot N \text{ H}_2\text{SO}_4 \cdot DF \cdot 1000$$

$$= (2.35 \text{ mL}) (0.02079) (1) \cdot 1000$$

$$= 48.86 \text{ mg/L as CaCO}_3$$

Where:

$P_{\text{vol.}}$ - volume titrant used to reach pH 8.3, ml

$M_{\text{vol.}}$ - volume titrant used to reach pH 4.5, ml

N - Normality of H_2SO_4

DF - Dilution Factor = $(50 \text{ ml}) / (\text{Vol. of Sample used})$

Then OH, CO_3 , HCO_3 alkalities as CaCO_3 will be calculated as follows:

Result of Titration	OH Alkalinity as CaCO_3	CO_3 Alkalinity as CaCO_3	HCO_3 Alkalinity as CaCO_3
$P = 0$	0	0	T
$P < \frac{1}{2} T$	0	2P	$T - 2P$
$P = \frac{1}{2} T$	0	2P	0
$P > \frac{1}{2} T$	$2P - T$	$2(T - P)$	0
$P = T$	T	0	0

Therefore,

$$\text{OH Alkalinity as CaCO}_3 = 0$$

$$\text{CO}_3 \text{ Alkalinity as CaCO}_3 = 0$$

$$\text{HCO}_3 \text{ Alkalinity as CaCO}_3 = 48.86 \text{ mg/L}$$

Reporting results in two significant figures,

OH Alkalinity as $\text{CaCO}_3 = 0$

CO_3 Alkalinity as $\text{CaCO}_3 = 0$

HCO_3 Alkalinity as $\text{CaCO}_3 = 49 \text{ mg/L}$

Sample Calculation

METHOD: EPA 300

TEST NAME: INORGANIC ANIONS BY IC

MATRIX: WATER

FORMULA:

Calculate the Chloride concentration, in mg/L, in the original sample as follows:

$$\text{Chloride, mg/L} = A * DF$$

where:

A = mg/L, IC calculated concentration

DF = dilution factor

For **N009742-001A**, concentration in mg/L are calculated as follows:

$$\begin{aligned}\text{Chloride, mg/L} &= 4.152 * 1000 \\ &= 4152 \text{ mg/L}\end{aligned}$$

Reporting **N009742-001A** results in two significant figures, *11/13/13*

$$\text{Chloride, mg/L} = 4200 \quad /$$

March 26, 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.: N009805

RE: PG&E Topock, 423575.MP.02.GM.03

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on March 12, 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.02.GM.03
Lab Order: N009805

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.02.GM.03
Lab Order: N009805
Contract No: 2013-GMP-191S

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009805-001A	MW-36-100-191	Water	3/11/2013 12:41:00 PM	3/12/2013	3/26/2013
N009805-002A	MW-47-055-191	Water	3/11/2013 10:00:00 AM	3/12/2013	3/26/2013
N009805-003A	MW-19-191	Water	3/12/2013 11:27:00 AM	3/12/2013	3/26/2013
N009805-004A	MW-20-070-191	Water	3/12/2013 4:17:00 PM	3/12/2013	3/26/2013
N009805-005A	MW-26-191	Water	3/12/2013 2:03:00 PM	3/12/2013	3/26/2013



Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 26-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-36-100-191
Lab Order:	N009805	Collection Date:	3/11/2013 12:41:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009805-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130313B	QC Batch: R88046	PrepDate:	Analyst: QBM			
Specific Conductance	8600	0.10	0.10	umhos/cm	1	3/13/2013

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: 26-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-47-055-191
Lab Order:	N009805	Collection Date:	3/11/2013 10:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009805-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130313B	QC Batch: R88046	PrepDate:	Analyst: QBM			
Specific Conductance	4300	0.10	0.10	umhos/cm	1	3/13/2013

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: 26-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-19-191
Lab Order:	N009805	Collection Date:	3/12/2013 11:27:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009805-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130313B	QC Batch: R88046	PrepDate:	Analyst: QBM			
Specific Conductance	2100	0.10	0.10	umhos/cm	1	3/13/2013

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: 26-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-20-070-191
Lab Order:	N009805	Collection Date:	3/12/2013 4:17:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009805-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130313B	QC Batch: R88046	PrepDate:	Analyst: QBM
Specific Conductance	2200	0.10	0.10
		umhos/cm	1
			3/13/2013

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: 26-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-26-191
Lab Order:	N009805	Collection Date:	3/12/2013 2:03:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009805-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE

EPA 120.1

RunID: WETCHEM_130313B	QC Batch: R88046	PrepDate:	Analyst: QBM
Specific Conductance	4100	0.10	0.10
		umhos/cm	1
			3/13/2013

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

CLIENT: CH2M HILL
 Work Order: N009805
 Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: LCS-R88046	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 88046			
Client ID: LCSW	Batch ID: R88046	TestNo: EPA 120.1			Analysis Date: 3/13/2013				SeqNo: 1539760		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1517.000	0.10	1412	0	107	85	115				

Sample ID: N009805-003A-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 88046			
Client ID: ZZZZZZ	Batch ID: R88046	TestNo: EPA 120.1			Analysis Date: 3/13/2013				SeqNo: 1539766		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2100.000	0.10						2110	0.475	10	

Sample ID: N009805-003A MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 88046			
Client ID: ZZZZZZ	Batch ID: R88046	TestNo: EPA 120.1			Analysis Date: 3/13/2013				SeqNo: 1539767		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	3510.000	0.20	1412	2110	99.2	75	125				

Sample ID: N009805-003A MSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 88046			
Client ID: ZZZZZZ	Batch ID: R88046	TestNo: EPA 120.1			Analysis Date: 3/13/2013				SeqNo: 1539768		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	3512.000	0.20	1412	2110	99.3	75	125	3510	0.0570	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: 26-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-36-100-191
Lab Order:	N009805	Collection Date:	3/11/2013 12:41:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009805-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_130315A	QC Batch: R88089	PrepDate:	Analyst: QBM			
Alkalinity, Bicarbonate (As CaCO3)	250	1.2	5.0	mg/L	1	3/15/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0	mg/L	1	3/15/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	mg/L	1	3/15/2013
Alkalinity, Total (As CaCO3)	250	1.2	5.0	mg/L	1	3/15/2013

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: 26-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-47-055-191
Lab Order:	N009805	Collection Date:	3/11/2013 10:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009805-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_130315A	QC Batch: R88089	PrepDate:	Analyst: QBM			
Alkalinity, Bicarbonate (As CaCO ₃)	65	1.2	5.0	mg/L	1	3/15/2013
Alkalinity, Carbonate (As CaCO ₃)	ND	1.2	5.0	mg/L	1	3/15/2013
Alkalinity, Hydroxide (As CaCO ₃)	ND	1.2	5.0	mg/L	1	3/15/2013
Alkalinity, Total (As CaCO ₃)	65	1.2	5.0	mg/L	1	3/15/2013

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: 26-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-19-191
Lab Order:	N009805	Collection Date:	3/12/2013 11:27:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009805-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_130315A	QC Batch: R88089	PrepDate:	Analyst: QBM
Alkalinity, Bicarbonate (As CaCO3)	94	1.2	5.0
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0
Alkalinity, Total (As CaCO3)	94	1.2	5.0

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	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: 26-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-20-070-191
Lab Order:	N009805	Collection Date:	3/12/2013 4:17:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009805-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_130315A	QC Batch: R88089	PrepDate:	Analyst: QBM			
Alkalinity, Bicarbonate (As CaCO3)	87	1.2	5.0	mg/L	1	3/15/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0	mg/L	1	3/15/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	mg/L	1	3/15/2013
Alkalinity, Total (As CaCO3)	87	1.2	5.0	mg/L	1	3/15/2013

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: 26-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-26-191
Lab Order:	N009805	Collection Date:	3/12/2013 2:03:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009805-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_130315A	QC Batch: R88089	PrepDate:	Analyst: QBM			
Alkalinity, Bicarbonate (As CaCO3)	100	1.2	5.0	mg/L	1	3/15/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0	mg/L	1	3/15/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	mg/L	1	3/15/2013
Alkalinity, Total (As CaCO3)	100	1.2	5.0	mg/L	1	3/15/2013

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

CLIENT: CH2M HILL
 Work Order: N009805
 Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: LCS-R88089	SampType: LCS	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 88089						
Client ID: LCSW	Batch ID: R88089	TestNo: SM 2320 B		Analysis Date: 3/15/2013	SeqNo: 1541600						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	101.064	5.0	100.0	0	101	85	115				
Alkalinity, Total (As CaCO3)	101.064	5.0	100.0	0	101	85	115				

Sample ID: MB-R88089	SampType: MBLK	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 88089						
Client ID: PBW	Batch ID: R88089	TestNo: SM 2320 B		Analysis Date: 3/15/2013	SeqNo: 1541601						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.128	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.128	5.0									

Sample ID: N009806-011A-DUP	SampType: DUP	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 88089						
Client ID: ZZZZZZ	Batch ID: R88089	TestNo: SM 2320 B		Analysis Date: 3/15/2013	SeqNo: 1541618						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	101.064	5.0						104.3	3.11	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	101.064	5.0						104.3	3.11	30	

Sample ID: N009806-012AMS	SampType: MS	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 88089						
Client ID: ZZZZZZ	Batch ID: R88089	TestNo: SM 2320 B	Analysis Date: 3/15/2013	SeqNo: 1541620							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	201.064	5.0	100.0	102.1	98.9	75	125				
Alkalinity, Total (As CaCO3)	201.064	5.0	100.0	102.1	98.9	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



Advanced Technology
Laboratories, Inc.

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CLIENT: CH2M HILL
Work Order: N009805
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: N009806-012AMSD	SampType: MSD	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 88089						
Client ID: ZZZZZZ	Batch ID: R88089	TestNo: SM 2320 B		Analysis Date: 3/15/2013	SeqNo: 1541621						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	201.064	5.0	100.0	102.1	98.9	75	125	201.1	0	20	
Alkalinity, Total (As CaCO3)	201.064	5.0	100.0	102.1	98.9	75	125	201.1	0	20	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 26-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-36-100-191
Lab Order:	N009805	Collection Date:	3/11/2013 12:41:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009805-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: IC2_130315A	QC Batch: R88148		PrepDate:		Analyst: QBM		
Chloride	2400	5.5	250		mg/L	500	3/15/2013 02:33 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: IC2_130315A	QC Batch: R88148		PrepDate:		Analyst: QBM		
Sulfate	750	3.5	50		mg/L	100	3/15/2013 03:47 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 26-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-47-055-191
Lab Order:	N009805	Collection Date:	3/11/2013 10:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009805-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
				EPA 300.0			
RunID: IC2_130315A	QC Batch: R88148		PrepDate:		Analyst: QBM		
Chloride	1300	2.2	100		mg/L	200	3/15/2013 02:44 PM
ANIONS BY ION CHROMATOGRAPHY							
				EPA 300.0			
RunID: IC2_130315A	QC Batch: R88148		PrepDate:		Analyst: QBM		
Sulfate	230	0.70	10		mg/L	20	3/15/2013 04:34 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: 26-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-19-191
Lab Order:	N009805	Collection Date:	3/12/2013 11:27:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	Matrix:	WATER
Lab ID:	N009805-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130315A	QC Batch: R88148	PrepDate:	Analyst: QBM
Chloride	500 1.1	50	mg/L 100 3/15/2013 02:56 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130315A	QC Batch: R88148	PrepDate:	Analyst: QBM
Sulfate	160 0.70	10	mg/L 20 3/15/2013 04:46 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: 26-Mar-13

CLIENT: CH2M HILL
Lab Order: N009805
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009805-004

Client Sample ID: MW-20-070-191
Collection Date: 3/12/2013 4:17:00 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_130315A	QC Batch: R88148				PrepDate:		Analyst: QBM
Chloride	440	1.1	50		mg/L	100	3/15/2013 03:08 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130315A	QC Batch: R88148				PrepDate:		Analyst: QBM
Sulfate	290	1.8	25		mg/L	50	3/15/2013 04:57 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: 26-Mar-13

CLIENT: CH2M HILL
Lab Order: N009805
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N009805-005

Client Sample ID: MW-26-191
Collection Date: 3/12/2013 2:03:00 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_130315A	QC Batch: R88148						Analyst: QBM
Chloride	930	2.2	100		mg/L	200	3/15/2013 03:19 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130315A	QC Batch: R88148						Analyst: QBM
Sulfate	530	1.8	25		mg/L	50	3/15/2013 05:09 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
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CLIENT: CH2M HILL
Work Order: N009805
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT**TestCode: 300_W_CLPGE**

Sample ID: MB-R88148_CL	SampType: MBLK	TestCode: 300_W_CLPG	Units: mg/L	Prep Date:	RunNo: 88148
Client ID: PBW	Batch ID: R88148	TestNo: EPA 300.0		Analysis Date: 3/15/2013	SeqNo: 1543669
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	ND	0.50			

Sample ID: LCS-R88148_CL	SampType: LCS	TestCode: 300_W_CLPG	Units: mg/L	Prep Date:	RunNo: 88148
Client ID: LCSW	Batch ID: R88148	TestNo: EPA 300.0		Analysis Date: 3/15/2013	SeqNo: 1543670
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	2.531	0.50	2.500	0	101 90 110

Sample ID: N009822-001DDUP	SampType: DUP	TestCode: 300_W_CLPG	Units: mg/L	Prep Date:	RunNo: 88148
Client ID: ZZZZZZ	Batch ID: R88148	TestNo: EPA 300.0		Analysis Date: 3/15/2013	SeqNo: 1543680
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	180.650	25			182.6 1.07 20

Sample ID: N009822-002DMS	SampType: MS	TestCode: 300_W_CLPG	Units: mg/L	Prep Date:	RunNo: 88148
Client ID: ZZZZZZ	Batch ID: R88148	TestNo: EPA 300.0		Analysis Date: 3/15/2013	SeqNo: 1543683
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	306.700	25	125.0	180.2	101 80 120

Sample ID: N009822-002DMSD	SampType: MSD	TestCode: 300_W_CLPG	Units: mg/L	Prep Date:	RunNo: 88148
Client ID: ZZZZZZ	Batch ID: R88148	TestNo: EPA 300.0		Analysis Date: 3/15/2013	SeqNo: 1543684
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	307.900	25	125.0	180.2	102 80 120 306.7 0.390 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: N009805
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: N009805-001AMS	SampType: MS	TestCode: 300_W_CLPG Units: mg/L			Prep Date:			RunNo: 88148			
Client ID: ZZZZZZ	Batch ID: R88148	TestNo: EPA 300.0			Analysis Date: 3/15/2013			SeqNo: 1543689			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3656.500	250	1250	2374	103	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference



**Advanced Technology
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CLIENT: CH2M HILL
Work Order: N009805
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: MB-R88148_SO4	SampType: MBLK	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:				RunNo: 88148			
Client ID: PBW	Batch ID: R88148	TestNo: EPA 300.0		Analysis Date: 3/15/2013				SeqNo: 1543723			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: LCS-R88148_SO4	SampType: LCS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:				RunNo: 88148			
Client ID: LCSW	Batch ID: R88148	TestNo: EPA 300.0		Analysis Date: 3/15/2013				SeqNo: 1543724			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	5.037	0.50	5.000	0	101	90	110				

Sample ID: N009822-001DDUP	SampType: DUP	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:				RunNo: 88148			
Client ID: ZZZZZZ	Batch ID: R88148	TestNo: EPA 300.0		Analysis Date: 3/15/2013				SeqNo: 1543732			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50							0	0	20

Sample ID: N009822-002DMS	SampType: MS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:				RunNo: 88148			
Client ID: ZZZZZZ	Batch ID: R88148	TestNo: EPA 300.0		Analysis Date: 3/15/2013				SeqNo: 1543735			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.972	0.50	5.000	0	99.4	80	120				

Sample ID: N009822-002DMSD	SampType: MSD	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:				RunNo: 88148			
Client ID: ZZZZZZ	Batch ID: R88148	TestNo: EPA 300.0		Analysis Date: 3/15/2013				SeqNo: 1543736			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.858	0.50	5.000	0	97.2	80	120	4.972	2.32	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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Laboratories, Inc.

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CLIENT: CH2M HILL
Work Order: N009805
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: N009805-001AMS	SampType: MS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 88148						
Client ID: ZZZZZZ	Batch ID: R88148	TestNo: EPA 300.0	Analysis Date: 3/15/2013	SeqNo: 1543740							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1235.800	50	500.0	751.9	96.8	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference



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CH2MHILL

CHAIN OF CUSTODY RECORD

3/12/2013 4:47:42 PM

Page 1 OF 1

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy Project Number 423575.MP.0045 Task Order 02.GM.03 Project 2013-GMP-191SAMPLEMETHOD Turnaround Time 10 Days Shipping Date: 3/12/2013 COC Number: 22				Container: 1x1 Liter 1x1 Liter 1x1 Liter Preservatives: 4°C 4°C 4°C Filtered: NA NA NA Holding Time: 14 14 14			Specific Conductance (E120.1) Anions (E300.0) Chloride, Sulfate Alkalinity (SM2320B)		Number of Containers COMMENTS		
DATE	TIME	Matrix									
MW-36-100-191	3/11/2013	12:41	Water	X	X	X	1000 9805-1	1			
MW-47-055-191	3/11/2013	10:00	Water	X	X	X	- 2	1			
MW-19-191	3/12/2013	11:27	Water	X	X	X	- 3	1			
MW-20-070-191	3/12/2013	16:17	Water	X	X	X	- 4	1			
MW-26-191	3/12/2013	14:03	Water	X	X	X	- 5	1			
TOTAL NUMBER OF CONTAINERS								5			

Approved by Sampled by Relinquished by Received by Relinquished by Received by		Signatures   	Date/Time 3-12-13 1715 3-12-13 1715 3/12/13 1935	Shipping Details Method of Shipment: courier On Ice: <input checked="" type="radio"/> yes / no 3.4 ICE 121 Airbill No: Lab Name: ADVANCED TECHNOLOGY LABORATO Lab Phone: (702) 307-2659	ATTN: Sample Custody and Marion	Special Instructions: Feb 4 - Feb 28, 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: 3/12/2013

Workorder: N009805

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 type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" 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

3/13/13

Reviewed By:

J. Johnson

Sample ID: **N009805-001A @ pH 7.66**

A. Standardization of Sulfuric Acid (titrant):

$$\text{Normality of acid} = (A)(B)/(53.00)(C)$$

Where:

A, grams weighed for Na_2CO_3 solution (MS/MSD Stock Solution)

B, mL Na_2CO_3 solution taken for titration, and

C, ml of sulfuric acid used to inflection point

Spike Standards

MS/MSD Stock Na_2CO_3 , ACS Grade (1.00 ml = 2500 ug as CaCO_3): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS Na_2CO_3 , ACS Grade (1.00 ml = 2500 ug as CaCO_3): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter. The reagent must be purchased from a secondary source

Therefore,

$$\begin{aligned}\text{Normality of Acid} &= (2.65\text{g/L}) (5\text{mL}) / (53.00) (11.75\text{mL}) \\ &= \mathbf{0.02128\text{ N}}\end{aligned}$$

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

$$\text{Total Alkalinity (as } \text{CaCO}_3\text{), mg/L} = M_{\text{vol.}} * N \text{ H}_2\text{SO}_4 * \text{DF} * 1000$$

Where:

$M_{\text{vol.}}$, volume titrant used to reach pH 4.5, ml

N, Normality of H_2SO_4

DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

$$\begin{aligned}\text{Total Alkalinity (as } \text{CaCO}_3\text{), mg/L} &= (11.65\text{mL}) (0.02128\text{N}) (1) * 1000 \\ &= \mathbf{247.91\text{ mg/L}}\end{aligned}$$

us f
3/25/13
47

Reporting results in two significant figures,

$$= 25^0 \text{ mg/L as CaCO}_3$$

is for 3/13

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

$$\begin{aligned} \text{P alkalinity, mg/L as CaCO}_3 &= P_{\text{vol.}} * N \text{ H}_2\text{SO}_4 * \text{DF} * 1000 \\ &= (0) (0.02128) (1) * 1000 \\ &= 0 \end{aligned}$$

Total Alkalinity

$$\begin{aligned} \text{T alkalinity, mg/L as CaCO}_3 &= M_{\text{vol.}} * N \text{ H}_2\text{SO}_4 * \text{DF} * 1000 \\ &= (11.65 \text{ mL}) (0.02079) (1) * 1000 \\ &= 247.91 \text{ mg/L as CaCO}_3 \end{aligned}$$

Where:

- $P_{\text{vol.}}$ - volume titrant used to reach pH 8.3, ml
- $M_{\text{vol.}}$ - volume titrant used to reach pH 4.5, ml
- N - Normality of H_2SO_4
- DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3 , HCO_3 alkalinities as CaCO_3 will be calculated as follows:

Result of Titration	OH Alkalinity as CaCO_3	CO_3 Alkalinity as CaCO_3	HCO_3 Alkalinity as CaCO_3
$P = 0$	0	0	T
$P < \frac{1}{2} T$	0	2P	$T - 2P$
$P = \frac{1}{2} T$	0	2P	0
$P > \frac{1}{2} T$	$2P - T$	$2(T - P)$	0
$P = T$	T	0	0

Therefore,

$$\text{OH Alkalinity as CaCO}_3 = 0$$

$$\text{CO}_3 \text{ Alkalinity as CaCO}_3 = 0$$

$$\text{HCO}_3 \text{ Alkalinity as CaCO}_3 = 247.91 \text{ mg/L}$$

Reporting results in two significant figures,

OH Alkalinity as $\text{CaCO}_3 = 0$

CO_3 Alkalinity as $\text{CaCO}_3 = 0$

HCO_3 Alkalinity as $\text{CaCO}_3 = 25^0_{\text{A}} \text{ mg/L}$

in for 3/25/13

Sample Calculation

METHOD: EPA 300

TEST NAME: INORGANIC ANIONS BY IC

MATRIX: WATER

FORMULA:

Calculate the Chloride concentration, in mg/L, in the original sample as follows:

$$\text{Chloride, mg/L} = A * DF$$

where:

A = mg/L, IC calculated concentration

DF = dilution factor

For **N009805-001A**, concentration in mg/L are calculated as follows:

$$\begin{aligned}\text{Chloride, mg/L} &= 4.749 * 500 \\ &= 2374.5 \text{ mg/L}\end{aligned}$$

Reporting **N009805-001A** results in two significant figures,

$$\text{Chloride, mg/L} = 2400 \quad /$$

13/26/13

March 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.: N009835

RE: PG&E Topock, 423575.MP.06.TS

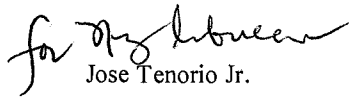
Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on March 15, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,


Jose Tenorio Jr.
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



Advanced Technology
Laboratories, Inc.

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.06.TS
Lab Order: N009835

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.06.TS
Lab Order: N009835
Contract No: 2013-GMP-191S

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009835-001A	MW-20-100-191	Water	3/13/2013 1:52:00 PM	3/15/2013	3/29/2013
N009835-002A	MW-20-130-191	Water	3/14/2013 1:10:00 PM	3/15/2013	3/29/2013
N009835-003A	MW-51-191	Water	3/14/2013 10:33:00 AM	3/15/2013	3/29/2013



Advanced Technology Laboratories, Inc.**ANALYTICAL RESULTS**

Print Date: 29-Mar-13

CLIENT: CH2M HILL
Lab Order: N009835
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N009835-001

Client Sample ID: MW-20-100-191
Collection Date: 3/13/2013 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_130318A	QC Batch: R88101			PrepDate:		Analyst: QBM
Specific Conductance	2600	0.10	0.10	umhos/cm	1	3/18/2013

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
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-Mar-13

CLIENT: CH2M HILL
Lab Order: N009835
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N009835-002

Client Sample ID: MW-20-130-191
Collection Date: 3/14/2013 1:10:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130318B	QC Batch: R88102			PrepDate:		Analyst: QBM
Specific Conductance	12000	0.10	0.10	umhos/cm	1	3/18/2013

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-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-51-191
Lab Order:	N009835	Collection Date:	3/14/2013 10:33:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	Matrix:	WATER
Lab ID:	N009835-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_130318B	QC Batch: R88102	PrepDate:	Analyst: QBM			
Specific Conductance	11000	0.10	0.10	umhos/cm	1	3/18/2013

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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CLIENT: CH2M HILL
Work Order: N009835
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT**TestCode: 120.1_WPGE**

Sample ID: LCS-R88101	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 88101			
Client ID: LCSW	Batch ID: R88101	TestNo: EPA 120.1			Analysis Date: 3/18/2013				SeqNo: 1541969		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1522.000	0.10	1412	0	108	85	115				

Sample ID: N009834-002A-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 88101			
Client ID: ZZZZZZ	Batch ID: R88101	TestNo: EPA 120.1			Analysis Date: 3/18/2013				SeqNo: 1541981		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2450.000	0.10						2460	0.407	10	

Sample ID: N009834-002A MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 88101			
Client ID: ZZZZZZ	Batch ID: R88101	TestNo: EPA 120.1			Analysis Date: 3/18/2013				SeqNo: 1541982		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	3806.000	0.20	1412	2460	95.3	75	125				

Sample ID: N009834-002A MSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 88101			
Client ID: ZZZZZZ	Batch ID: R88101	TestNo: EPA 120.1			Analysis Date: 3/18/2013				SeqNo: 1541983		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	3840.000	0.20	1412	2460	97.7	75	125	3806	0.889	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		



**Advanced Technology
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CLIENT: CH2M HILL
Work Order: N009835
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: LCS-R88102	SampType: LCS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 88102			
Client ID: LCSW	Batch ID: R88102	TestNo: EPA 120.1			Analysis Date: 3/18/2013				SeqNo: 1541989		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	10460.000	0.10	9992	0	105	85	115				

Sample ID: N009835-002A-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 88102			
Client ID: ZZZZZZ	Batch ID: R88102	TestNo: EPA 120.1			Analysis Date: 3/18/2013				SeqNo: 1541991		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	11650.000	0.10						11660	0.0858	10	

Sample ID: N009835-002A MS	SampType: MS	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 88102			
Client ID: ZZZZZZ	Batch ID: R88102	TestNo: EPA 120.1			Analysis Date: 3/18/2013				SeqNo: 1541992		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	21160.000	0.20	9992	11660	95.1	75	125				

Sample ID: N009835-002A MSD	SampType: MSD	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:				RunNo: 88102			
Client ID: ZZZZZZ	Batch ID: R88102	TestNo: EPA 120.1			Analysis Date: 3/18/2013				SeqNo: 1541993		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	21020.000	0.20	9992	11660	93.7	75	125	21160	0.664	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: 29-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-20-100-191
Lab Order:	N009835	Collection Date:	3/13/2013 1:52:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	Matrix:	WATER
Lab ID:	N009835-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_130319B	QC Batch: R88126	PrepDate:	Analyst: QBM			
Alkalinity, Bicarbonate (As CaCO3)	120	1.2	5.0	mg/L	1	3/19/2013
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0	mg/L	1	3/19/2013
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0	mg/L	1	3/19/2013
Alkalinity, Total (As CaCO3)	120	1.2	5.0	mg/L	1	3/19/2013

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-Mar-13

CLIENT: CH2M HILL
Lab Order: N009835
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N009835-002

Client Sample ID: MW-20-130-191
Collection Date: 3/14/2013 1:10:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_130319B	QC Batch: R88126			PrepDate:		Analyst: QBM
Alkalinity, Bicarbonate (As CaCO ₃)	76	1.2	5.0	mg/L	1	3/19/2013
Alkalinity, Carbonate (As CaCO ₃)	ND	1.2	5.0	mg/L	1	3/19/2013
Alkalinity, Hydroxide (As CaCO ₃)	ND	1.2	5.0	mg/L	1	3/19/2013
Alkalinity, Total (As CaCO ₃)	76	1.2	5.0	mg/L	1	3/19/2013

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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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-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-51-191
Lab Order:	N009835	Collection Date:	3/14/2013 10:33:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	Matrix:	WATER
Lab ID:	N009835-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ALKALINITY, SPECIATED

SM 2320 B

RunID: WETCHEM_130319B	QC Batch: R88126	PrepDate:	Analyst: QBM
Alkalinity, Bicarbonate (As CaCO3)	92	1.2	5.0
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0
Alkalinity, Total (As CaCO3)	92	1.2	5.0

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	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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CLIENT: CH2M HILL
 Work Order: N009835
 Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: LCS-R88126	SampType: LCS	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 88126						
Client ID: LCSW	Batch ID: R88126	TestNo: SM 2320 B		Analysis Date: 3/19/2013	SeqNo: 1542727						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	96.567	5.0	100.0	0	96.6	85	115				
Alkalinity, Total (As CaCO3)	100.858	5.0	100.0	0	101	85	115				

Sample ID: MB-R88126	SampType: MBLK	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 88126						
Client ID: PBW	Batch ID: R88126	TestNo: SM 2320 B		Analysis Date: 3/19/2013	SeqNo: 1542728						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.146	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.146	5.0									

Sample ID: N009834-006A-DUP	SampType: DUP	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 88126						
Client ID: ZZZZZZ	Batch ID: R88126	TestNo: SM 2320 B		Analysis Date: 3/19/2013	SeqNo: 1542735						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	85.837	5.0						85.84	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	85.837	5.0						85.84	0	30	

Sample ID: N009835-002A MS	SampType: MS	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 88126						
Client ID: ZZZZZZ	Batch ID: R88126	TestNo: SM 2320 B		Analysis Date: 3/19/2013	SeqNo: 1542738						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	173.820	5.0	100.0	76.18	97.6	75	125				
Alkalinity, Total (As CaCO3)	173.820	5.0	100.0	76.18	97.6	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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CLIENT: CH2M HILL
Work Order: N009835
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: N009835-002A MSD	SampType: MSD	TestCode: 2320_W_SP	Units: mg/L	Prep Date:	RunNo: 88126						
Client ID: ZZZZZZ	Batch ID: R88126	TestNo: SM 2320 B	Analysis Date: 3/19/2013	SeqNo: 1542739							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	173.820	5.0	100.0	76.18	97.6	75	125	173.8	0	20	
Alkalinity, Total (As CaCO3)	173.820	5.0	100.0	76.18	97.6	75	125	173.8	0	20	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference



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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 29-Mar-13

CLIENT: CH2M HILL
Lab Order: N009835
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N009835-001

Client Sample ID: MW-20-100-191
Collection Date: 3/13/2013 1:52:00 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_130320A	QC Batch: R88162				PrepDate:		Analyst: QBM
Chloride	560	1.1	50		mg/L	100	3/20/2013 05:28 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130320A	QC Batch: R88162				PrepDate:		Analyst: QBM
Sulfate	370	3.5	50		mg/L	100	3/20/2013 05:28 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-Mar-13

CLIENT: CH2M HILL
Lab Order: N009835
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N009835-002

Client Sample ID: MW-20-130-191
Collection Date: 3/14/2013 1:10:00 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_130320A	QC Batch: R88162			PrepDate:		Analyst: QBM
Chloride	3400	11	500	mg/L	1000	3/20/2013 05:41 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130320A	QC Batch: R88162			PrepDate:		Analyst: QBM
Sulfate	1100	7.0	100	mg/L	200	3/20/2013 06:31 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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: 29-Mar-13

CLIENT:	CH2M HILL	Client Sample ID:	MW-51-191
Lab Order:	N009835	Collection Date:	3/14/2013 10:33:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	Matrix:	WATER
Lab ID:	N009835-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130320A	QC Batch: R88162	PrepDate:	Analyst: QBM
Chloride	3400 11	500	mg/L 1000 3/20/2013 05:54 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC2_130320A	QC Batch: R88162	PrepDate:	Analyst: QBM
Sulfate	680 3.5	50	mg/L 100 3/20/2013 06:44 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	



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Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N009835
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT**TestCode: 300_W_CLPGE**

Sample ID: MB-R88162_CL	SampType: MBLK	TestCode: 300_W_CLPG	Units: mg/L	Prep Date:	RunNo: 88162
Client ID: PBW	Batch ID: R88162	TestNo: EPA 300.0		Analysis Date: 3/20/2013	SeqNo: 1544047
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	ND	0.50			

Sample ID: LCS-R88162_CL	SampType: LCS	TestCode: 300_W_CLPG	Units: mg/L	Prep Date:	RunNo: 88162
Client ID: LCSW	Batch ID: R88162	TestNo: EPA 300.0		Analysis Date: 3/20/2013	SeqNo: 1544048
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	2.415	0.50	2.500	0	96.6 90 110

Sample ID: N009851-001DDUP	SampType: DUP	TestCode: 300_W_CLPG	Units: mg/L	Prep Date:	RunNo: 88162
Client ID: ZZZZZZ	Batch ID: R88162	TestNo: EPA 300.0		Analysis Date: 3/20/2013	SeqNo: 1544050
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	357.800	50			365.8 2.21 20

Sample ID: N009851-002DMS	SampType: MS	TestCode: 300_W_CLPG	Units: mg/L	Prep Date:	RunNo: 88162
Client ID: ZZZZZZ	Batch ID: R88162	TestNo: EPA 300.0		Analysis Date: 3/20/2013	SeqNo: 1544054
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	1207.600	100	500.0	726.2	96.3 80 120

Sample ID: N009851-002DMSD	SampType: MSD	TestCode: 300_W_CLPG	Units: mg/L	Prep Date:	RunNo: 88162
Client ID: ZZZZZZ	Batch ID: R88162	TestNo: EPA 300.0		Analysis Date: 3/20/2013	SeqNo: 1544055
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	1212.000	100	500.0	726.2	97.2 80 120 1208 0.364 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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 Laboratories, Inc.

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CLIENT: CH2M HILL
Work Order: N009835
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: N009834-001AMS	SampType: MS	TestCode: 300_W_CLPG Units: mg/L				Prep Date:			RunNo: 88162		
Client ID: ZZZZZZ	Batch ID: R88162	TestNo: EPA 300.0				Analysis Date: 3/20/2013			SeqNo: 1544063		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	756.700	50	250.0	507.5	99.7	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference



**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: N009835
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: MB-R88162_SO4	SampType: MBLK	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:				RunNo: 88162			
Client ID: PBW	Batch ID: R88162	TestNo: EPA 300.0		Analysis Date: 3/20/2013				SeqNo: 1544091			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: LCS-R88162_SO4	SampType: LCS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:				RunNo: 88162			
Client ID: LCSW	Batch ID: R88162	TestNo: EPA 300.0		Analysis Date: 3/20/2013				SeqNo: 1544092			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	5.054	0.50	5.000	0	101	90	110				

Sample ID: N009851-002DMS	SampType: MS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:				RunNo: 88162			
Client ID: ZZZZZZ	Batch ID: R88162	TestNo: EPA 300.0		Analysis Date: 3/20/2013				SeqNo: 1544094			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	5.305	0.50	5.000	0.4660	96.8	80	120				

Sample ID: N009851-002DMSD	SampType: MSD	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:				RunNo: 88162			
Client ID: ZZZZZZ	Batch ID: R88162	TestNo: EPA 300.0		Analysis Date: 3/20/2013				SeqNo: 1544095			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	5.163	0.50	5.000	0.4660	93.9	80	120	5.305	2.71	20	

Sample ID: N009851-001DDUP	SampType: DUP	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:				RunNo: 88162			
Client ID: ZZZZZZ	Batch ID: R88162	TestNo: EPA 300.0		Analysis Date: 3/20/2013				SeqNo: 1544096			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	377.900	50						399.7	5.61	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		



Advanced Technology
Laboratories, Inc.

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CLIENT: CH2M HILL
Work Order: N009835
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: N009834-001AMS	SampType: MS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 88162						
Client ID: ZZZZZZ	Batch ID: R88162	TestNo: EPA 300.0	Analysis Date: 3/20/2013	SeqNo: 1544105							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	841.300	50	500.0	349.6	98.3	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

H Holding times for preparation or analysis exceeded

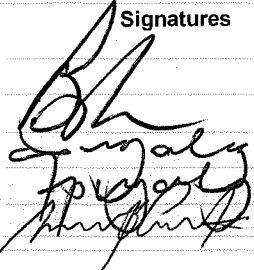
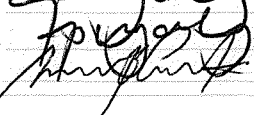
S Spike/Surrogate outside of limits due to matrix interference



**Advanced Technology
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Project Name PG&E Topock Container: 1x1 Liter Location Topock Preservatives: 4°C Project Manager Jay Piper Sample Manager Shawn Duffy Filtered: NA Holding Time: 14 Project Number 423575.MP.06.TS Task Order Project 2013-GMP-191SAMPLEMETHOD Turnaround Time 10 Days Shipping Date: 3/15/2013 COC Number: 30				1x1 Liter 4°C NA 14 Specific Conductance (E120.1) Anions (E300.0) Chloride, Sulfate Alkalinity (SM2320B)			
DATE	TIME	Matrix					
MW-20-100-191	3/13/2013 13:52	Water	X	X	X		
MW-20-130-191	3/14/2013 13:10	Water	X	X	X		
MW-51-191	3/14/2013 10:33	Water	X	X	X		
TOTAL NUMBER OF CONTAINERS					3		

Approved by Sampled by Relinquished by Received by Relinquished by Received by	Signatures  	Date/Time 3-15-13 1230 3/15/13 1230 3/15/13 1543 3/15/13 1543	Shipping Details Method of Shipment: courier On Ice: yes no 4-6°C 1R#1 Airbill No: Lab Name: ADVANCED TECHNOLOGY LABORATO Lab Phone: (702) 307-2659	ATTN: Sample Custody and Marlon	Special Instructions: Feb 4 - Feb 28, 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: 3/15/2013

Workorder: N009835

Rep sample Temp (Deg C): 4.6

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 type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 16. Were there Non-Conformance issues at login?
Was Client notified? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |

Comments:

Checklist Completed B

MBC

MBC 3/15/13

Reviewed By:

[Signature]

Sample ID: **N009835-001A @ pH 7.92**

A. Standardization of Sulfuric Acid (titrant):

$$\text{Normality of acid} = (A)(B)/(53.00)(C)$$

Where:

A, grams weighed for Na_2CO_3 solution (MS/MSD Stock Solution)

B, mL Na_2CO_3 solution taken for titration, and

C, ml of sulfuric acid used to inflection point

Spike Standards

MS/MSD Stock Na_2CO_3 , ACS Grade (1.00 ml = 2500 ug as CaCO_3): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS Na_2CO_3 , ACS Grade (1.00 ml = 2500 ug as CaCO_3): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter. The reagent must be purchased from a secondary source

Therefore,

$$\begin{aligned}\text{Normality of Acid} &= (2.65\text{g/L}) (5\text{mL}) / (53.00) (11.65\text{mL}) \\ &= \mathbf{0.02146\text{ N}}\end{aligned}$$

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

$$\text{Total Alkalinity (as } \text{CaCO}_3\text{), mg/L} = M_{\text{vol.}} * N \text{ H}_2\text{SO}_4 * \text{DF} * 1000$$

Where:

$M_{\text{vol.}}$, volume titrant used to reach pH 4.5, ml

N, Normality of H_2SO_4

DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

$$\begin{aligned}\text{Total Alkalinity (as } \text{CaCO}_3\text{), mg/L} &= (5.55\text{mL}) (0.02146\text{N}) (1) * 1000 \\ &= \mathbf{119.10\text{ mg/L}}\end{aligned}$$

MS
3/27/13
42

Reporting results in two significant figures,

$$= 12 \text{ mg/L as CaCO}_3$$

in for 3/27/13

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

$$\begin{aligned} \text{P alkalinity, mg/L as CaCO}_3 &= P_{\text{vol.}} * N \text{ H}_2\text{SO}_4 * \text{DF} * 1000 \\ &= (0) (0.02146) (1) * 1000 \\ &= 0 \end{aligned}$$

Total Alkalinity

$$\begin{aligned} \text{T alkalinity, mg/L as CaCO}_3 &= M_{\text{vol.}} * N \text{ H}_2\text{SO}_4 * \text{DF} * 1000 \\ &= (5.55 \text{ mL}) (0.02146) (1) * 1000 \\ &= 119.10 \text{ mg/L as CaCO}_3 \end{aligned}$$

Where:

- $P_{\text{vol.}}$ - volume titrant used to reach pH 8.3, ml
- $M_{\text{vol.}}$ - volume titrant used to reach pH 4.5, ml
- N - Normality of H_2SO_4
- DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3 , HCO_3 alkalinities as CaCO_3 will be calculated as follows:

Result of Titration	OH Alkalinity as CaCO_3	CO_3 Alkalinity as CaCO_3	HCO_3 Alkalinity as CaCO_3
$P = 0$	0	0	T
$P < \frac{1}{2} T$	0	2P	$T - 2P$
$P = \frac{1}{2} T$	0	2P	0
$P > \frac{1}{2} T$	$2P - T$	$2(T - P)$	0
$P = T$	T	0	0

Therefore,

$$\text{OH Alkalinity as CaCO}_3 = 0$$

$$\text{CO}_3 \text{ Alkalinity as CaCO}_3 = 0$$

$$\text{HCO}_3 \text{ Alkalinity as CaCO}_3 = 119.10 \text{ mg/L}$$

Reporting results in two significant figures,

OH Alkalinity as $\text{CaCO}_3 = 0$

CO_3 Alkalinity as $\text{CaCO}_3 = 0$

HCO_3 Alkalinity as $\text{CaCO}_3 = 12 \frac{0}{7} \text{ mg/L}$

us for 3/25/13

Sample Calculation

METHOD: EPA 300

TEST NAME: INORGANIC ANIONS BY IC

MATRIX: WATER

FORMULA:

Calculate the Chloride concentration, in mg/L, in the original sample as follows:

$$\text{Chloride, mg/L} = A * DF$$

where:

A = mg/L, IC calculated concentration

DF = dilution factor

For **N009835-001A**, concentration in mg/L are calculated as follows:

$$\begin{aligned}\text{Chloride, mg/L} &= 5.615 * 100 \\ &= 561.5 \text{ mg/L}\end{aligned}$$

Reporting **N009835-001A** results in two significant figures,

$$\text{Chloride, mg/L} = 560 \quad \text{✓} \quad \text{12/20/13}$$

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

January 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-202, GROUNDWATER MONITORING
PROJECT, TLI NO.: 805561

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-EW-202 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.

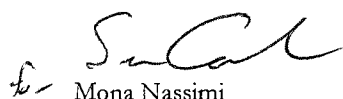
The samples were received and delivered with the chain of custody on January 2, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.


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

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

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.: 805561

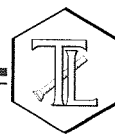
Date: January 23, 2013

Collected: January 2, 2013

Received: January 2, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Melissa Scharfe
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	Himani Vaishnav
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.: 805561

Date Received: January 2, 2013

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805561-001	PE-01-202	E120.1	NONE	1/2/2013	11:15	EC	4490	umhos/cm	2.00
805561-001	PE-01-202	E200.8	LABFLT	1/2/2013	11:15	Chromium	8.0	ug/L	1.0
805561-001	PE-01-202	E218.6	LABFLT	1/2/2013	11:15	Chromium, Hexavalent	8.1	ug/L	0.20
805561-001	PE-01-202	SM2540C	NONE	1/2/2013	11:15	Total Dissolved Solids	2760	mg/L	125
805561-001	PE-01-202	SM4500HB	NONE	1/2/2013	11:15	PH	7.59	pH	4.00
805561-002	TW-03D-202	E120.1	NONE	1/2/2013	11:22	EC	8000	umhos/cm	2.00
805561-002	TW-03D-202	E200.8	LABFLT	1/2/2013	11:22	Chromium	925	ug/L	4.0
805561-002	TW-03D-202	SM2540C	NONE	1/2/2013	11:22	Total Dissolved Solids	5070	mg/L	250
805561-002	TW-03D-202	SM3500-CrB	LABFLT	1/2/2013	11:22	Chromium, Hexavalent	897	ug/L	250
805561-002	TW-03D-202	SM4500HB	NONE	1/2/2013	11:22	PH	7.26	pH	4.00

ND: Non Detected (below reporting limit)

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

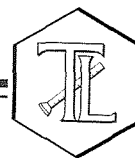
Results below 0.01 will have two (2) significant figures.

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. 805561

Page 1 of 8

Printed 1/23/2013

Samples Received on 1/2/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
PE-01-202	805561-001	01/02/2013 11:15	Water
TW-03D-202	805561-002	01/02/2013 11:22	Water

Specific Conductivity - EPA 120.1

Batch 01EC13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805561-001 Specific Conductivity	umhos/cm	01/07/2013	1.00	0.116	2.00	4490
805561-002 Specific Conductivity	umhos/cm	01/07/2013	1.00	0.116	2.00	8000

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 805561-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	4500	4490	0.222	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	697	706	98.7	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	702	706	99.4	90 - 110

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	701	706	99.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	988	998	99.0	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 1/23/2013

Chrome VI by EPA 218.6		Batch 01CrH13B				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805561-001 Chromium, Hexavalent	ug/L	01/03/2013 15:30	1.00	0.00920	0.20	8.1
Method Blank						
Parameter	Unit	DF	Result			
Chromium, Hexavalent	ug/L	1.00	ND			
Duplicate				Lab ID = 805375-004		
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.97	2.01	1.90	0 - 20
Low Level Calibration Verification						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.196	0.200	98.0	70 - 130
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.79	5.00	95.8	90 - 110
Matrix Spike				Lab ID = 805375-001		
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 = 805375-002		
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.915	1.00(1.00)	91.5	90 - 110
Matrix Spike				Lab ID = 805375-003		
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	9.49	9.91(5.00)	91.6	90 - 110
Matrix Spike				Lab ID = 805375-004		
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.82	7.01(5.00)	96.3	90 - 110
Matrix Spike				Lab ID = 805375-005		
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.964	1.00(1.00)	96.4	90 - 110
Matrix Spike				Lab ID = 805375-006		
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.948	1.00(1.00)	94.8	90 - 110



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Matrix Spike						Lab ID = 805375-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.958	1.00(1.00)	95.8	90 - 110
Matrix Spike						Lab ID = 805375-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.901	1.00(1.00)	90.1	90 - 110
Matrix Spike						Lab ID = 805375-009
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	39.1	39.9(20.0)	96.1	90 - 110
Matrix Spike						Lab ID = 805375-011
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	44.3	45.2(25.0)	96.3	90 - 110
Matrix Spike						Lab ID = 805375-012
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1460	1470(750)	97.6	90 - 110
Matrix Spike						Lab ID = 805375-013
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.982	1.00(1.00)	98.2	90 - 110
Matrix Spike						Lab ID = 805375-014
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 = 805375-015
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	3880	3980(2000)	95.0	90 - 110
Matrix Spike						Lab ID = 805375-016
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1750	1750(1000)	99.8	90 - 110
Matrix Spike						Lab ID = 805561-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	17.9	18.1(10.0)	98.7	90 - 110
Matrix Spike						Lab ID = 805562-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.938	1.05(1.00)	89.1	90 - 110
Matrix Spike						Lab ID = 805562-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.62	5.04(5.00)	91.6	90 - 110



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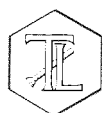
Printed 1/23/2013

Chromium, Hexavalent by SM 3500-Cr B		Batch 01CrH13B				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805561-002 Chromium, Hexavalent	ug/L	01/03/2013 14:17	25.0	37.5	250	897
Method Blank						
Parameter	Unit	DF	Result			
Chromium, Hexavalent	ug/L	1.00	ND			
Duplicate					Lab ID = 805561-002	
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	897	897	0	0 - 20
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	102	100	102	90 - 110
Matrix Spike					Lab ID = 805561-002	
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3510	3400(2500)	105	85 - 125
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	63.2	60.0	105	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


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pH by SM 4500-H B		Batch 01PH13B				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805561-001 pH	pH	01/03/2013 09:35	1.00	0.0784	4.00	7.59
805561-002 pH	pH	01/03/2013 09:37	1.00	0.0784	4.00	7.26
Duplicate					Lab ID = 805561-002	
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.27	7.26	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
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

Total Dissolved Solids by SM 2540 C		Batch 01TDS13B				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805561-001 Total Dissolved Solids	mg/L	01/09/2013	1.00	0.757	125	2760
805561-002 Total Dissolved Solids	mg/L	01/09/2013	1.00	0.757	250	5070
Method Blank						
Parameter	Unit	DF	Result			
Total Dissolved Solids	mg/L	1.00	ND			
Duplicate					Lab ID = 805562-003	
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	31500	29600	6.16	0 - 10
Duplicate					Lab ID = 805650-001	
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	3930	3960	0.760	0 - 10
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	492	500	98.4	90 - 110


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Project Name: PG&E Topock Project
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Project Number: 456827.01.DM
Printed 1/23/2013
Metals by EPA 200.8, Dissolved
Batch 011613B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805561-001 Chromium	ug/L	01/16/2013 22:21	1.00	0.0920	1.0	8.0
805561-002 Chromium	ug/L	01/16/2013 22:57	20.0	1.84	4.0	925

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate
Lab ID = 805561-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	7.84	8.03	2.44	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.231	0.200	116	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	47.5	50.0	94.9	85 - 115

Matrix Spike
Lab ID = 805561-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	54.1	58.0(50.0)	92.1	75 - 125

Matrix Spike Duplicate
Lab ID = 805561-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	53.3	58.0(50.0)	90.5	75 - 125

MRCCS - 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	19.1	20.0	95.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.3	20.0	96.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.5	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.7	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	19.3	20.0	96.5	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


Serial Dilution

Lab ID = 805561-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	100	981	925	5.91	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: 01TDS13B

Date Analyzed: 1/9/13

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	74.2232	74.2232	74.2232	0.0000	No	0.0000	0.0	25.0	ND	1
805561-1	20	49.1727	49.2284	49.228	0.0004	No	0.0553	2765.0	125.0	2765.0	1
805561-2	10	51.4359	51.4868	51.4866	0.0002	No	0.0507	5070.0	250.0	5070.0	1
805562-1	10	75.2731	75.3165	75.3165	0.0000	No	0.0434	4340.0	250.0	4340.0	1
805562-2	10	50.5701	50.6201	50.6198	0.0003	No	0.0497	4970.0	250.0	4970.0	1
805562-3	5	51.0739	51.2222	51.2219	0.0003	No	0.1480	29600.0	500.0	29600.0	1
805593	970	109.0617	109.0617	109.0617	0.0000	No	0.0000	0.0	2.6	ND	1
805609-2	200	111.3649	111.3782	111.3782	0.0000	No	0.0133	66.5	12.5	66.5	1
805609-4	100	67.2037	67.2355	67.2352	0.0003	No	0.0315	315.0	25.0	315.0	1
805614-16	100	66.7074	66.7577	66.7577	0.0000	No	0.0503	503.0	25.0	503.0	1
805615	100	77.7820	77.8356	77.8355	0.0001	No	0.0535	535.0	25.0	535.0	1
805562-3D	5	50.1270	50.2844	50.2844	0.0000	No	0.1574	31480.0	500.0	31480.0	1
LCS	100	70.8921	70.9413	70.9413	0.0000	No	0.0492	492.0	25.0	492.0	1
805622-1	50	72.0903	72.1364	72.136	0.0004	No	0.0457	914.0	50.0	914.0	1
805622-2	100	78.6153	78.6701	78.6697	0.0004	No	0.0544	544.0	25.0	544.0	1
805622-3	100	73.4428	73.4999	73.4999	0.0000	No	0.0571	571.0	25.0	571.0	1
805622-4	100	69.2051	69.2651	69.265	0.0001	No	0.0599	599.0	25.0	599.0	1
805634-13	100	72.7697	72.8257	72.8256	0.0001	No	0.0559	559.0	25.0	559.0	1
805650	10	50.6377	50.6773	50.6773	0.0000	No	0.0396	3960.0	250.0	3960.0	1
805664-1	100	115.2326	115.2554	115.2554	0.0000	No	0.0228	228.0	25.0	228.0	1
805650D	10	50.5061	50.5454	50.5454	0.0000	No	0.0393	3930.0	250.0	3930.0	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	492	500	98.4%	90-110%	Yes
LCSD					

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?
805562-3	0.148	0.1574	3.1%	≤5%	Yes
805650	0.0396	0.0393	0.4%	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

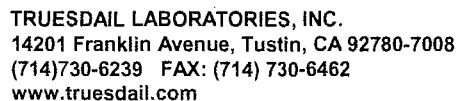
020

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 01TDS13B
Date Analyzed: 1/9/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
805561-1	4590	0.60	2983.5	0.93
805561-2	8000	0.63	5200	0.98
805562-1	6870	0.63	4465.5	0.97
805562-2	7030	0.71	4569.5	1.09
805562-3	40400	0.73	26260	1.13
805593	4.83	ND	3.1395	ND
805609-2	121	0.55	78.65	0.85
805609-4	529	0.60	343.85	0.92
805614-16	851	0.59	553.15	0.91
805615	872	0.61	566.8	0.94
805562-3D	40400	0.78	26260	1.20
LCS				
805622-1	1670	0.55	1085.5	0.84
805622-2	915	0.59	594.75	0.91
805622-3	926	0.62	601.9	0.95
805622-4	994	0.60	646.1	0.93
805634-13	884	0.63	574.6	0.97
805650	7180	0.55	4667	0.85
805664-1	387	0.59	251.55	0.91
805650D	7180	0.55	4667	0.84



[IM3Plant-EW-202]

805561

TURNAROUND TIME 10 Days
DATE 01/02/13 PAGE 1 OF 1

-1
-2

CHAIN OF CUSTODY SIGNATURE RECORD				
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	1-2-13 15:30
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	1-2-13 15:30
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	1-2-13 21:30
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	1-2-13 21:30
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	1-2-13 21:30
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	1-2-13 21:30
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	1-2-13 21:30
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	1-2-13 21:30

SAMPLE CONDITIONS

RECEIVED COOL ☒ WARM ☐ 3.4° E

CUSTODY SEALED YES ☐ NO ☒

SPECIAL REQUIREMENTS:

For Sample Conditions

049

For Sample Conditions
See Form Attached

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

[illegible]

1-7-13

HAV
01/09/03



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
805593	71 BE	<2	1-2-13	BE	yes		1/10/13	pH <2
805596	71							
805594								
805597								
805598								
805599 (1-4)								
805600 (1-4)								
805612								
805614 (1-4, 23)		72				8:00	1/10/13	pH <2
805380	<1	72	1-8-13	ES	yes	10:30		
805305 (1-10, 21-23)	<1	<2	1-8-13	ES	yes			-5, 10 turbidity >1
805619-6	<1	72			NO	1:30	1/10/13	pH <2
805622 (1-4)	↓	↓	↓	↓	↓	↓		
805638	<1	72	1-9-13	BE	NO	11:00 AM	1/10/13	pH <2
805649 (1-3)					↓	↓	1/10/13	pH <2
805632	<1	<2		DC	yes			
805630	<1	<2						
805628	<1	<2						
805631								
805627								
805629	↓	↓	↓	↓	↓			
805633	SOLID		↓	DC	TTL			
805662	72	72	1/10/13	ES	yes	9:00 AM	1/18/13 15:30	pH <2
805504	<2	<2	1/10/13	ES	yes			
805375 (1-3, 8-12, 15-18)	<2	<2						
805506 (1-3)	<2	<2						
805528 (1-5)		↓						
805561 (1-2)		72				10:00		Filtered then acidify
805562 (1-3)		<2						
805650	↓	72	↓	↓	↓	10:00		
805560	SOLID	GE	1/14/13	ES	TTL			
805651 (1-5, 8-14)	<1	<2	↓	↓	yes			TOTAL/DISSOLVED
805652 (1-5)	<1	<2	↓	↓	↓			
805663 (1-12)	<1	72	1/15/13	BE	NO	10:00 AM	1/19/13 15:30	pH <2
805669	<1	<2	1/15/13	ES	yes			
805675								
805677								
805679								
805680								
805681								
805686								
805732								
805733	↓	↓	↓	↓	↓			

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 # 805561

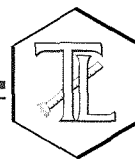
Date Delivered: 01/02/13 Time: 21:30 By: ☐ Mail ☒ Field Service ☐ Client

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)? 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:

ALERT!!
Level III QC
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: [Signature]

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

March 5, 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-203, GROUNDWATER MONITORING
PROJECT, TLI NO.: 806202

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-EW-203 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 February 5, 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.

Due to the discrepancy between the Total Dissolved Chromium (950 ug/L) and Hexavalent Chromium (1220 ug/L) results for sample TW-03D-203, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 1030 ug/L and 984 ug/L, respectively. The original Total Dissolved Chromium digestate was re-analyzed for confirmation and yielded a result of 958 ug/L. The Hexavalent Chromium was then re-analyzed and yielded a result of 1020 ug/L. After discussing the results with Mr. Duffy, the original Total Dissolved Chromium result and the result from the re-analysis of the Hexavalent Chromium 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.

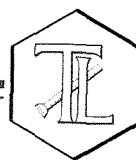
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for - [Signature]
Mona Nassimi
Manager, Analytical Services

[Signature]
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.: 806202

Date: March 5, 2013

Collected: February 5, 2013

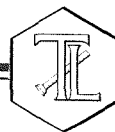
Received: February 5, 2013

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	Rozita Bahramzad
SM 3500-CrB	Hexavalent Chromium	Jenny Tankunakorn

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

Attention: Shawn Duffy

Project Name: PG&E Topock Project
Project No.: 456827.01.DM
P.O. No.: 456827.01.DM

Laboratory No.: 806202
Date Received: February 5, 2013

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806202-001	PE-01-203	E120.1	NONE	2/5/2013	14:25	EC	4490	umhos/cm	2.00
806202-001	PE-01-203	E200.8	LABFLT	2/5/2013	14:25	Chromium	8.4	ug/L	1.0
806202-001	PE-01-203	E218.6	LABFLT	2/5/2013	14:25	Chromium, Hexavalent	7.7	ug/L	0.20
806202-001	PE-01-203	SM2540C	NONE	2/5/2013	14:25	Total Dissolved Solids	2660	mg/L	125
806202-001	PE-01-203	SM4500HB	NONE	2/5/2013	14:25	PH	7.52	pH	4.00
806202-002	TW-03D-203	E120.1	NONE	2/5/2013	14:32	EC	8260	umhos/cm	2.00
806202-002	TW-03D-203	E200.8	LABFLT	2/5/2013	14:32	Chromium	950	ug/L	2.0
806202-002	TW-03D-203	SM2540C	NONE	2/5/2013	14:32	Total Dissolved Solids	5120	mg/L	250
806202-002	TW-03D-203	SM3500-CrB	LABFLT	2/5/2013	14:32	Chromium, Hexavalent	1020	ug/L	250
806202-002	TW-03D-203	SM4500HB	NONE	2/5/2013	14:32	PH	7.22	pH	4.00

ND: Non Detected (below reporting limit)

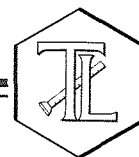
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01 will have two (2) significant figures.
Result above or equal to 0.01 will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

005

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.

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. 806202

Page 1 of 9

Printed 3/5/2013

Samples Received on 2/5/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
PE-01-203	806202-001	02/05/2013 14:25	Water
TW-03D-203	806202-002	02/05/2013 14:32	Water

Specific Conductivity - EPA 120.1

Batch 02EC13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806202-001 Specific Conductivity	umhos/cm	02/06/2013	1.00	0.116	2.00	4490
806202-002 Specific Conductivity	umhos/cm	02/06/2013	1.00	0.116	2.00	8260

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 806201-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7500	7500	0	0 - 10

Duplicate

Lab ID = 806202-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	8250	8260	0.121	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	693	706	98.2	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	698	706	98.9	90 - 110

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	698	706	98.9	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 3 of 9

Project Number: 456827.01.DM

Printed 3/5/2013

Chrome VI by EPA 218.6

Batch 02CrH13H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806202-001 Chromium, Hexavalent	ug/L	02/07/2013 14:30	1.00	0.00920	0.20	7.7

Method Blank

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

Duplicate

Lab ID = 806099-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	494	426	14.8	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.213	0.200	106	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.08	5.00	102	90 - 110

Matrix Spike

Lab ID = 806074-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.73	1.75(1.00)	97.9	90 - 110

Matrix Spike

Lab ID = 806074-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.92	1.96(1.00)	95.5	90 - 110

Matrix Spike

Lab ID = 806074-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.44	1.43(1.00)	102	90 - 110

Matrix Spike

Lab ID = 806074-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.44	1.44(1.00)	99.4	90 - 110

Matrix Spike

Lab ID = 806201-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.19	1.15(1.00)	104	90 - 110

Matrix Spike

Lab ID = 806201-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1780	1770(1000)	102	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 4 of 9****Project Number: 456827.01.DM****Printed 3/5/2013****Matrix Spike**

Lab ID = 806202-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	17.6	17.7(10.0)	99.3	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	10.2	10.0	102	95 - 105

MRCVS - Primary

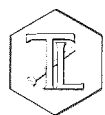
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.3	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


Report Continued
Client: E2 Consulting Engineers, Inc.
Project Name: PG&E Topock Project
Page 5 of 9
Project Number: 456827.01.DM
Printed 3/5/2013
Chromium, Hexavalent by SM 3500-Cr B
Batch 03CrH13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806202-002 Chromium, Hexavalent	ug/L	03/01/2013 15:33	25.0	110	250	1020

Method Blank

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

Duplicate
Lab ID = 806202-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	1040	1020	2.48	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	107	100	107	90 - 110

Matrix Spike
Lab ID = 806202-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3390	3520(2500)	94.9	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	107	100	107	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	63.2	60.0	105	90 - 110

pH by SM 4500-H B
Batch 02PH13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806202-001 pH	pH	02/06/2013 10:30	1.00	0.0784	4.00	7.52
806202-002 pH	pH	02/06/2013 10:33	1.00	0.0784	4.00	7.22

Duplicate
Lab ID = 806202-002

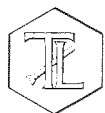
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.23	7.22	0.138	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.01	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 6 of 9****Project Number: 456827.01.DM****Printed 3/5/2013****Total Dissolved Solids by SM 2540 C**

Batch 02TDS13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806202-001 Total Dissolved Solids	mg/L	02/11/2013	1.00	0.757	125	2660
806202-002 Total Dissolved Solids	mg/L	02/11/2013	1.00	0.757	250	5120

Method Blank

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

Duplicate

Lab ID = 806202-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	5110	5120	0.196	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	492	500	98.4	90 - 110


Client: E2 Consulting Engineers, Inc.
Project Name: PG&E Topock Project
Page 7 of 9
Project Number: 456827.01.DM
Printed 3/5/2013
Metals by EPA 200.8, Dissolved
Batch 020713A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806202-001 Chromium	ug/L	02/07/2013 13:47	2.00	0.184	1.0	8.4
806202-002 Chromium	ug/L	02/07/2013 14:05	10.0	0.920	2.0	950

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND

Duplicate
Lab ID = 806147-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	16.9	16.0	5.41	0 - 20
Manganese	ug/L	2.00	86.6	84.5	2.45	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.255	0.200	128	70 - 130
Manganese	ug/L	1.00	0.203	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	52.6	50.0	105	85 - 115
Manganese	ug/L	2.00	51.3	50.0	102	85 - 115

Matrix Spike
Lab ID = 806147-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	68.2	66.0(50.0)	104	75 - 125
Manganese	ug/L	2.00	138	134(50.0)	107	75 - 125

Matrix Spike Duplicate
Lab ID = 806147-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	67.2	66.0(50.0)	102	75 - 125
Manganese	ug/L	2.00	136	134(50.0)	103	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.3	20.0	96.6	90 - 110
Manganese	ug/L	1.00	19.7	20.0	98.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.0	20.0	105	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 9 of 9****Project Number: 456827.01.DM****Printed 3/5/2013****Interference Check Standard A**

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.2	20.0	106	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

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.1	20.0	95.5	80 - 120


Serial Dilution

Lab ID = 806114-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	10.0	31.1	29.5	5.22	0 - 10

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services



Calculations

Batch: 02TDS13C

Date Analyzed: 2/11/13

[illegible]

Calculation as follows:

Filterable residue (TDS), mg/L =

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	492	500	98.4%	90-110%	Yes
LCSD					

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
806200-2	0.0512	0.0511	0.1%	≤5%	Yes

LCS Recovery

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

P = Percent recovery.

LC= Measured LCS value (ppm).

LT = Theoretical LCS value (ppm).

Duplicate Determination Difference

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

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 _____

TDS/EC CHECK

Date Analyzed: 2/11/13

[illegible]

Rec'd 02/05/13

S 806202



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-203]

806202

TURNAROUND TIME 10 Days
DATE 11/06/12 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)																			
SAMPLE I.D.	DATE	TIME	DESCRIPTION																
PE-01-203	02/05/13	1425	Ground water	X		X	X	X										4	} pH = 7 (200.7)
TW-03D-203	02/05/13	1432	Ground water	X	X	X	X										4		
				<div style="border: 2px solid black; padding: 5px; text-align: center;"> ALERT !! Level III QC </div>															
				<div style="text-align: center; opacity: 0.5;"> For Sample Conditions See Form Attached </div>															
																8		TOTAL NUMBER OF CONTAINERS	

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"/>
<i>[Signature]</i>	Ryan Phelps	CH2MHILL	2-5-13 15:30			
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	CUSTODY SEALED	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
<i>Rafael Davila</i>	Rafael	T.L.I	2-5-13 15:30			
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	SPECIAL REQUIREMENTS:		
<i>Rafael Davila</i>	Rafael	T.L.I	2-5-13 21:30			
Signature (Received)	Printed Name	Company/ Agency	Date/ Time			
<i>[Signature]</i>	[Name]	T.L.I	2/5/13 21:30			
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time			
<i>[Signature]</i>	[Name]	[Agency]	[Date/ Time]			
Signature (Received)	Printed Name	Company/ Agency	Date/ Time			
<i>[Signature]</i>	[Name]	[Agency]	[Date/ Time]			

048

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

[illegible]

7-11-13

HAV
02/09/13

049



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806202(1-2)	<1	>2	2/6/13	ES	yes	2:00		Filtered then acidified
806212(11-13)	<1	>2	2/7/13	BE	no	8:00 AM		
806230(4-3)	<1	>2	2-8-13	BE	no	7:30 AM		
806219(1-2)	>1	<2			yes			
806221		>2 BE				7:30 AM		
806222		<2						
806224								
806234								
8062203(1-2)	<1	<2	2-6-13	BE	yes			
805996(11-10)			01/31-13					
805995(1-9)								
806243	<1	<2	2/8/13	DC	yes			
806244	<1	<2						
806265	<1	<2						
806267	<1	<2						
806268(4-4)	>1	<2	2-11-13	BE	yes			
806269(1-4)	>1							
806237	<1	<2						
806211	TTL	-						
806296(1-4)	<1	<2	2-12-13	BE				
806263	>2	<2	2/12/13	ES	yes			
806275(1-2)								
806282(1-8)								
806285								
806286(1-2)								
806287								
806291(1-4)								
806292								
806329	<1	>2	2-13-13	BE	yes	8:30 AM		
806330(1-4) (9-11)	<1	<2						
806341(4-6)	<1	>2			no	13:30		
806322							2-15-13	PH < 2
806339	>1	>2	2/13/13	DC	yes	14:30		
806299	<1	<2						
806337(1-6)	<1	>2	2-14-13	BE	no	6:30	2-15-13	PH < 2
806341(1-3)								
806346(1-12)								
806347(1-3)								
806348(1-244)								
806304	<1	<2	2/14/13	ES	yes			
806305								
806306								
806307								
806308								

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 # 806202

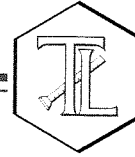
Date Delivered: 02/05/13 Time: 21:30 By: ☐ Mail ☒ Field Service ☐ Client

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)? 4.2°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: Linda Shabunine

ALERT !!
Level III QC

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

March 25, 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-204, GROUNDWATER
MONITORING PROJECT, TLI NO.: 806669

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-EW-204 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 March 5, 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.

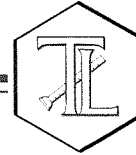
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


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.: 806669

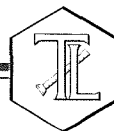
Date: March 21, 2013

Collected: March 5, 2013

Received: March 5, 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	Rozita Bahramzad / 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.: 806669

Date Received: March 5, 2013

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806669-001	PE-01-204	E120.1	NONE	3/5/2013	10:45	EC	4410	umhos/cm	2.00
806669-001	PE-01-204	E200.8	LABFLT	3/5/2013	10:45	Chromium	6.6	ug/L	1.0
806669-001	PE-01-204	E218.6	LABFLT	3/5/2013	10:45	Chromium, Hexavalent	6.5	ug/L	0.20
806669-001	PE-01-204	SM2540C	NONE	3/5/2013	10:45	Total Dissolved Solids	2820	mg/L	125
806669-001	PE-01-204	SM4500HB	NONE	3/5/2013	10:45	PH	7.53 J	pH	4.00
806669-002	TW-03D-204	E120.1	NONE	3/5/2013	10:45	EC	8150	umhos/cm	2.00
806669-002	TW-03D-204	E200.8	LABFLT	3/5/2013	10:45	Chromium	898	ug/L	2.0
806669-002	TW-03D-204	SM2540C	NONE	3/5/2013	10:45	Total Dissolved Solids	5290	mg/L	250
806669-002	TW-03D-204	SM3500-CrB	LABFLT	3/5/2013	10:45	Chromium, Hexavalent	867	ug/L	250
806669-002	TW-03D-204	SM4500HB	NONE	3/5/2013	10:45	PH	7.25 J	pH	4.00

ND: Non Detected (below reporting limit)

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

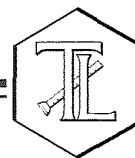
Results below 0.01 will have two (2) significant figures.

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

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

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(714) 730-6239 · FAX (714) 730-6462
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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. 806669

Page 1 of 8

Printed 3/21/2013

Samples Received on 3/5/2013 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
PE-01-204	806669-001	03/05/2013 10:45	Water
TW-03D-204	806669-002	03/05/2013 10:45	Water

Specific Conductivity - EPA 120.1

Batch 03EC13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806669-001 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	4410
806669-002 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	8150

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 806668-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	874	874	0	0 - 10

Duplicate

Lab ID = 806670-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7440	7440	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	710	706	100	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	707	706	100	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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TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 3 of 8

Project Number: 456827.01.DM

Printed 3/21/2013

Chrome VI by EPA 218.6

Batch 03CrH13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806669-001 Chromium, Hexavalent	ug/L	03/08/2013 20:34	1.00	0.00920	0.20	6.5

Method Blank

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

Duplicate

Lab ID = 806632-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	500	7470	7410	0.776	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

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 = 806632-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.982	1.00(1.00)	98.2	90 - 110

Matrix Spike

Lab ID = 806632-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.16	1.17(1.00)	99.2	90 - 110

Matrix Spike

Lab ID = 806632-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4500	4580(2000)	96.0	90 - 110

Matrix Spike

Lab ID = 806632-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	500	15100	14900(7500)	103	90 - 110

Matrix Spike

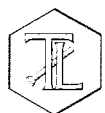
Lab ID = 806632-009

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 = 806632-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.982	1.00(1.00)	98.2	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 4 of 8

Project Number: 456827.01.DM

Printed 3/21/2013

Matrix Spike

Lab ID = 806632-011

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 = 806632-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.988	1.00(1.00)	98.8	90 - 110

Matrix Spike

Lab ID = 806669-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	16.6	16.5(10.0)	101	90 - 110

Matrix Spike

Lab ID = 806670-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1490	1470(750)	102	90 - 110

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.87	5.00	97.4	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	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



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 5 of 8

Project Number: 456827.01.DM

Printed 3/21/2013

Chromium, Hexavalent by SM 3500-Cr B

Batch 03CrH13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806669-002 Chromium, Hexavalent	ug/L	03/12/2013 14:33	25.0	110	250	867

Method Blank

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

Duplicate

Lab ID = 806669-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	838	867	3.45	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	96.5	100	96.5	90 - 110

Matrix Spike

Lab ID = 806669-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3330	3370(2500)	98.7	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	96.5	100	96.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	58.5	60.0	97.5	90 - 110

pH by SM 4500-H B

Batch 03PH13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806669-001 pH	pH	03/06/2013 11:10	1.00	0.0784	4.00	7.53 J
806669-002 pH	pH	03/06/2013 11:12	1.00	0.0784	4.00	7.25 J

Duplicate

Lab ID = 806669-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.25	7.25	0	0 - 20

Lab Control Sample

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



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 6 of 8

Project Number: 456827.01.DM

Printed 3/21/2013

Total Dissolved Solids by SM 2540 C

Batch 03TDS13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806669-001 Total Dissolved Solids	mg/L	03/06/2013	1.00	0.757	125	2820
806669-002 Total Dissolved Solids	mg/L	03/06/2013	1.00	0.757	250	5290

Method Blank

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

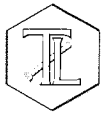
Duplicate

Lab ID = 806670-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4710	4580	2.80	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	510	500	102	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 7 of 8

Project Number: 456827.01.DM

Printed 3/21/2013

Metals by EPA 200.8, Dissolved

Batch 031513A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806669-001 Chromium	ug/L	03/15/2013 14:12	1.00	0.0920	1.0	6.6
806669-002 Chromium	ug/L	03/15/2013 14:18	10.0	0.920	2.0	898

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	ND	0	0	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	1.00	50.4	50.0	101	85 - 115

Matrix Spike

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	47.4	50.0(50.0)	94.8	75 - 125

Matrix Spike Duplicate

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	47.7	50.0(50.0)	95.5	75 - 125

MRCCS - Secondary

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	21.6	20.0	108	90 - 110

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	20.4	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 3/21/2013

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	21.0	20.0	105	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.7	20.0	98.6	80 - 120


Serial Dilution

Lab ID = 806670-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	699	693	0.816	0 - 10

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 03TDS13B
Date Analyzed: 3/6/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
806627	1172	0.58	761.8	0.89
806669-1	4450	0.63	2892.5	0.98
806669-2	8240	0.64	5356	0.99
806670-1	6990	0.59	4543.5	0.90
806670-2	7490	0.61	4868.5	0.94
806682-7	581	0.60	377.65	0.92
806695-1	427	0.62	277.55	0.95
MDL5				
MDL6				
MDL7				
806670-2	7490	0.63	4868.5	0.97
LCS				



806669



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-204]

TURNAROUND TIME 10 Days
DATE 03/05/13 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>												NUMBER OF CONTAINERS		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 Lee</i>																		
SAMPLE I.D.	DATE	TIME	DESCRIPTION															
1 PE-01-204	03/05/13	10:45	Ground water	X		X	X	X									4	pH=6.3 200.7
2 TW-03D-204	03/05/13	10:45	Ground water	X	X	X	X										4	pH=6
<div style="border: 2px solid black; padding: 5px; display: inline-block;"> ALERT !! Level III QC </div>				<div style="border: 1px solid gray; padding: 5px; display: inline-block;"> Sample Conditions Form Attached </div>														
																8	TOTAL NUMBER OF CONTAINERS	

CHAIN OF CUSTODY SIGNATURE RECORD					SAMPLE CONDITIONS	
Signature (Relinquished) <i>Chris Lee</i>	Printed Name <i>Chris Lee</i>	Company/Agency <i>CH2M HILL</i>	Date/Time <i>3-5-13 15:30</i>	RECEIVED	COOL <input checked="" type="checkbox"/>	WARM <input type="checkbox"/> 3.2 °C
Signature (Received) <i>Rafael Davila</i>	Printed Name <i>Rafael</i>	Company/Agency <i>T.H.I.</i>	Date/Time <i>3-5-13 15:30</i>	CUSTODY SEALED	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
Signature (Relinquished) <i>Rafael Davila</i>	Printed Name <i>Rafael</i>	Company/Agency <i>T.H.I.</i>	Date/Time <i>3-5-13 22:32</i>	SPECIAL REQUIREMENTS:		
Signature (Received) <i>Shabazz</i>	Printed Name <i>Linda</i>	Company/Agency <i>TLI</i>	Date/Time <i>3/5/13 22:32</i>			
Signature (Relinquished)	Printed Name	Company/Agency	Date/Time			
Signature (Received)	Printed Name	Company/Agency	Date/Time			

045

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
3/5/13	806635-9	9.5	N/A	N/A	N/A	RLS
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
3/6/13	803668-1	9.5	N/A	N/A	N/A	TMY
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
3/6/13	806669-1	7.0	2mL/100mL	9.5	10:20	TMY
	-2					
3/6/13	806670-1	7.0	2mL/100mL	9.5	10:20	TMY
	-2					
3/6/13	806673	9.5	N/A	N/A	N/A	TMY
3/6/13	806696-1	7.0	2mL/100mL	9.5	15:45	TMY
	-2		2mL/100mL			TMY



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806497(1,2)	<1	<2	2/25/13	DC	yes			
806520	>1	<2						
806493(1-5)	>1	<2						
806494(1-5)	>1	<2						
806552	<1	>2	2-27-13	BE	yes	11:00		
806553(1-4)		<2						
806554(1-4)								
806555(1,4-7)								
806542(1-3)		>2			no	12:00	2/28/13 @ 15:35	
806545								
806537	<1	<2		DC	yes			
806565	<1	>2			yes	14:00	2/28/13 @ 15:30	
806562(1-14)	<1	>2	2/28/13	ES	no	9:30	3/1/13 @ 16:00 pH < 2	
806567(10-12)								
806570(1-2)	>1	<2			yes			
806572(1-2)	>1	<2			yes			
806586(1,2)	<1	>2		DC	yes	15:30		
806617	>1	<2	3/4/13	DC	yes			
806632(1-12)	<1		3-5-13	BE				
806633(1-12)								
806634(1,3-6)								
806635(1-5,8-14)								
806620(1-2,4)	<1	>2	3/5/13	ES	no	12:00		
806627(16,23)								
806625		<2			yes			
806626								
806688(1-2,5,12,14-16)	<1	<2	3-6-13	BE	yes			
806669(1-2)		>2						Lab filter Acidified
806670(1-2)								
806679(1-5)		<2						
806643	>1	<2		DC	yes			
806651	<1							
806688	>1	>2				12:30		
806667	<1	>2		BE	no	14:00		
806663(1-3)						15:00		
806694(10-12)								
806682(4-6)								
806650	<1	<2	3/6/13	DC	yes			
806649								
806648								
806647								
806646								
806652								
806671								

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 # 806669

Date Delivered: 03/05/13 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)? 3.2 °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

January 24, 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 2012-RMP-189, SURFACEWATER MONITORING
PROJECT, TLI No.: 805651

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-RMP-189 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 January 8, 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 early sampling time and late arrival of the samples, samples C-MAR-D-189, C-MAR-S-189, C-TAZ-D-189, and C-TAZ-S-189 for pH analysis by SM 4500-H B were analyzed past the method specified holding time.

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.

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Event 2012-RMP-189 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-189	2.00	No			
C-I-3-D-189	2.00	No			
C-I-3-S-189	2.00	No			
C-MAR-D-189	2.00	No			
C-MAR-S-189	2.00	No			
C-MW-80-189	2.00	No			
C-MW-81-189	2.00	No			
C-R22A-D-189	2.00	No			
C-R22A-S-189	2.00	No			
C-R27-D-189	2.00	No			
C-R27-S-189	2.00	No			
C-TAZ-D-189	2.00	No			
C-TAZ-S-189	2.00	No			
R63-189	2.00	No			
RMP-AB1-189	2.00	No			

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Event 2012-RMP-189 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-189	9.50	No			
C-I-3-D-189	9.50	No			
C-I-3-S-189	9.50	No			
C-MAR-D-189	9.50	No			
C-MAR-S-189	9.50	No			
C-MW-80-189	9.50	No			
C-MW-81-189	9.50	No			
C-R22A-D-189	9.50	No			
C-R22A-S-189	9.50	No			
C-R27-D-189	9.50	No			
C-R27-S-189	9.50	No			
C-TAZ-D-189	9.50	No			
C-TAZ-S-189	9.50	No			
R63-189	9.50	No			
RMP-AB1-189	9.50	No			

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(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.: 805651

Date Received: January 8, 2013

Project Name: PG&E Topock Project

Project No.: 423575.MP.02.RM

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

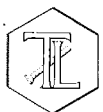
Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805651-001	C-BNS-D-189	E120.1	NONE	1/8/2013	13:28	EC	855	umhos/cm	2.00
805651-001	C-BNS-D-189	E218.6	FLDFLT	1/8/2013	13:28	Chromium, Hexavalent	ND	ug/L	0.20
805651-001	C-BNS-D-189	E300	NONE	1/8/2013	13:28	Nitrate as N	ND	mg/L	0.500
805651-001	C-BNS-D-189	SM2320B	NONE	1/8/2013	13:28	Alkalinity	123	mg/L	5.00
805651-001	C-BNS-D-189	SM2320B	NONE	1/8/2013	13:28	Alkalinity, Bicarbonate (As CaCO ₃)	123	mg/L	5.00
805651-001	C-BNS-D-189	SM2320B	NONE	1/8/2013	13:28	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805651-001	C-BNS-D-189	SM2540D	NONE	1/8/2013	13:28	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805651-001	C-BNS-D-189	SM4500HB	NONE	1/8/2013	13:28	PH	8.28	pH	4.00
805651-001	C-BNS-D-189	SW6010B	FLDFLT	1/8/2013	13:28	Iron	ND	ug/L	20.0
805651-001	C-BNS-D-189	SW6010B	NONE	1/8/2013	13:28	Iron	26.3	ug/L	20.0
805651-001	C-BNS-D-189	SW6020	FLDFLT	1/8/2013	13:28	Arsenic	2.5	ug/L	0.50
805651-001	C-BNS-D-189	SW6020	FLDFLT	1/8/2013	13:28	Chromium	ND	ug/L	1.0
805651-001	C-BNS-D-189	SW6020	FLDFLT	1/8/2013	13:28	Manganese	0.71	ug/L	0.50
805651-001	C-BNS-D-189	SW6020	FLDFLT	1/8/2013	13:28	Molybdenum	4.4	ug/L	2.0
805651-001	C-BNS-D-189	SW6020	FLDFLT	1/8/2013	13:28	Selenium	ND	ug/L	5.0
805651-002	C-I-3-D-189	E120.1	NONE	1/8/2013	11:29	EC	860	umhos/cm	2.00
805651-002	C-I-3-D-189	E218.6	FLDFLT	1/8/2013	11:29	Chromium, Hexavalent	ND	ug/L	0.20
805651-002	C-I-3-D-189	E300	NONE	1/8/2013	11:29	Nitrate as N	ND	mg/L	0.500
805651-002	C-I-3-D-189	SM2320B	NONE	1/8/2013	11:29	Alkalinity	120	mg/L	5.00
805651-002	C-I-3-D-189	SM2320B	NONE	1/8/2013	11:29	Alkalinity, Bicarbonate (As CaCO ₃)	120	mg/L	5.00
805651-002	C-I-3-D-189	SM2320B	NONE	1/8/2013	11:29	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805651-002	C-I-3-D-189	SM2540D	NONE	1/8/2013	11:29	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805651-002	C-I-3-D-189	SM4500HB	NONE	1/8/2013	11:29	PH	8.31	pH	4.00
805651-002	C-I-3-D-189	SW6010B	FLDFLT	1/8/2013	11:29	Iron	ND	ug/L	20.0
805651-002	C-I-3-D-189	SW6010B	NONE	1/8/2013	11:29	Iron	22.2	ug/L	20.0
805651-002	C-I-3-D-189	SW6020	FLDFLT	1/8/2013	11:29	Arsenic	2.6	ug/L	0.50
805651-002	C-I-3-D-189	SW6020	FLDFLT	1/8/2013	11:29	Chromium	ND	ug/L	1.0
805651-002	C-I-3-D-189	SW6020	FLDFLT	1/8/2013	11:29	Manganese	1.3	ug/L	0.50
805651-002	C-I-3-D-189	SW6020	FLDFLT	1/8/2013	11:29	Molybdenum	4.6	ug/L	2.0
805651-002	C-I-3-D-189	SW6020	FLDFLT	1/8/2013	11:29	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
805651-003	C-I-3-S-189	E120.1	NONE	1/8/2013	11:49	EC	853	umhos/cm	2.00
805651-003	C-I-3-S-189	E218.6	FLDFLT	1/8/2013	11:49	Chromium, Hexavalent	ND	ug/L	0.20
805651-003	C-I-3-S-189	E300	NONE	1/8/2013	11:49	Nitrate as N	ND	mg/L	0.500
805651-003	C-I-3-S-189	SM2320B	NONE	1/8/2013	11:49	Alkalinity	121	mg/L	5.00
805651-003	C-I-3-S-189	SM2320B	NONE	1/8/2013	11:49	Alkalinity, Bicarbonate (As CaCO ₃)	121	mg/L	5.00
805651-003	C-I-3-S-189	SM2320B	NONE	1/8/2013	11:49	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805651-003	C-I-3-S-189	SM2540D	NONE	1/8/2013	11:49	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805651-003	C-I-3-S-189	SM4500HB	NONE	1/8/2013	11:49	PH	8.30	pH	4.00
805651-003	C-I-3-S-189	SW6010B	FLDFLT	1/8/2013	11:49	Iron	ND	ug/L	20.0
805651-003	C-I-3-S-189	SW6010B	NONE	1/8/2013	11:49	Iron	21.1	ug/L	20.0
805651-003	C-I-3-S-189	SW6020	FLDFLT	1/8/2013	11:49	Arsenic	2.4	ug/L	0.50
805651-003	C-I-3-S-189	SW6020	FLDFLT	1/8/2013	11:49	Chromium	ND	ug/L	1.0
805651-003	C-I-3-S-189	SW6020	FLDFLT	1/8/2013	11:49	Manganese	0.68	ug/L	0.50
805651-003	C-I-3-S-189	SW6020	FLDFLT	1/8/2013	11:49	Molybdenum	4.6	ug/L	2.0
805651-003	C-I-3-S-189	SW6020	FLDFLT	1/8/2013	11:49	Selenium	ND	ug/L	5.0
805651-004	C-MAR-D-189	E120.1	NONE	1/8/2013	9:16	EC	943	umhos/cm	2.00
805651-004	C-MAR-D-189	E218.6	FLDFLT	1/8/2013	9:16	Chromium, Hexavalent	ND	ug/L	0.20
805651-004	C-MAR-D-189	E300	NONE	1/8/2013	9:16	Nitrate as N	ND	mg/L	0.500
805651-004	C-MAR-D-189	SM2320B	NONE	1/8/2013	9:16	Alkalinity	129	mg/L	5.00
805651-004	C-MAR-D-189	SM2320B	NONE	1/8/2013	9:16	Alkalinity, Bicarbonate (As CaCO ₃)	129	mg/L	5.00
805651-004	C-MAR-D-189	SM2320B	NONE	1/8/2013	9:16	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805651-004	C-MAR-D-189	SM2540D	NONE	1/8/2013	9:16	Suspended Solids (Residue, Non-Filterable)	40.8	mg/L	10.0
805651-004	C-MAR-D-189	SM4500HB	NONE	1/8/2013	9:16	PH	8.14 J	pH	4.00
805651-004	C-MAR-D-189	SW6010B	FLDFLT	1/8/2013	9:16	Iron	ND	ug/L	20.0
805651-004	C-MAR-D-189	SW6010B	NONE	1/8/2013	9:16	Iron	940	ug/L	20.0
805651-004	C-MAR-D-189	SW6020	FLDFLT	1/8/2013	9:16	Arsenic	2.4	ug/L	0.50
805651-004	C-MAR-D-189	SW6020	FLDFLT	1/8/2013	9:16	Chromium	ND	ug/L	1.0
805651-004	C-MAR-D-189	SW6020	FLDFLT	1/8/2013	9:16	Manganese	23.2	ug/L	0.50
805651-004	C-MAR-D-189	SW6020	FLDFLT	1/8/2013	9:16	Molybdenum	4.9	ug/L	2.0
805651-004	C-MAR-D-189	SW6020	FLDFLT	1/8/2013	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
805651-005	C-MAR-S-189	E120.1	NONE	1/8/2013	9:31	EC	916	umhos/cm	2.00
805651-005	C-MAR-S-189	E218.6	FLDFLT	1/8/2013	9:31	Chromium, Hexavalent	ND	ug/L	0.20
805651-005	C-MAR-S-189	E300	NONE	1/8/2013	9:31	Nitrate as N	ND	mg/L	0.500
805651-005	C-MAR-S-189	SM2320B	NONE	1/8/2013	9:31	Alkalinity	120	mg/L	5.00
805651-005	C-MAR-S-189	SM2320B	NONE	1/8/2013	9:31	Alkalinity, Bicarbonate (As CaCO ₃)	120	mg/L	5.00
805651-005	C-MAR-S-189	SM2320B	NONE	1/8/2013	9:31	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805651-005	C-MAR-S-189	SM2540D	NONE	1/8/2013	9:31	Suspended Solids (Residue, Non-Filterable)	14.8	mg/L	10.0
805651-005	C-MAR-S-189	SM4500HB	NONE	1/8/2013	9:31	PH	8.16 J	pH	4.00
805651-005	C-MAR-S-189	SW6010B	FLDFLT	1/8/2013	9:31	Iron	61.0	ug/L	20.0
805651-005	C-MAR-S-189	SW6010B	NONE	1/8/2013	9:31	Iron	490	ug/L	20.0
805651-005	C-MAR-S-189	SW6020	FLDFLT	1/8/2013	9:31	Arsenic	2.4	ug/L	0.50
805651-005	C-MAR-S-189	SW6020	FLDFLT	1/8/2013	9:31	Chromium	ND	ug/L	1.0
805651-005	C-MAR-S-189	SW6020	FLDFLT	1/8/2013	9:31	Manganese	19.7	ug/L	0.50
805651-005	C-MAR-S-189	SW6020	FLDFLT	1/8/2013	9:31	Molybdenum	4.4	ug/L	2.0
805651-005	C-MAR-S-189	SW6020	FLDFLT	1/8/2013	9:31	Selenium	ND	ug/L	5.0
805651-006	C-MW-80-189	E218.6	FLDFLT	1/8/2013	12:05	Chromium, Hexavalent	ND	ug/L	0.20
805651-007	C-MW-81-189	E218.6	FLDFLT	1/8/2013	13:10	Chromium, Hexavalent	ND	ug/L	0.20
805651-008	C-R22A-D-189	E120.1	NONE	1/8/2013	12:44	EC	863	umhos/cm	2.00
805651-008	C-R22A-D-189	E218.6	FLDFLT	1/8/2013	12:44	Chromium, Hexavalent	ND	ug/L	0.20
805651-008	C-R22A-D-189	E300	NONE	1/8/2013	12:44	Nitrate as N	ND	mg/L	0.500
805651-008	C-R22A-D-189	SM2320B	NONE	1/8/2013	12:44	Alkalinity	124	mg/L	5.00
805651-008	C-R22A-D-189	SM2320B	NONE	1/8/2013	12:44	Alkalinity, Bicarbonate (As CaCO ₃)	124	mg/L	5.00
805651-008	C-R22A-D-189	SM2320B	NONE	1/8/2013	12:44	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805651-008	C-R22A-D-189	SM2540D	NONE	1/8/2013	12:44	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805651-008	C-R22A-D-189	SM4500HB	NONE	1/8/2013	12:44	PH	8.30	pH	4.00
805651-008	C-R22A-D-189	SW6010B	FLDFLT	1/8/2013	12:44	Iron	ND	ug/L	20.0
805651-008	C-R22A-D-189	SW6010B	NONE	1/8/2013	12:44	Iron	22.4	ug/L	20.0
805651-008	C-R22A-D-189	SW6020	FLDFLT	1/8/2013	12:44	Arsenic	2.4	ug/L	0.50
805651-008	C-R22A-D-189	SW6020	FLDFLT	1/8/2013	12:44	Chromium	ND	ug/L	1.0
805651-008	C-R22A-D-189	SW6020	FLDFLT	1/8/2013	12:44	Manganese	0.96	ug/L	0.50
805651-008	C-R22A-D-189	SW6020	FLDFLT	1/8/2013	12:44	Molybdenum	4.2	ug/L	2.0
805651-008	C-R22A-D-189	SW6020	FLDFLT	1/8/2013	12:44	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805651-009	C-R22A-S-189	E120.1	NONE	1/8/2013	13:01	EC	847	umhos/cm	2.00
805651-009	C-R22A-S-189	E218.6	FLDFLT	1/8/2013	13:01	Chromium, Hexavalent	ND	ug/L	0.20
805651-009	C-R22A-S-189	E300	NONE	1/8/2013	13:01	Nitrate as N	ND	mg/L	0.500
805651-009	C-R22A-S-189	SM2320B	NONE	1/8/2013	13:01	Alkalinity	119	mg/L	5.00
805651-009	C-R22A-S-189	SM2320B	NONE	1/8/2013	13:01	Alkalinity, Bicarbonate (As CaCO3)	119	mg/L	5.00
805651-009	C-R22A-S-189	SM2320B	NONE	1/8/2013	13:01	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.0
805651-009	C-R22A-S-189	SM2540D	NONE	1/8/2013	13:01	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805651-009	C-R22A-S-189	SM4500HB	NONE	1/8/2013	13:01	PH	8.33	pH	4.00
805651-009	C-R22A-S-189	SW6010B	FLDFLT	1/8/2013	13:01	Iron	ND	ug/L	20.0
805651-009	C-R22A-S-189	SW6010B	NONE	1/8/2013	13:01	Iron	ND	ug/L	20.0
805651-009	C-R22A-S-189	SW6020	FLDFLT	1/8/2013	13:01	Arsenic	2.4	ug/L	0.50
805651-009	C-R22A-S-189	SW6020	FLDFLT	1/8/2013	13:01	Chromium	ND	ug/L	1.0
805651-009	C-R22A-S-189	SW6020	FLDFLT	1/8/2013	13:01	Manganese	1.0	ug/L	0.50
805651-009	C-R22A-S-189	SW6020	FLDFLT	1/8/2013	13:01	Molybdenum	4.1	ug/L	2.0
805651-009	C-R22A-S-189	SW6020	FLDFLT	1/8/2013	13:01	Selenium	ND	ug/L	5.0
805651-010	C-R27-D-189	E120.1	NONE	1/8/2013	14:00	EC	856	umhos/cm	2.00
805651-010	C-R27-D-189	E218.6	FLDFLT	1/8/2013	14:00	Chromium, Hexavalent	ND	ug/L	0.20
805651-010	C-R27-D-189	E300	NONE	1/8/2013	14:00	Nitrate as N	ND	mg/L	0.500
805651-010	C-R27-D-189	SM2320B	NONE	1/8/2013	14:00	Alkalinity	120	mg/L	5.00
805651-010	C-R27-D-189	SM2320B	NONE	1/8/2013	14:00	Alkalinity, Bicarbonate (As CaCO3)	120	mg/L	5.00
805651-010	C-R27-D-189	SM2320B	NONE	1/8/2013	14:00	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
805651-010	C-R27-D-189	SM2540D	NONE	1/8/2013	14:00	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805651-010	C-R27-D-189	SM4500HB	NONE	1/8/2013	14:00	PH	8.27	pH	4.00
805651-010	C-R27-D-189	SW6010B	FLDFLT	1/8/2013	14:00	Iron	ND	ug/L	20.0
805651-010	C-R27-D-189	SW6010B	NONE	1/8/2013	14:00	Iron	ND	ug/L	20.0
805651-010	C-R27-D-189	SW6020	FLDFLT	1/8/2013	14:00	Arsenic	2.5	ug/L	0.50
805651-010	C-R27-D-189	SW6020	FLDFLT	1/8/2013	14:00	Chromium	ND	ug/L	1.0
805651-010	C-R27-D-189	SW6020	FLDFLT	1/8/2013	14:00	Manganese	1.0	ug/L	0.50
805651-010	C-R27-D-189	SW6020	FLDFLT	1/8/2013	14:00	Molybdenum	4.2	ug/L	2.0
805651-010	C-R27-D-189	SW6020	FLDFLT	1/8/2013	14:00	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805651-011	C-R27-S-189	E120.1	NONE	1/8/2013	14:16	EC	848	umhos/cm	2.00
805651-011	C-R27-S-189	E218.6	FLDFLT	1/8/2013	14:16	Chromium, Hexavalent	ND	ug/L	0.20
805651-011	C-R27-S-189	E300	NONE	1/8/2013	14:16	Nitrate as N	ND	mg/L	0.500
805651-011	C-R27-S-189	SM2320B	NONE	1/8/2013	14:16	Alkalinity	129	mg/L	5.00
805651-011	C-R27-S-189	SM2320B	NONE	1/8/2013	14:16	Alkalinity, Bicarbonate (As CaCO ₃)	129	mg/L	5.00
805651-011	C-R27-S-189	SM2320B	NONE	1/8/2013	14:16	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805651-011	C-R27-S-189	SM2540D	NONE	1/8/2013	14:16	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805651-011	C-R27-S-189	SM4500HB	NONE	1/8/2013	14:16	PH	8.27	pH	4.00
805651-011	C-R27-S-189	SW6010B	FLDFLT	1/8/2013	14:16	Iron	ND	ug/L	20.0
805651-011	C-R27-S-189	SW6010B	NONE	1/8/2013	14:16	Iron	ND	ug/L	20.0
805651-011	C-R27-S-189	SW6020	FLDFLT	1/8/2013	14:16	Arsenic	2.4	ug/L	0.50
805651-011	C-R27-S-189	SW6020	FLDFLT	1/8/2013	14:16	Chromium	ND	ug/L	1.0
805651-011	C-R27-S-189	SW6020	FLDFLT	1/8/2013	14:16	Manganese	0.81	ug/L	0.50
805651-011	C-R27-S-189	SW6020	FLDFLT	1/8/2013	14:16	Molybdenum	4.1	ug/L	2.0
805651-011	C-R27-S-189	SW6020	FLDFLT	1/8/2013	14:16	Selenium	ND	ug/L	5.0
805651-012	C-TAZ-D-189	E120.1	NONE	1/8/2013	10:25	EC	856	umhos/cm	2.00
805651-012	C-TAZ-D-189	E218.6	FLDFLT	1/8/2013	10:25	Chromium, Hexavalent	ND	ug/L	0.20
805651-012	C-TAZ-D-189	E300	NONE	1/8/2013	10:25	Nitrate as N	ND	mg/L	0.500
805651-012	C-TAZ-D-189	SM2320B	NONE	1/8/2013	10:25	Alkalinity	124	mg/L	5.00
805651-012	C-TAZ-D-189	SM2320B	NONE	1/8/2013	10:25	Alkalinity, Bicarbonate (As CaCO ₃)	124	mg/L	5.00
805651-012	C-TAZ-D-189	SM2320B	NONE	1/8/2013	10:25	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805651-012	C-TAZ-D-189	SM2540D	NONE	1/8/2013	10:25	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805651-012	C-TAZ-D-189	SM4500HB	NONE	1/8/2013	10:25	PH	8.34 J	pH	4.00
805651-012	C-TAZ-D-189	SW6010B	FLDFLT	1/8/2013	10:25	Iron	ND	ug/L	20.0
805651-012	C-TAZ-D-189	SW6010B	NONE	1/8/2013	10:25	Iron	23.3	ug/L	20.0
805651-012	C-TAZ-D-189	SW6020	FLDFLT	1/8/2013	10:25	Arsenic	2.4	ug/L	0.50
805651-012	C-TAZ-D-189	SW6020	FLDFLT	1/8/2013	10:25	Chromium	ND	ug/L	1.0
805651-012	C-TAZ-D-189	SW6020	FLDFLT	1/8/2013	10:25	Manganese	0.84	ug/L	0.50
805651-012	C-TAZ-D-189	SW6020	FLDFLT	1/8/2013	10:25	Molybdenum	4.0	ug/L	2.0
805651-012	C-TAZ-D-189	SW6020	FLDFLT	1/8/2013	10:25	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805651-013	C-TAZ-S-189	E120.1	NONE	1/8/2013	10:40	EC	859	umhos/cm	2.00
805651-013	C-TAZ-S-189	E218.6	FLDFLT	1/8/2013	10:40	Chromium, Hexavalent	ND	ug/L	0.20
805651-013	C-TAZ-S-189	E300	NONE	1/8/2013	10:40	Nitrate as N	ND	mg/L	0.500
805651-013	C-TAZ-S-189	SM2320B	NONE	1/8/2013	10:40	Alkalinity	113	mg/L	5.00
805651-013	C-TAZ-S-189	SM2320B	NONE	1/8/2013	10:40	Alkalinity, Bicarbonate (As CaCO ₃)	113	mg/L	5.00
805651-013	C-TAZ-S-189	SM2320B	NONE	1/8/2013	10:40	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805651-013	C-TAZ-S-189	SM2540D	NONE	1/8/2013	10:40	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805651-013	C-TAZ-S-189	SM4500HB	NONE	1/8/2013	10:40	PH	8.32 J	pH	4.00
805651-013	C-TAZ-S-189	SW6010B	FLDFLT	1/8/2013	10:40	Iron	ND	ug/L	20.0
805651-013	C-TAZ-S-189	SW6010B	NONE	1/8/2013	10:40	Iron	24.2	ug/L	20.0
805651-013	C-TAZ-S-189	SW6020	FLDFLT	1/8/2013	10:40	Arsenic	2.5	ug/L	0.50
805651-013	C-TAZ-S-189	SW6020	FLDFLT	1/8/2013	10:40	Chromium	ND	ug/L	1.0
805651-013	C-TAZ-S-189	SW6020	FLDFLT	1/8/2013	10:40	Manganese	1.0	ug/L	0.50
805651-013	C-TAZ-S-189	SW6020	FLDFLT	1/8/2013	10:40	Molybdenum	4.2	ug/L	2.0
805651-013	C-TAZ-S-189	SW6020	FLDFLT	1/8/2013	10:40	Selenium	ND	ug/L	5.0
805651-014	R63-189	E120.1	NONE	1/8/2013	12:15	EC	864	umhos/cm	2.00
805651-014	R63-189	E218.6	FLDFLT	1/8/2013	12:15	Chromium, Hexavalent	ND	ug/L	0.20
805651-014	R63-189	E300	NONE	1/8/2013	12:15	Nitrate as N	ND	mg/L	0.500
805651-014	R63-189	SM2320B	NONE	1/8/2013	12:15	Alkalinity	120	mg/L	5.00
805651-014	R63-189	SM2320B	NONE	1/8/2013	12:15	Alkalinity, Bicarbonate (As CaCO ₃)	120	mg/L	5.00
805651-014	R63-189	SM2320B	NONE	1/8/2013	12:15	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805651-014	R63-189	SM2540D	NONE	1/8/2013	12:15	Suspended Solids (Residue, Non-Filterable)	53.6	mg/L	10.0
805651-014	R63-189	SM4500HB	NONE	1/8/2013	12:15	PH	8.33	pH	4.00
805651-014	R63-189	SW6010B	FLDFLT	1/8/2013	12:15	Iron	ND	ug/L	20.0
805651-014	R63-189	SW6010B	NONE	1/8/2013	12:15	Iron	603	ug/L	20.0
805651-014	R63-189	SW6020	FLDFLT	1/8/2013	12:15	Arsenic	2.6	ug/L	0.50
805651-014	R63-189	SW6020	FLDFLT	1/8/2013	12:15	Chromium	ND	ug/L	1.0
805651-014	R63-189	SW6020	FLDFLT	1/8/2013	12:15	Manganese	1.3	ug/L	0.50
805651-014	R63-189	SW6020	FLDFLT	1/8/2013	12:15	Molybdenum	4.4	ug/L	2.0
805651-014	R63-189	SW6020	FLDFLT	1/8/2013	12:15	Selenium	ND	ug/L	5.0
805651-015	RMP-AB1-189	E218.6	FLDFLT	1/8/2013	14:25	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.02.RM

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

Release Number:

Laboratory No. 805651

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Samples Received on 1/8/2013 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
C-BNS-D-189	805651-001	01/08/2013 13:28	Water
C-I-3-D-189	805651-002	01/08/2013 11:29	Water
C-I-3-S-189	805651-003	01/08/2013 11:49	Water
C-MAR-D-189	805651-004	01/08/2013 09:16	Water
C-MAR-S-189	805651-005	01/08/2013 09:31	Water
C-MW-80-189	805651-006	01/08/2013 12:05	Water
C-MW-81-189	805651-007	01/08/2013 13:10	Water
C-R22A-D-189	805651-008	01/08/2013 12:44	Water
C-R22A-S-189	805651-009	01/08/2013 13:01	Water
C-R27-D-189	805651-010	01/08/2013 14:00	Water
C-R27-S-189	805651-011	01/08/2013 14:16	Water
C-TAZ-D-189	805651-012	01/08/2013 10:25	Water
C-TAZ-S-189	805651-013	01/08/2013 10:40	Water
R63-189	805651-014	01/08/2013 12:15	Water
RMP-AB1-189	805651-015	01/08/2013 14:25	Water

Anions By I.C. - EPA 300.0

Batch 01AN13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805651-001 Nitrate as Nitrogen	mg/L	01/09/2013 14:02	1.00	0.00830	0.500	ND
805651-002 Nitrate as Nitrogen	mg/L	01/09/2013 18:59	1.00	0.00830	0.500	ND
805651-003 Nitrate as Nitrogen	mg/L	01/09/2013 19:10	1.00	0.00830	0.500	ND
805651-004 Nitrate as Nitrogen	mg/L	01/09/2013 19:21	1.00	0.00830	0.500	ND
805651-005 Nitrate as Nitrogen	mg/L	01/09/2013 19:33	1.00	0.00830	0.500	ND
805651-008 Nitrate as Nitrogen	mg/L	01/09/2013 19:44	1.00	0.00830	0.500	ND
805651-009 Nitrate as Nitrogen	mg/L	01/09/2013 19:56	1.00	0.00830	0.500	ND
805651-010 Nitrate as Nitrogen	mg/L	01/09/2013 20:07	1.00	0.00830	0.500	ND
805651-011 Nitrate as Nitrogen	mg/L	01/09/2013 20:19	1.00	0.00830	0.500	ND
805651-012 Nitrate as Nitrogen	mg/L	01/09/2013 20:53	1.00	0.00830	0.500	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.

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805651-013 Nitrate as Nitrogen	mg/L	01/09/2013 21:04	1.00	0.00830	0.500	ND
805651-014 Nitrate as Nitrogen	mg/L	01/09/2013 21:16	1.00	0.00830	0.500	ND

Method Blank

Parameter	Unit	DF	Result
Nitrate as Nitrogen	mg/L	1.00	ND

Duplicate

Lab ID = 805651-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	ND	0.287	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	4.00	4.00	99.9	90 - 110

Matrix Spike

Lab ID = 805651-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.41	2.29(2.00)	106	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.99	4.00	99.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.00	3.00	99.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.98	3.00	99.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.98	3.00	99.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.00	3.00	99.9	90 - 110



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Project Name: PG&E Topock Project

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Printed 1/24/2013

Alkalinity by SM 2320B		Batch 01ALK13C				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805651-001 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	123
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	123
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805651-002 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	120
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	120
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805651-003 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	121
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	121
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805651-004 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	129
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	129
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805651-005 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	120
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	120
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805651-008 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	124
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	124
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805651-009 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	119
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	119
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805651-010 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	120
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	120
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805651-011 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	129
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	129
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805651-012 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	124
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	124
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805651-013 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	113
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	113
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805651-014 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	120



Client: E2 Consulting Engineers, Inc.

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805651-014 Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	120
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
Method Blank						
Parameter	Unit	DF	Result			
Alkalinity as CaCO ₃	mg/L	1.00	ND			
Duplicate						Lab ID = 805651-001
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	124	123	0.810	0 - 20
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	96.0	100	96.0	90 - 110
Lab Control Sample Duplicate						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	96.0	100	96.0	90 - 110
Matrix Spike						Lab ID = 805651-014
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	220	220(100)	100	75 - 125



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Specific Conductivity - EPA 120.1		Batch 01EC13G				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805651-001 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	855
805651-002 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	860
805651-003 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	853
805651-004 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	943
805651-005 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	916
805651-008 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	863
805651-009 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	847
805651-010 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	856
805651-011 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	848
805651-012 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	856
805651-013 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	859
805651-014 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	864

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 805651-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	847	856	1.06	0 - 10

Duplicate

Lab ID = 805651-014

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	862	864	0.232	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	663	706	93.9	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	660	706	93.5	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	661	706	93.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	924	998	92.6	90 - 110



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Metals by EPA 6010B, Total		Batch 012113B-Th2				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805651-001 Iron	ug/L	01/21/2013 17:34	1.00	9.50	20.0	26.3
805651-002 Iron	ug/L	01/21/2013 17:40	1.00	9.50	20.0	22.2
805651-003 Iron	ug/L	01/21/2013 18:13	1.00	9.50	20.0	21.1
805651-004 Iron	ug/L	01/21/2013 18:19	1.00	9.50	20.0	940
805651-005 Iron	ug/L	01/21/2013 18:25	1.00	9.50	20.0	490
805651-008 Iron	ug/L	01/21/2013 18:32	1.00	9.50	20.0	22.4
805651-009 Iron	ug/L	01/21/2013 18:38	1.00	9.50	20.0	ND
805651-010 Iron	ug/L	01/21/2013 18:44	1.00	9.50	20.0	ND
805651-011 Iron	ug/L	01/21/2013 18:50	1.00	9.50	20.0	ND
805651-012 Iron	ug/L	01/21/2013 18:56	1.00	9.50	20.0	23.3
805651-013 Iron	ug/L	01/21/2013 19:03	1.00	9.50	20.0	24.2
805651-014 Iron	ug/L	01/21/2013 19:09	1.00	9.50	20.0	603

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 805651-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	21.9	22.2	1.36	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2140	2000	107	85 - 115

Matrix Spike

Lab ID = 805651-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2050	2020(2000)	101	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5010	5000	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5150	5000	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5130	5000	103	90 - 110



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Chrome VI by EPA 218.6		Batch 01CrH13C				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805651-001 Chromium, Hexavalent	ug/L	01/09/2013 19:31	1.00	0.00920	0.20	ND
805651-002 Chromium, Hexavalent	ug/L	01/09/2013 19:42	1.00	0.00920	0.20	ND
805651-003 Chromium, Hexavalent	ug/L	01/09/2013 19:52	1.00	0.00920	0.20	ND
805651-004 Chromium, Hexavalent	ug/L	01/09/2013 20:02	1.00	0.00920	0.20	ND
805651-005 Chromium, Hexavalent	ug/L	01/09/2013 20:44	1.00	0.00920	0.20	ND
805651-006 Chromium, Hexavalent	ug/L	01/09/2013 20:54	1.00	0.00920	0.20	ND
805651-007 Chromium, Hexavalent	ug/L	01/09/2013 21:05	1.00	0.00920	0.20	ND
805651-008 Chromium, Hexavalent	ug/L	01/09/2013 21:15	1.00	0.00920	0.20	ND
805651-009 Chromium, Hexavalent	ug/L	01/09/2013 21:26	1.00	0.00920	0.20	ND
805651-010 Chromium, Hexavalent	ug/L	01/09/2013 21:36	1.00	0.00920	0.20	ND
805651-011 Chromium, Hexavalent	ug/L	01/09/2013 21:47	1.00	0.00920	0.20	ND
805651-012 Chromium, Hexavalent	ug/L	01/09/2013 21:57	1.00	0.00920	0.20	ND
805651-013 Chromium, Hexavalent	ug/L	01/09/2013 22:07	1.00	0.00920	0.20	ND
805651-014 Chromium, Hexavalent	ug/L	01/09/2013 22:18	1.00	0.00920	0.20	ND
805651-015 Chromium, Hexavalent	ug/L	01/09/2013 22:49	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate

Lab ID = 805581-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0658	0.0611	7.41	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	4.70	5.00	93.9	90 - 110

Matrix Spike

Lab ID = 805581-005

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

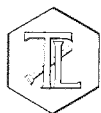
Matrix Spike

Lab ID = 805650-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.06(1.00)	95.0	90 - 110

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Matrix Spike						Lab ID = 805650-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.81	5.06(5.00)	94.9	90 - 110
Matrix Spike						Lab ID = 805651-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.992	1.02(1.00)	96.6	90 - 110
Matrix Spike						Lab ID = 805651-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.942	1.03(1.00)	91.4	90 - 110
Matrix Spike						Lab ID = 805651-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.03(1.00)	101	90 - 110
Matrix Spike						Lab ID = 805651-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.958	1.02(1.00)	93.8	90 - 110
Matrix Spike						Lab ID = 805651-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.09	1.02(1.00)	107	90 - 110
Matrix Spike						Lab ID = 805651-006
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.04(1.00)	96.9	90 - 110
Matrix Spike						Lab ID = 805651-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.04(1.00)	96.3	90 - 110
Matrix Spike						Lab ID = 805651-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.03(1.00)	97.8	90 - 110
Matrix Spike						Lab ID = 805651-009
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.983	1.02(1.00)	96.4	90 - 110
Matrix Spike						Lab ID = 805651-010
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.989	1.02(1.00)	96.8	90 - 110
Matrix Spike						Lab ID = 805651-011
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.03(1.00)	97.8	90 - 110

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Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.11	1.03(1.00)	108	90 - 110

Matrix Spike**Lab ID = 805651-013**

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.998	1.02(1.00)	97.4	90 - 110

Matrix Spike**Lab ID = 805651-014**

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.03(1.00)	97.1	90 - 110

Matrix Spike**Lab ID = 805651-015**

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.04(1.00)	99.5	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.69	5.00	93.9	90 - 110

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	9.97	10.0	99.7	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	10.0	10.0	100	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

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Metals by EPA 6020A, Dissolved			Batch 011713B			
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805651-001 Arsenic	ug/L	01/17/2013 22:59	1.00	0.100	0.50	2.5
Chromium	ug/L	01/17/2013 22:59	1.00	0.0920	1.0	ND
Manganese	ug/L	01/17/2013 22:59	1.00	0.0860	0.50	0.71
805651-002 Arsenic	ug/L	01/17/2013 23:34	1.00	0.100	0.50	2.6
Chromium	ug/L	01/17/2013 23:34	1.00	0.0920	1.0	ND
Manganese	ug/L	01/17/2013 23:34	1.00	0.0860	0.50	1.3
805651-003 Arsenic	ug/L	01/17/2013 23:40	1.00	0.100	0.50	2.4
Chromium	ug/L	01/17/2013 23:40	1.00	0.0920	1.0	ND
Manganese	ug/L	01/17/2013 23:40	1.00	0.0860	0.50	0.68
805651-004 Arsenic	ug/L	01/17/2013 23:46	1.00	0.100	0.50	2.4
Chromium	ug/L	01/17/2013 23:46	1.00	0.0920	1.0	ND
Manganese	ug/L	01/17/2013 23:46	1.00	0.0860	0.50	23.2
805651-005 Arsenic	ug/L	01/17/2013 23:52	1.00	0.100	0.50	2.4
Chromium	ug/L	01/17/2013 23:52	1.00	0.0920	1.0	ND
Manganese	ug/L	01/17/2013 23:52	1.00	0.0860	0.50	19.7
805651-008 Arsenic	ug/L	01/17/2013 23:58	1.00	0.100	0.50	2.4
Chromium	ug/L	01/17/2013 23:58	1.00	0.0920	1.0	ND
Manganese	ug/L	01/17/2013 23:58	1.00	0.0860	0.50	0.96
805651-009 Arsenic	ug/L	01/18/2013 00:04	1.00	0.100	0.50	2.4
Chromium	ug/L	01/18/2013 00:04	1.00	0.0920	1.0	ND
Manganese	ug/L	01/18/2013 00:04	1.00	0.0860	0.50	1.0
805651-010 Arsenic	ug/L	01/18/2013 00:10	1.00	0.100	0.50	2.5
Chromium	ug/L	01/18/2013 00:10	1.00	0.0920	1.0	ND
Manganese	ug/L	01/18/2013 00:10	1.00	0.0860	0.50	1.0
805651-011 Arsenic	ug/L	01/18/2013 00:16	1.00	0.100	0.50	2.4
Chromium	ug/L	01/18/2013 00:16	1.00	0.0920	1.0	ND
Manganese	ug/L	01/18/2013 00:16	1.00	0.0860	0.50	0.81
805651-012 Arsenic	ug/L	01/18/2013 00:22	1.00	0.100	0.50	2.4
Chromium	ug/L	01/18/2013 00:22	1.00	0.0920	1.0	ND
Manganese	ug/L	01/18/2013 00:22	1.00	0.0860	0.50	0.84
805651-013 Arsenic	ug/L	01/18/2013 00:28	1.00	0.100	0.50	2.5
Chromium	ug/L	01/18/2013 00:28	1.00	0.0920	1.0	ND
Manganese	ug/L	01/18/2013 00:28	1.00	0.0860	0.50	1.0
805651-014 Arsenic	ug/L	01/18/2013 00:45	1.00	0.100	0.50	2.6



TRUESDAIL LABORATORIES, INC.

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805651-014 Chromium	ug/L	01/18/2013 00:45	1.00	0.0920	1.0	ND
Manganese	ug/L	01/18/2013 00:45	1.00	0.0860	0.50	1.3

Method Blank

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

Duplicate

Lab ID = 805651-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	1.00	2.48	2.46	0.648	0 - 20
Chromium	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	0.848	0.714	17.2	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.232	0.200	116	70 - 130
Chromium	ug/L	1.00	0.212	0.200	106	70 - 130
Manganese	ug/L	1.00	0.190	0.200	95.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	46.9	50.0	93.8	85 - 115
Chromium	ug/L	1.00	49.1	50.0	98.2	85 - 115
Manganese	ug/L	1.00	46.8	50.0	93.7	85 - 115

Matrix Spike

Lab ID = 805651-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	55.4	52.5(50.0)	106	75 - 125
Chromium	ug/L	1.00	53.5	50.0(50.0)	107	75 - 125
Manganese	ug/L	1.00	50.8	50.7(50.0)	100	75 - 125

Matrix Spike Duplicate

Lab ID = 805651-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	49.7	52.5(50.0)	94.5	75 - 125
Chromium	ug/L	1.00	48.0	50.0(50.0)	96.0	75 - 125
Manganese	ug/L	1.00	45.5	50.7(50.0)	89.6	75 - 125



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Metals by EPA 6020A, Dissolved		Batch 011813B				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805651-001 Molybdenum	ug/L	01/18/2013 14:16	2.00	0.414	2.0	4.4
Selenium	ug/L	01/18/2013 14:16	2.00	0.160	5.0	ND
805651-002 Molybdenum	ug/L	01/18/2013 14:46	2.00	0.414	2.0	4.6
Selenium	ug/L	01/18/2013 14:46	2.00	0.160	5.0	ND
805651-003 Molybdenum	ug/L	01/18/2013 14:52	2.00	0.414	2.0	4.6
Selenium	ug/L	01/18/2013 14:52	2.00	0.160	5.0	ND
805651-004 Molybdenum	ug/L	01/18/2013 14:58	2.00	0.414	2.0	4.9
Selenium	ug/L	01/18/2013 14:58	2.00	0.160	5.0	ND
805651-005 Molybdenum	ug/L	01/18/2013 15:03	2.00	0.414	2.0	4.4
Selenium	ug/L	01/18/2013 15:03	2.00	0.160	5.0	ND
805651-008 Molybdenum	ug/L	01/18/2013 15:09	2.00	0.414	2.0	4.2
Selenium	ug/L	01/18/2013 15:09	2.00	0.160	5.0	ND
805651-009 Molybdenum	ug/L	01/18/2013 15:15	2.00	0.414	2.0	4.1
Selenium	ug/L	01/18/2013 15:15	2.00	0.160	5.0	ND
805651-010 Molybdenum	ug/L	01/18/2013 15:21	2.00	0.414	2.0	4.2
Selenium	ug/L	01/18/2013 15:21	2.00	0.160	5.0	ND
805651-011 Molybdenum	ug/L	01/18/2013 15:27	2.00	0.414	2.0	4.1
Selenium	ug/L	01/18/2013 15:27	2.00	0.160	5.0	ND
805651-012 Molybdenum	ug/L	01/18/2013 15:33	2.00	0.414	2.0	4.0
Selenium	ug/L	01/18/2013 15:33	2.00	0.160	5.0	ND
805651-013 Molybdenum	ug/L	01/18/2013 15:39	2.00	0.414	2.0	4.2
Selenium	ug/L	01/18/2013 15:39	2.00	0.160	5.0	ND
805651-014 Molybdenum	ug/L	01/18/2013 15:57	2.00	0.414	2.0	4.4
Selenium	ug/L	01/18/2013 15:57	2.00	0.160	5.0	ND

Method Blank

Parameter	Unit	DF	Result
Selenium	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	0.824	1.00	82.4	70 - 130

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Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	0.469	0.500	93.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	2.00	49.2	50.0	98.4	85 - 115
Molybdenum	ug/L	2.00	48.5	50.0	97.0	85 - 115

Matrix Spike

Lab ID = 805651-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium	ug/L	2.00	56.1	50.0(50.0)	112	75 - 125
Molybdenum	ug/L	2.00	65.7	54.4(50.0)	122	75 - 125

Matrix Spike Duplicate

Lab ID = 805651-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium	ug/L	2.00	49.1	50.0(50.0)	98.1	75 - 125
Molybdenum	ug/L	2.00	56.2	54.4(50.0)	103	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	20.3	20.0	101	90 - 110
Molybdenum	ug/L	1.00	20.2	20.0	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	19.2	20.0	96.0	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	19.6	20.0	98.0	90 - 110
Molybdenum	ug/L	1.00	19.1	20.0	95.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	18.4	20.0	92.1	90 - 110

MRCVS - Primary

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



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.RM

Printed 1/24/2013

Metals by EPA 6010B, Dissolved		Batch 012113A-Th2				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805651-001 Iron	ug/L	01/21/2013 14:28	1.00	9.50	20.0	ND
805651-002 Iron	ug/L	01/21/2013 14:34	1.00	9.50	20.0	ND
805651-003 Iron	ug/L	01/21/2013 14:41	1.00	9.50	20.0	ND
805651-004 Iron	ug/L	01/21/2013 15:15	1.00	9.50	20.0	ND
805651-005 Iron	ug/L	01/21/2013 15:21	1.00	9.50	20.0	61.0
805651-008 Iron	ug/L	01/21/2013 15:27	1.00	9.50	20.0	ND
805651-009 Iron	ug/L	01/21/2013 15:33	1.00	9.50	20.0	ND
805651-010 Iron	ug/L	01/21/2013 15:40	1.00	9.50	20.0	ND
805651-011 Iron	ug/L	01/21/2013 15:46	1.00	9.50	20.0	ND
805651-012 Iron	ug/L	01/21/2013 15:52	1.00	9.50	20.0	ND
805651-013 Iron	ug/L	01/21/2013 15:58	1.00	9.50	20.0	ND
805651-014 Iron	ug/L	01/21/2013 16:04	1.00	9.50	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 805651-003

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	2150	2000	107	85 - 115

Matrix Spike

Lab ID = 805651-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2070	2000(2000)	104	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5110	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5260	5000	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5100	5000	102	90 - 110


Client: E2 Consulting Engineers, Inc.
Project Name: PG&E Topock Project
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Project Number: 423575.MP.02.RM
Printed 1/24/2013
Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2270	2000	114	80 - 120

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2160	2000	108	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2280	2000	114	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2170	2000	109	80 - 120

pH by SM 4500-H B
Batch 01PH13G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805651-001 pH	pH	01/09/2013 10:40	1.00	0.0784	4.00	8.28
805651-002 pH	pH	01/09/2013 10:43	1.00	0.0784	4.00	8.31
805651-003 pH	pH	01/09/2013 10:45	1.00	0.0784	4.00	8.30
805651-004 pH	pH	01/09/2013 10:48	1.00	0.0784	4.00	8.14 J
805651-005 pH	pH	01/09/2013 10:50	1.00	0.0784	4.00	8.16 J
805651-008 pH	pH	01/09/2013 10:52	1.00	0.0784	4.00	8.30
805651-009 pH	pH	01/09/2013 10:55	1.00	0.0784	4.00	8.33

Duplicate
Lab ID = 805651-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.34	8.33	0.120	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	7.01	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****Page 22 of 23****Project Number: 423575.MP.02.RM****Printed 1/24/2013**

pH by SM 4500-H B		Batch 01PH13H				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805651-010 pH	pH	01/09/2013 11:07	1.00	0.0784	4.00	8.27
805651-011 pH	pH	01/09/2013 11:10	1.00	0.0784	4.00	8.27
805651-012 pH	pH	01/09/2013 11:12	1.00	0.0784	4.00	8.34 J
805651-013 pH	pH	01/09/2013 11:15	1.00	0.0784	4.00	8.32 J
805651-014 pH	pH	01/09/2013 11:17	1.00	0.0784	4.00	8.33
Duplicate					Lab ID = 805651-014	
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.33	8.33	0	0 - 20
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.00	7.00	100	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 1/24/2013

Total Suspended Solids by SM 2540 D		Batch 01TSS13E				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805651-001 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	ND
805651-002 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	ND
805651-003 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	ND
805651-004 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	40.8
805651-005 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	14.8
805651-008 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	ND
805651-009 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	ND
805651-010 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	ND
805651-011 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	ND
805651-012 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	ND
805651-013 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	ND
805651-014 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	53.6

Method Blank

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

Duplicate

Lab ID = 805651-014

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Suspended Solids	mg/L	1.00	54.4	53.6	1.48	0 - 10

Lab Control Sample


Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	98.0	100	98.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	101	100	101	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: 01TSS13E

Date Analyzed: 01/11/13

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
E24	BLK	1000	1.4311	1.4311	1.4311	0.0000	No	0.0000	0.0	2.5	ND
E27	805611-1	300	1.4310	1.4833	1.4833	0.0000	No	0.0523	174.3	8.3	174.3
E28	805611-1D	300	1.4315	1.4843	1.4843	0.0000	No	0.0528	176.0	8.3	176.0
E29	805611-2	300	1.4489	1.4690	1.469	0.0000	No	0.0201	67.0	8.3	67.0
E30	805611-3	300	1.4537	1.4694	1.4694	0.0000	No	0.0157	52.3	8.3	52.3
E31	805613-1	1000	1.4361	1.4451	1.4451	0.0000	No	0.0090	9.0	2.5	9.0
E32	805613-2	1000	1.4420	1.4698	1.4698	0.0000	No	0.0278	27.8	2.5	27.8
E33	805613-3	1000	1.4310	1.4365	1.4365	0.0000	No	0.0055	5.5	2.5	5.5
E34	805651-1	250	1.4501	1.4502	1.4502	0.0000	No	0.0001	0.4	10.0	ND
E35	805651-2	250	1.4400	1.4400	1.44	0.0000	No	0.0000	0.0	10.0	ND
E36	805651-3	250	1.4486	1.4486	1.4486	0.0000	No	0.0000	0.0	10.0	ND
E37	805651-4	250	1.4332	1.4434	1.4434	0.0000	No	0.0102	40.8	10.0	40.8
E38	805651-5	250	1.4388	1.4425	1.4425	0.0000	No	0.0037	14.8	10.0	14.8
E39	805651-8	250	1.4330	1.4330	1.433	0.0000	No	0.0000	0.0	10.0	ND
E40	805651-9	250	1.4326	1.4326	1.4326	0.0000	No	0.0000	0.0	10.0	ND
E41	805651-10	250	1.4342	1.4343	1.4343	0.0000	No	0.0001	0.4	10.0	ND
E42	805651-11	250	1.4336	1.4336	1.4336	0.0000	No	0.0000	0.0	10.0	ND
E43	805651-12	250	1.4272	1.4274	1.4274	0.0000	No	0.0002	0.8	10.0	ND
E44	805651-13	250	1.4271	1.4272	1.4272	0.0000	No	0.0001	0.4	10.0	ND
E45	805651-14	250	1.4298	1.4432	1.4432	0.0000	No	0.0134	53.6	10.0	53.6
E46	805651-14D	250	1.4371	1.4507	1.4507	0.0000	No	0.0136	54.4	10.0	54.4
E25	LCS-1	100	1.4360	1.4458	1.4458	0.0000	No	0.0098	98.0	25.0	98.0
E26	LCS-2	100	1.4306	1.4407	1.4407	0.0000	No	0.0101	101.0	25.0	101.0

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	98	100	98.0%	90-110%	Yes
LCS2	101	100	101.0%	90-110%	Yes

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
805611-1	0.0523	0.0528	0.5%	≤5%	Yes
805651-14	0.0134	0.0136	0.7%	5%	Yes

LCS Recovery

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

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

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

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

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

C = Average weight in (g).

Gautam S.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

047



ed

Analytical Batch:	01ALK13C
Matrix:	WATER
Date of Analysis:	1/11/13

[illegible]

T or P =

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

Where:

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

C = Total mL titrant to reach pH 0.3 unit lower

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

P = Phenolphthalein Alkalinity, mg CaCO₃/L

P = Phenolphthalein Alkalinity, mg CaCO₃/L

A = mL standard acid used

N = normality of standard acid

Laboratory Control Sample (LCS/LCSD) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Acceptance Limit	QC Within Control?
LCS	96	100	96.0%	90-110	Yes
LCSD	96	100	96.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Acceptance Limit	QC Within Control?
805651-1	123	124	0.8%	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?
805651-14	120	1	100	100	220	220.00	100%	75-125	Yes			
		1	100	100								

Analyst Signature



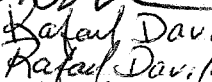
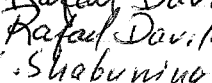
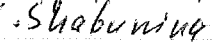

Analyst Printed Name

Reviewer Printed Name _____

Reviewer Signature _____

805651

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy				Container:	3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	* Where provided w/multiple bottles for Cr6 + diss. metals please analyze 1 + hold 2	Number of Containers	COMMENTS
Project Number 423575.MP.02.RM Task Order Project 2013-RMP-189 Turnaround Time 10 Days Shipping Date: 1/8/2013 COC Number: 1				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	4°C			
DATE TIME Matrix				Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA	NA			
				Holding Time:	28	28	180	180	180	14	14	14	14	14			
					Cr6 (E218.6 - river) Field Filtered	Field QC Cr6 (E218.6 - river)	Metals (6010B) Total Fe	Metals (6020AF) Field Filtered Chromium	Metals (SW6010B/SW6020Adis) Field Filtered As,Mn,Fe,Se,Mo	Metals (6020AF) Field Filtered Chromium	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Alkalinity (SM2320B)	PH (SM4500HB)	TSS (SM2540)		
Sample Conditions See Form Attached																	
1	C-BNS-D-189	1/8/2013	13:28	Water	X		X	X	X	X	X	X	X	X		9	
2	C-13-D-189	1/8/2013	11:29	Water	X		X	X	X	X	X	X	X	X		9	
3	C-13-S-189	1/8/2013	11:49	Water	X		X	X	X	X	X	X	X	X		9	pH=2 metals
4	C-MAR-D-189	1/8/2013	9:16	Water	X		X	X	X	X	X	X	X	X		9	
5	C-MAR-S-189	1/8/2013	9:31	Water	X		X	X	X	X	X	X	X	X		9	
6	C-MW-80-189	1/8/2013	12:05	Water		X										1	
7	C-MW-81-189	1/8/2013	13:10	Water		X										1	
8	C-R22A-D-189	1/8/2013	12:44	Water	X		X	X	X	X	X	X	X	X		9	pH=2 metals
9	C-R22A-S-189	1/8/2013	13:01	Water	X		X	X	X	X	X	X	X	X		9	
10	C-R27-D-189	1/8/2013	14:00	Water	X		X	X	X	X	X	X	X	X		9	
11	C-R27-S-189	1/8/2013	14:16	Water	X		X	X	X	X	X	X	X	X		9	
12	C-TAZ-D-189	1/8/2013	10:25	Water	X		X	X	X	X	X	X	X	X		9	
13	C-TAZ-S-189	1/8/2013	10:40	Water	X		X	X	X	X	X	X	X	X		9	
14	R63-189	1/8/2013	12:15	Water	X		X	X	X	X	X	X	X	X		9	

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

Signatures

Date/Time

1-8-13
1630

Shipping Details

Method of Shipment: courier

On Ice: yes / no

Airbill No:

Lab Name: Truesdail Laboratories, Inc.

Lab Phone: (714) 730-6239

Special Instructions:

Jan 8-10, 2013

ATTN:

Sample Custody

Report Copy to

Shawn Duffy
(530) 229-3303

CH2MHILL

CHAIN OF CUSTODY RECORD

1/8/2013 3:45:16 PM

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805651

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	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	4°C			
Project Manager Jay Piper	Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA	NA			
Sample Manager Shawn Duffy	Holding Time:	28	28	180	180	180	14	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 (6020AFF) Field Filtered Chromium	Metals (SW6010B/SW6020A dis) Field Filtered As, Mn, Fe, Se, Hg	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Alkalinity (SM2320B)	PH (SM4500HB)	TSS (SM2540)			
Task Order	DATE	TIME	Matrix											
Project 2013-RMP-189														
Turnaround Time 10 Days														
Shipping Date: 1/8/2013														
COC Number: 1														
RMP-AB1-189	1/8/2013	14:25	Water		X									
TOTAL NUMBER OF CONTAINERS													111	

Approved by	Signatures	Date/Time	Shipping Details
Sampled by	<i>[Signature]</i>	1-8-13	Method of Shipment: courier
Relinquished by	<i>[Signature]</i>	1630	On Ice: yes / no
Received by	<i>Rafael Davila</i>	1-8-13 16:30	Airbill No:
Relinquished by	<i>Rafael Davila</i>	1-8-13 22:30	Lab Name: Truesdail Laboratories, Inc.
Received by	<i>L. Shabunina</i>	1/8/13 22:30	Lab Phone: (714) 730-6239

ATTN:

Special Instructions:

Jan 8-10, 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
01/03/13	805561-1	7	2 ml	9.5	10:15 AM	HAV
↓	↓ -2	↓	↓	↓	10:20 AM	HAV
01/03/13	805562-1	7	2 ml	9.5	10:25 AM	HAV
↓	↓ -2	↓	↓	↓	10:30 AM	↓
↓	↓ -3	↓	↓	↓	10:35 AM	↓
01/04/13	805581-5	9	N/A	N/A	N/A	HAV
01/09/13	805650	7	2 ml	9.5	9:30 AM	HAV
01/09/13	805651-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
↓	↓ -9	↓	↓	↓	↓	↓
↓	↓ -10	↓	↓	↓	↓	↓
↓	↓ -11	↓	↓	↓	↓	↓
↓	↓ -12	↓	↓	↓	↓	↓
↓	↓ -13	↓	↓	↓	↓	↓
↓	↓ -14	↓	↓	↓	↓	↓
↓	↓ -15	↓	↓	↓	↓	↓
01/10/13	805671-1	9.5	N/A	N/A	N/A	RB
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
↓	↓ -9	↓	↓	↓	↓	↓

1-16-13

HAV

01/11/13

096

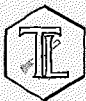


Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
805593	71 BE	< 2	1-2-13	136	yes		1/10/13	pH < 2
805596	71							
805594								
805597								
805598								
805599 (1-4)								
805600 (1-4)								
805612								
805614 (1-4)		72				8:00	1/10/13	pH < 2
805380	< 1	72	1-9-13	ES	yes	10:30		
805305 (1-10, 21-23)	< 1	< 2	1-9-13	ES	yes			-5, 10 turbidity > 1
805619-6	< 1	72			NO	1:30	1/10/13	pH < 2
805622 (1-4)	↓	↓	↓	↓	↓	↓		
805638	< 1	72	1-9-13	BE	no	11:00am	1/10/13	pH < 2
805649 (1-3)					↓	↓	1/10/13	pH < 2
805632	< 1	< 2		DC	yes			
805630	< 1	< 2						
805628	< 1	< 2						
805631								
805627								
805629	↓	↓	↓	↓	↓			
805633	SOLID		↓	DC	TTLC			
805662	72	72	1/10/13	ES	yes	9:00am	1/10/13 15:30	pH < 2
805504	< 1	< 2	1/10/13	ES	yes			
805375 (1-3, 8-12) 15-18	< 1	< 2						
805506 (1-3)	< 1	< 2						
805528 (1-5)		↓						
805561 (1-2)		72				10:00		Filtered then acidify
805562 (1-3)		< 2						
805650	↓	72	↓	↓	↓	10:00		
805560	SLUDGE		1/14/13	ES	TTLC			
805651 (1-5, 8-14)	< 1	< 2	↓	↓	yes			TOTAL/DISSOLVED
805652 (1-5)	< 1	< 2	↓	↓	↓			
805663 (1-12)	< 1	72	1/15/13	BE	no	10:00 AM	1/10/13 15:30	pH < 2
805669	< 1	< 2	1/15/13	ES	yes			
805675								
805677								
805679								
805680								
805681								
805686								
805732								
805733	↓	↓	↓	↓	↓			

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: E 2

Lab # 805651

Date Delivered: 01/08/13 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)? 3.3 °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.c.e ☒ 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. Swabeneer

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

January 25, 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 2012-RMP-189, SURFACEWATER MONITORING
PROJECT, TLI No.: 805671

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-RMP-189 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 January 9, 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 early sampling time and late arrival of the samples, samples R-19-189, R-28-189, and RRB-189 for pH analysis by SM 4500-H B were analyzed past the method specified holding time.

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.

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Event 2012-RMP-189 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-CON-D-189	2.00	No			
C-CON-S-189	2.00	No			
C-MW-82-189	2.00	No			
C-MW-83-189	2.00	No			
C-NR1-D-189	2.00	No			
C-NR1-S-189	2.00	No			
C-NR3-D-189	2.00	No			
C-NR3-S-189	2.00	No			
C-NR4-D-189	2.00	No			
C-NR4-S-189	2.00	No			
R-19-189	2.00	No			
R-28-189	2.00	No			
RMP-AB2-189	2.00	No			
RRB-189	2.00	No			
SW1-189	2.00	No			
SW2-189	2.00	No			

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Event 2012-RMP-189 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-CON-D-189	9.50	No			
C-CON-S-189	9.50	No			
C-MW-82-189	9.50	No			
C-MW-83-189	9.50	No			
C-NR1-D-189	9.50	No			
C-NR1-S-189	9.50	No			
C-NR3-D-189	9.50	No			
C-NR3-S-189	9.50	No			
C-NR4-D-189	9.50	No			
C-NR4-S-189	9.50	No			
R-19-189	9.50	No			
R-28-189	9.50	No			
RMP-AB2-189	9.50	No			
RRB-189	9.50	No			
SW1-189	9.50	No			
SW2-189	9.50	No			

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(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.: 805671

Date Received: January 9, 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
805671-001	C-CON-D-189	E120.1	NONE	1/9/2013	10:47	EC	858	umhos/cm	2.00
805671-001	C-CON-D-189	E218.6	FLDFLT	1/9/2013	10:47	Chromium, Hexavalent	ND	ug/L	0.20
805671-001	C-CON-D-189	E300	NONE	1/9/2013	10:47	Nitrate as N	ND	mg/L	0.500
805671-001	C-CON-D-189	SM2320B	NONE	1/9/2013	10:47	Alkalinity	126	mg/L	5.00
805671-001	C-CON-D-189	SM2320B	NONE	1/9/2013	10:47	Alkalinity, Bicarbonate (As CaCO ₃)	126	mg/L	5.00
805671-001	C-CON-D-189	SM2320B	NONE	1/9/2013	10:47	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805671-001	C-CON-D-189	SM2540D	NONE	1/9/2013	10:47	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805671-001	C-CON-D-189	SM4500HB	NONE	1/9/2013	10:47	PH	8.43	pH	4.00
805671-001	C-CON-D-189	SW6010B	NONE	1/9/2013	10:47	Iron	21.4	ug/L	20.0
805671-001	C-CON-D-189	SW6010B	FLDFLT	1/9/2013	10:47	Iron	ND	ug/L	20.0
805671-001	C-CON-D-189	SW6020	FLDFLT	1/9/2013	10:47	Arsenic	2.4	ug/L	0.50
805671-001	C-CON-D-189	SW6020	FLDFLT	1/9/2013	10:47	Chromium	ND	ug/L	1.0
805671-001	C-CON-D-189	SW6020	FLDFLT	1/9/2013	10:47	Manganese	0.89	ug/L	0.50
805671-001	C-CON-D-189	SW6020	FLDFLT	1/9/2013	10:47	Molybdenum	4.2	ug/L	2.0
805671-001	C-CON-D-189	SW6020	FLDFLT	1/9/2013	10:47	Selenium	ND	ug/L	5.0
805671-002	C-CON-S-189	E120.1	NONE	1/9/2013	11:02	EC	858	umhos/cm	2.00
805671-002	C-CON-S-189	E218.6	FLDFLT	1/9/2013	11:02	Chromium, Hexavalent	ND	ug/L	0.20
805671-002	C-CON-S-189	E300	NONE	1/9/2013	11:02	Nitrate as N	ND	mg/L	0.500
805671-002	C-CON-S-189	SM2320B	NONE	1/9/2013	11:02	Alkalinity	126	mg/L	5.00
805671-002	C-CON-S-189	SM2320B	NONE	1/9/2013	11:02	Alkalinity, Bicarbonate (As CaCO ₃)	126	mg/L	5.00
805671-002	C-CON-S-189	SM2320B	NONE	1/9/2013	11:02	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805671-002	C-CON-S-189	SM2540D	NONE	1/9/2013	11:02	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805671-002	C-CON-S-189	SM4500HB	NONE	1/9/2013	11:02	PH	8.37	pH	4.00
805671-002	C-CON-S-189	SW6010B	NONE	1/9/2013	11:02	Iron	22.3	ug/L	20.0
805671-002	C-CON-S-189	SW6010B	FLDFLT	1/9/2013	11:02	Iron	ND	ug/L	20.0
805671-002	C-CON-S-189	SW6020	FLDFLT	1/9/2013	11:02	Arsenic	2.4	ug/L	0.50
805671-002	C-CON-S-189	SW6020	FLDFLT	1/9/2013	11:02	Chromium	ND	ug/L	1.0
805671-002	C-CON-S-189	SW6020	FLDFLT	1/9/2013	11:02	Manganese	0.78	ug/L	0.500
805671-002	C-CON-S-189	SW6020	FLDFLT	1/9/2013	11:02	Molybdenum	4.6	ug/L	2.0
805671-002	C-CON-S-189	SW6020	FLDFLT	1/9/2013	11:02	Selenium	ND	ug/L	5.0

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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
805671-003	C-MW-82-189	E218.6	FLDFLT	1/9/2013	10:15	Chromium, Hexavalent	ND	ug/L	0.20
805671-004	C-MW-83-189	E218.6	FLDFLT	1/9/2013	13:02	Chromium, Hexavalent	ND	ug/L	0.20
805671-005	C-NR1-D-189	E120.1	NONE	1/9/2013	11:29	EC	861	umhos/cm	2.00
805671-005	C-NR1-D-189	E218.6	FLDFLT	1/9/2013	11:29	Chromium, Hexavalent	ND	ug/L	0.20
805671-005	C-NR1-D-189	E300	NONE	1/9/2013	11:29	Nitrate as N	ND	mg/L	0.500
805671-005	C-NR1-D-189	SM2320B	NONE	1/9/2013	11:29	Alkalinity	126	mg/L	5.00
805671-005	C-NR1-D-189	SM2320B	NONE	1/9/2013	11:29	Alkalinity, Bicarbonate (As CaCO3)	126	mg/L	5.00
805671-005	C-NR1-D-189	SM2320B	NONE	1/9/2013	11:29	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
805671-005	C-NR1-D-189	SM2540D	NONE	1/9/2013	11:29	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805671-005	C-NR1-D-189	SM4500HB	NONE	1/9/2013	11:29	PH	8.37	pH	4.00
805671-005	C-NR1-D-189	SW6010B	NONE	1/9/2013	11:29	Iron	22.5	ug/L	20.0
805671-005	C-NR1-D-189	SW6010B	FLDFLT	1/9/2013	11:29	Iron	ND	ug/L	20.0
805671-005	C-NR1-D-189	SW6020	FLDFLT	1/9/2013	11:29	Arsenic	2.6	ug/L	0.50
805671-005	C-NR1-D-189	SW6020	FLDFLT	1/9/2013	11:29	Chromium	ND	ug/L	1.0
805671-005	C-NR1-D-189	SW6020	FLDFLT	1/9/2013	11:29	Manganese	0.86	ug/L	0.50
805671-005	C-NR1-D-189	SW6020	FLDFLT	1/9/2013	11:29	Molybdenum	4.6	ug/L	2.0
805671-005	C-NR1-D-189	SW6020	FLDFLT	1/9/2013	11:29	Selenium	ND	ug/L	5.0
805671-006	C-NR1-S-189	E120.1	NONE	1/9/2013	11:46	EC	842	umhos/cm	2.00
805671-006	C-NR1-S-189	E218.6	FLDFLT	1/9/2013	11:46	Chromium, Hexavalent	ND	ug/L	0.20
805671-006	C-NR1-S-189	E300	NONE	1/9/2013	11:46	Nitrate as N	ND	mg/L	0.500
805671-006	C-NR1-S-189	SM2320B	NONE	1/9/2013	11:46	Alkalinity	129	mg/L	5.00
805671-006	C-NR1-S-189	SM2320B	NONE	1/9/2013	11:46	Alkalinity, Bicarbonate (As CaCO3)	129	mg/L	5.00
805671-006	C-NR1-S-189	SM2320B	NONE	1/9/2013	11:46	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
805671-006	C-NR1-S-189	SM2540D	NONE	1/9/2013	11:46	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805671-006	C-NR1-S-189	SM4500HB	NONE	1/9/2013	11:46	PH	8.34	pH	4.00
805671-006	C-NR1-S-189	SW6010B	NONE	1/9/2013	11:46	Iron	22.2	ug/L	20.0
805671-006	C-NR1-S-189	SW6010B	FLDFLT	1/9/2013	11:46	Iron	ND	ug/L	20.0
805671-006	C-NR1-S-189	SW6020	FLDFLT	1/9/2013	11:46	Arsenic	2.4	ug/L	0.50
805671-006	C-NR1-S-189	SW6020	FLDFLT	1/9/2013	11:46	Chromium	ND	ug/L	1.0
805671-006	C-NR1-S-189	SW6020	FLDFLT	1/9/2013	11:46	Manganese	0.83	ug/L	0.50
805671-006	C-NR1-S-189	SW6020	FLDFLT	1/9/2013	11:46	Molybdenum	4.2	ug/L	2.0
805671-006	C-NR1-S-189	SW6020	FLDFLT	1/9/2013	11:46	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805671-007	C-NR3-D-189	E120.1	NONE	1/9/2013	12:18	EC	852	umhos/cm	2.00
805671-007	C-NR3-D-189	E218.6	FLDFLT	1/9/2013	12:18	Chromium, Hexavalent	ND	ug/L	0.20
805671-007	C-NR3-D-189	E300	NONE	1/9/2013	12:18	Nitrate as N	ND	mg/L	0.500
805671-007	C-NR3-D-189	SM2320B	NONE	1/9/2013	12:18	Alkalinity	127	mg/L	5.00
805671-007	C-NR3-D-189	SM2320B	NONE	1/9/2013	12:18	Alkalinity, Bicarbonate (As CaCO ₃)	127	mg/L	5.00
805671-007	C-NR3-D-189	SM2320B	NONE	1/9/2013	12:18	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805671-007	C-NR3-D-189	SM2540D	NONE	1/9/2013	12:18	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805671-007	C-NR3-D-189	SM4500HB	NONE	1/9/2013	12:18	PH	8.35	pH	4.00
805671-007	C-NR3-D-189	SW6010B	NONE	1/9/2013	12:18	Iron	21.8	ug/L	20.0
805671-007	C-NR3-D-189	SW6010B	FLDFLT	1/9/2013	12:18	Iron	ND	ug/L	20.0
805671-007	C-NR3-D-189	SW6020	FLDFLT	1/9/2013	12:18	Arsenic	2.3	ug/L	0.50
805671-007	C-NR3-D-189	SW6020	FLDFLT	1/9/2013	12:18	Chromium	ND	ug/L	1.0
805671-007	C-NR3-D-189	SW6020	FLDFLT	1/9/2013	12:18	Manganese	0.90	ug/L	0.50
805671-007	C-NR3-D-189	SW6020	FLDFLT	1/9/2013	12:18	Molybdenum	4.3	ug/L	2.0
805671-007	C-NR3-D-189	SW6020	FLDFLT	1/9/2013	12:18	Selenium	ND	ug/L	5.0
805671-008	C-NR3-S-189	E120.1	NONE	1/9/2013	12:35	EC	849	umhos/cm	2.00
805671-008	C-NR3-S-189	E218.6	FLDFLT	1/9/2013	12:35	Chromium, Hexavalent	ND	ug/L	0.20
805671-008	C-NR3-S-189	E300	NONE	1/9/2013	12:35	Nitrate as N	ND	mg/L	0.500
805671-008	C-NR3-S-189	SM2320B	NONE	1/9/2013	12:35	Alkalinity	128	mg/L	5.00
805671-008	C-NR3-S-189	SM2320B	NONE	1/9/2013	12:35	Alkalinity, Bicarbonate (As CaCO ₃)	128	mg/L	5.00
805671-008	C-NR3-S-189	SM2320B	NONE	1/9/2013	12:35	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805671-008	C-NR3-S-189	SM2540D	NONE	1/9/2013	12:35	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805671-008	C-NR3-S-189	SM4500HB	NONE	1/9/2013	12:35	PH	8.33	pH	4.00
805671-008	C-NR3-S-189	SW6010B	NONE	1/9/2013	12:35	Iron	20.8	ug/L	20.0
805671-008	C-NR3-S-189	SW6010B	FLDFLT	1/9/2013	12:35	Iron	ND	ug/L	20.0
805671-008	C-NR3-S-189	SW6020	FLDFLT	1/9/2013	12:35	Arsenic	2.4	ug/L	0.50
805671-008	C-NR3-S-189	SW6020	FLDFLT	1/9/2013	12:35	Chromium	ND	ug/L	1.0
805671-008	C-NR3-S-189	SW6020	FLDFLT	1/9/2013	12:35	Manganese	0.79	ug/L	0.50
805671-008	C-NR3-S-189	SW6020	FLDFLT	1/9/2013	12:35	Molybdenum	4.4	ug/L	2.0
805671-008	C-NR3-S-189	SW6020	FLDFLT	1/9/2013	12:35	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805671-009	C-NR4-D-189	E120.1	NONE	1/9/2013	13:14	EC	860	umhos/cm	2.00
805671-009	C-NR4-D-189	E218.6	FLDFLT	1/9/2013	13:14	Chromium, Hexavalent	ND	ug/L	0.20
805671-009	C-NR4-D-189	E300	NONE	1/9/2013	13:14	Nitrate as N	ND	mg/L	0.500
805671-009	C-NR4-D-189	SM2320B	NONE	1/9/2013	13:14	Alkalinity	125	mg/L	5.00
805671-009	C-NR4-D-189	SM2320B	NONE	1/9/2013	13:14	Alkalinity, Bicarbonate (As CaCO3)	125	mg/L	5.00
805671-009	C-NR4-D-189	SM2320B	NONE	1/9/2013	13:14	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
805671-009	C-NR4-D-189	SM2540D	NONE	1/9/2013	13:14	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805671-009	C-NR4-D-189	SM4500HB	NONE	1/9/2013	13:14	PH	8.32	pH	4.00
805671-009	C-NR4-D-189	SW6010B	NONE	1/9/2013	13:14	Iron	20.1	ug/L	20.0
805671-009	C-NR4-D-189	SW6010B	FLDFLT	1/9/2013	13:14	Iron	ND	ug/L	20.0
805671-009	C-NR4-D-189	SW6020	FLDFLT	1/9/2013	13:14	Arsenic	2.3	ug/L	0.50
805671-009	C-NR4-D-189	SW6020	FLDFLT	1/9/2013	13:14	Chromium	ND	ug/L	1.0
805671-009	C-NR4-D-189	SW6020	FLDFLT	1/9/2013	13:14	Manganese	0.82	ug/L	0.50
805671-009	C-NR4-D-189	SW6020	FLDFLT	1/9/2013	13:14	Molybdenum	3.9	ug/L	2.0
805671-009	C-NR4-D-189	SW6020	FLDFLT	1/9/2013	13:14	Selenium	ND	ug/L	5.0
805671-010	C-NR4-S-189	E120.1	NONE	1/9/2013	13:29	EC	848	umhos/cm	2.00
805671-010	C-NR4-S-189	E218.6	FLDFLT	1/9/2013	13:29	Chromium, Hexavalent	ND	ug/L	0.20
805671-010	C-NR4-S-189	E300	NONE	1/9/2013	13:29	Nitrate as N	ND	mg/L	0.500
805671-010	C-NR4-S-189	SM2320B	NONE	1/9/2013	13:29	Alkalinity	116	mg/L	5.00
805671-010	C-NR4-S-189	SM2320B	NONE	1/9/2013	13:29	Alkalinity, Bicarbonate (As CaCO3)	116	mg/L	5.00
805671-010	C-NR4-S-189	SM2320B	NONE	1/9/2013	13:29	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
805671-010	C-NR4-S-189	SM2540D	NONE	1/9/2013	13:29	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805671-010	C-NR4-S-189	SM4500HB	NONE	1/9/2013	13:29	PH	8.29	pH	4.00
805671-010	C-NR4-S-189	SW6010B	NONE	1/9/2013	13:29	Iron	ND	ug/L	20.0
805671-010	C-NR4-S-189	SW6010B	FLDFLT	1/9/2013	13:29	Iron	ND	ug/L	20.0
805671-010	C-NR4-S-189	SW6020	FLDFLT	1/9/2013	13:29	Arsenic	2.3	ug/L	0.50
805671-010	C-NR4-S-189	SW6020	FLDFLT	1/9/2013	13:29	Chromium	ND	ug/L	1.0
805671-010	C-NR4-S-189	SW6020	FLDFLT	1/9/2013	13:29	Manganese	0.66	ug/L	0.50
805671-010	C-NR4-S-189	SW6020	FLDFLT	1/9/2013	13:29	Molybdenum	4.0	ug/L	2.0
805671-010	C-NR4-S-189	SW6020	FLDFLT	1/9/2013	13:29	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805671-011	R-19-189	E120.1	NONE	1/9/2013	9:34	EC	862	umhos/cm	2.00
805671-011	R-19-189	E218.6	FLDFLT	1/9/2013	9:34	Chromium, Hexavalent	ND	ug/L	0.20
805671-011	R-19-189	E300	NONE	1/9/2013	9:34	Nitrate as N	ND	mg/L	0.500
805671-011	R-19-189	SM2320B	NONE	1/9/2013	9:34	Alkalinity	125	mg/L	5.00
805671-011	R-19-189	SM2320B	NONE	1/9/2013	9:34	Alkalinity, Bicarbonate (As CaCO ₃)	125	mg/L	5.00
805671-011	R-19-189	SM2320B	NONE	1/9/2013	9:34	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805671-011	R-19-189	SM2540D	NONE	1/9/2013	9:34	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805671-011	R-19-189	SM4500HB	NONE	1/9/2013	9:34	PH	8.42 J	pH	4.00
805671-011	R-19-189	SW6010B	NONE	1/9/2013	9:34	Iron	ND	ug/L	20.0
805671-011	R-19-189	SW6010B	FLDFLT	1/9/2013	9:34	Iron	ND	ug/L	20.0
805671-011	R-19-189	SW6020	FLDFLT	1/9/2013	9:34	Arsenic	2.4	ug/L	0.50
805671-011	R-19-189	SW6020	FLDFLT	1/9/2013	9:34	Chromium	ND	ug/L	1.0
805671-011	R-19-189	SW6020	FLDFLT	1/9/2013	9:34	Manganese	1.2	ug/L	0.50
805671-011	R-19-189	SW6020	FLDFLT	1/9/2013	9:34	Molybdenum	3.9	ug/L	2.0
805671-011	R-19-189	SW6020	FLDFLT	1/9/2013	9:34	Selenium	ND	ug/L	5.0
805671-012	R-28-189	E120.1	NONE	1/9/2013	9:13	EC	869	umhos/cm	2.00
805671-012	R-28-189	E218.6	FLDFLT	1/9/2013	9:13	Chromium, Hexavalent	ND	ug/L	0.20
805671-012	R-28-189	E300	NONE	1/9/2013	9:13	Nitrate as N	ND	mg/L	0.500
805671-012	R-28-189	SM2320B	NONE	1/9/2013	9:13	Alkalinity	130	mg/L	5.00
805671-012	R-28-189	SM2320B	NONE	1/9/2013	9:13	Alkalinity, Bicarbonate (As CaCO ₃)	130	mg/L	5.00
805671-012	R-28-189	SM2320B	NONE	1/9/2013	9:13	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805671-012	R-28-189	SM2540D	NONE	1/9/2013	9:13	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805671-012	R-28-189	SM4500HB	NONE	1/9/2013	9:13	PH	8.40 J	pH	4.00
805671-012	R-28-189	SW6010B	NONE	1/9/2013	9:13	Iron	ND	ug/L	20.0
805671-012	R-28-189	SW6010B	FLDFLT	1/9/2013	9:13	Iron	ND	ug/L	20.0
805671-012	R-28-189	SW6020	FLDFLT	1/9/2013	9:13	Arsenic	2.3	ug/L	0.50
805671-012	R-28-189	SW6020	FLDFLT	1/9/2013	9:13	Chromium	ND	ug/L	1.0
805671-012	R-28-189	SW6020	FLDFLT	1/9/2013	9:13	Manganese	1.2	ug/L	0.50
805671-012	R-28-189	SW6020	FLDFLT	1/9/2013	9:13	Molybdenum	3.9	ug/L	2.0
805671-012	R-28-189	SW6020	FLDFLT	1/9/2013	9:13	Selenium	ND	ug/L	5.0
805671-013	RMP-AB2-189	E218.6	FLDFLT	1/9/2013	13:35	Chromium, Hexavalent	ND	ug/L	0.20



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805671-014	RRB-189	E120.1	NONE	1/9/2013	10:02	EC	906	umhos/cm	2.00
805671-014	RRB-189	E218.6	FLDFLT	1/9/2013	10:02	Chromium, Hexavalent	ND	ug/L	0.20
805671-014	RRB-189	E300	NONE	1/9/2013	10:02	Nitrate as N	ND	mg/L	0.500
805671-014	RRB-189	SM2320B	NONE	1/9/2013	10:02	Alkalinity	131	mg/L	5.00
805671-014	RRB-189	SM2320B	NONE	1/9/2013	10:02	Alkalinity, Bicarbonate (As CaCO ₃)	131	mg/L	5.00
805671-014	RRB-189	SM2320B	NONE	1/9/2013	10:02	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805671-014	RRB-189	SM2540D	NONE	1/9/2013	10:02	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805671-014	RRB-189	SM4500HB	NONE	1/9/2013	10:02	PH	8.16 J	pH	4.00
805671-014	RRB-189	SW6010B	NONE	1/9/2013	10:02	Iron	112	ug/L	20.0
805671-014	RRB-189	SW6010B	FLDFLT	1/9/2013	10:02	Iron	34.5	ug/L	20.0
805671-014	RRB-189	SW6020	FLDFLT	1/9/2013	10:02	Arsenic	2.4	ug/L	0.50
805671-014	RRB-189	SW6020	FLDFLT	1/9/2013	10:02	Chromium	ND	ug/L	1.0
805671-014	RRB-189	SW6020	FLDFLT	1/9/2013	10:02	Manganese	7.2	ug/L	0.50
805671-014	RRB-189	SW6020	FLDFLT	1/9/2013	10:02	Molybdenum	3.9	ug/L	2.0
805671-014	RRB-189	SW6020	FLDFLT	1/9/2013	10:02	Selenium	ND	ug/L	5.0
805671-015	SW1-189	E120.1	NONE	1/9/2013	15:20	EC	1060	umhos/cm	2.00
805671-015	SW1-189	E218.6	FLDFLT	1/9/2013	15:20	Chromium, Hexavalent	ND	ug/L	0.20
805671-015	SW1-189	SM4500HB	NONE	1/9/2013	15:20	PH	7.72	pH	4.00
805671-015	SW1-189	SW6020	FLDFLT	1/9/2013	15:20	Chromium	ND	ug/L	1.0
805671-016	SW2-189	E120.1	NONE	1/9/2013	15:42	EC	941	umhos/cm	2.00
805671-016	SW2-189	E218.6	FLDFLT	1/9/2013	15:42	Chromium, Hexavalent	ND	ug/L	0.20
805671-016	SW2-189	SM4500HB	NONE	1/9/2013	15:42	PH	7.52	pH	4.00
805671-016	SW2-189	SW6020	FLDFLT	1/9/2013	15:42	Chromium	ND	ug/L	1.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

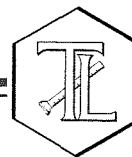
Results below 0.01ppm will have two (2) significant figures.

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

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

TRUESDAIL LABORATORIES, INC.

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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. 805671

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Printed 1/25/2013

Samples Received on 1/9/2013 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
C-CON-D-189	805671-001	01/09/2013 10:47	Water
C-CON-S-189	805671-002	01/09/2013 11:02	Water
C-MW-82-189	805671-003	01/09/2013 10:15	Water
C-MW-83-189	805671-004	01/09/2013 13:02	Water
C-NR1-D-189	805671-005	01/09/2013 11:29	Water
C-NR1-S-189	805671-006	01/09/2013 11:46	Water
C-NR3-D-189	805671-007	01/09/2013 12:18	Water
C-NR3-S-189	805671-008	01/09/2013 12:35	Water
C-NR4-D-189	805671-009	01/09/2013 13:14	Water
C-NR4-S-189	805671-010	01/09/2013 13:29	Water
R-19-189	805671-011	01/09/2013 09:34	Water
R-28-189	805671-012	01/09/2013 09:13	Water
RMP-AB2-189	805671-013	01/09/2013 13:35	Water
RRB-189	805671-014	01/09/2013 10:02	Water
SW1-189	805671-015	01/09/2013 15:20	Water
SW2-189	805671-016	01/09/2013 15:42	Water

Anions By I.C. - EPA 300.0

Batch 01AN13F

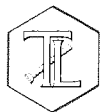
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805671-001 Nitrate as Nitrogen	mg/L	01/10/2013 13:53	1.00	0.00830	0.500	ND
805671-002 Nitrate as Nitrogen	mg/L	01/10/2013 14:05	1.00	0.00830	0.500	ND
805671-005 Nitrate as Nitrogen	mg/L	01/10/2013 14:16	1.00	0.00830	0.500	ND
805671-006 Nitrate as Nitrogen	mg/L	01/10/2013 14:28	1.00	0.00830	0.500	ND
805671-007 Nitrate as Nitrogen	mg/L	01/10/2013 14:39	1.00	0.00830	0.500	ND
805671-008 Nitrate as Nitrogen	mg/L	01/10/2013 14:50	1.00	0.00830	0.500	ND
805671-009 Nitrate as Nitrogen	mg/L	01/10/2013 15:02	1.00	0.00830	0.500	ND
805671-010 Nitrate as Nitrogen	mg/L	01/10/2013 15:13	1.00	0.00830	0.500	ND
805671-011 Nitrate as Nitrogen	mg/L	01/10/2013 17:07	1.00	0.00830	0.500	ND
805671-012 Nitrate as Nitrogen	mg/L	01/10/2013 17:19	1.00	0.00830	0.500	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.

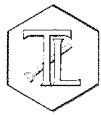
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**TRUESDAIL LABORATORIES, INC.***Report Continued***Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 2 of 23****Project Number: 423575.MP.02.RM****Printed 1/25/2013**

805671-014 Nitrate as Nitrogen		mg/L	01/10/2013 17:30		1.00	0.00830	0.500	ND
Method Blank								
Parameter	Unit	DF	Result					
Nitrate as Nitrogen	mg/L	1.00	ND					
Duplicate								
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range		
Nitrate as Nitrogen	mg/L	1.00	ND	0.292	0	0 - 20		
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range		
Nitrate as Nitrogen	mg/L	1.00	3.97	4.00	99.3	90 - 110		
Matrix Spike								
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range		
Nitrate as Nitrogen	mg/L	1.00	2.41	2.29(2.00)	106	85 - 115		
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range		
Nitrate as Nitrogen	mg/L	1.00	3.97	4.00	99.3	90 - 110		
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range		
Nitrate as Nitrogen	mg/L	1.00	2.99	3.00	99.7	90 - 110		
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range		
Nitrate as Nitrogen	mg/L	1.00	2.98	3.00	99.5	90 - 110		

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 3 of 23****Project Number: 423575.MP.02.RM****Printed 1/25/2013**

Alkalinity by SM 2320B		Batch 01ALK13D				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805671-001 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	126
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	126
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805671-002 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	126
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	126
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805671-005 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	126
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	126
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805671-006 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	129
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	129
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805671-007 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	127
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	127
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805671-008 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	128
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	128
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805671-009 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	125
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	125
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805671-010 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	116
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	116
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805671-011 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	125
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	125
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805671-012 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	130
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	130
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805671-014 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	131
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	131
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND



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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Method Blank

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

Duplicate

Lab ID = 805671-012

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	99.0	100	99.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	98.0	100	98.0	90 - 110

Matrix Spike

Lab ID = 805671-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	227	231(100)	96.0	75 - 125



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Specific Conductivity - EPA 120.1		Batch 01EC13H				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805671-001 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	858
805671-002 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	858
805671-005 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	861
805671-006 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	842
805671-007 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	852
805671-008 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	849
805671-009 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	860
805671-010 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	848
805671-011 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	862
805671-012 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	869
805671-014 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	906
805671-015 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	1060
805671-016 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	941

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 805671-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	834	861	3.18	0 - 10

Duplicate

Lab ID = 805671-016

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	943	941	0.212	0 - 10

Lab Control Sample

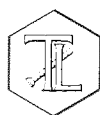
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	682	706	96.6	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	691	706	97.9	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	714	706	101	90 - 110



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Metals by EPA 6010B, Total		Batch 011713A				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805671-001 Iron	ug/L	01/17/2013 14:10	1.00	9.50	20.0	21.4
805671-002 Iron	ug/L	01/17/2013 14:53	1.00	9.50	20.0	22.3
805671-005 Iron	ug/L	01/17/2013 14:59	1.00	9.50	20.0	22.5
805671-006 Iron	ug/L	01/17/2013 15:05	1.00	9.50	20.0	22.2
805671-007 Iron	ug/L	01/17/2013 15:11	1.00	9.50	20.0	21.8
805671-008 Iron	ug/L	01/17/2013 15:16	1.00	9.50	20.0	20.8
805671-009 Iron	ug/L	01/17/2013 15:22	1.00	9.50	20.0	20.1
805671-010 Iron	ug/L	01/17/2013 15:28	1.00	9.50	20.0	ND
805671-011 Iron	ug/L	01/17/2013 15:34	1.00	9.50	20.0	ND
805671-012 Iron	ug/L	01/17/2013 15:40	1.00	9.50	20.0	ND
805671-014 Iron	ug/L	01/17/2013 16:11	1.00	9.50	20.0	112

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 805671-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	22.7	21.4	5.90	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	52.1	50.0	104	85 - 115

Matrix Spike

Lab ID = 805671-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	71.1	71.4(50.0)	99.4	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5080	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4620	5000	92.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4530	5000	90.6	90 - 110



Report Continued

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Chrome VI by EPA 218.6		Batch 01CrH13E				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805671-001 Chromium, Hexavalent	ug/L	01/15/2013 14:45	1.00	0.00920	0.20	ND
805671-002 Chromium, Hexavalent	ug/L	01/15/2013 14:55	1.00	0.00920	0.20	ND
805671-003 Chromium, Hexavalent	ug/L	01/15/2013 15:06	1.00	0.00920	0.20	ND
805671-004 Chromium, Hexavalent	ug/L	01/15/2013 15:16	1.00	0.00920	0.20	ND
805671-005 Chromium, Hexavalent	ug/L	01/15/2013 15:27	1.00	0.00920	0.20	ND
805671-006 Chromium, Hexavalent	ug/L	01/15/2013 15:37	1.00	0.00920	0.20	ND
805671-007 Chromium, Hexavalent	ug/L	01/15/2013 15:47	1.00	0.00920	0.20	ND
805671-008 Chromium, Hexavalent	ug/L	01/15/2013 16:29	1.00	0.00920	0.20	ND
805671-009 Chromium, Hexavalent	ug/L	01/15/2013 17:11	1.00	0.00920	0.20	ND
805671-010 Chromium, Hexavalent	ug/L	01/15/2013 16:50	1.00	0.00920	0.20	ND
805671-011 Chromium, Hexavalent	ug/L	01/15/2013 17:00	1.00	0.00920	0.20	ND
805671-012 Chromium, Hexavalent	ug/L	01/15/2013 17:21	1.00	0.00920	0.20	ND
805671-013 Chromium, Hexavalent	ug/L	01/15/2013 17:31	1.00	0.00920	0.20	ND
805671-014 Chromium, Hexavalent	ug/L	01/15/2013 17:42	1.00	0.00920	0.20	ND
805671-015 Chromium, Hexavalent	ug/L	01/15/2013 17:52	1.00	0.00920	0.20	ND
805671-016 Chromium, Hexavalent	ug/L	01/15/2013 18:03	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate

Lab ID = 805671-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0138	0.0153	10.3	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.188	0.200	94.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.67	5.00	93.4	90 - 110

Matrix Spike

Lab ID = 805671-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.946	1.01(1.00)	93.3	90 - 110

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Matrix Spike						Lab ID = 805671-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.936	1.02(1.00)	91.6	90 - 110
Matrix Spike						Lab ID = 805671-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.910	1.00(1.00)	91.0	90 - 110
Matrix Spike						Lab ID = 805671-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.925	1.00(1.00)	92.5	90 - 110
Matrix Spike						Lab ID = 805671-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.960	1.02(1.00)	94.1	90 - 110
Matrix Spike						Lab ID = 805671-006
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.966	1.02(1.00)	95.1	90 - 110
Matrix Spike						Lab ID = 805671-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.967	1.01(1.00)	95.3	90 - 110
Matrix Spike						Lab ID = 805671-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.962	1.02(1.00)	94.6	90 - 110
Matrix Spike						Lab ID = 805671-009
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.953	1.02(1.00)	93.5	90 - 110
Matrix Spike						Lab ID = 805671-010
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.969	1.02(1.00)	95.4	90 - 110
Matrix Spike						Lab ID = 805671-011
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.967	1.02(1.00)	94.9	90 - 110
Matrix Spike						Lab ID = 805671-012
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.981	1.02(1.00)	96.2	90 - 110
Matrix Spike						Lab ID = 805671-013
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.936	1.00(1.00)	93.6	90 - 110

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Lab ID = 805671-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.954	1.02(1.00)	93.5	90 - 110

Matrix Spike

Lab ID = 805671-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.964	1.00(1.00)	96.4	90 - 110

Matrix Spike

Lab ID = 805671-016

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.953	1.00(1.00)	95.3	90 - 110

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.68	5.00	93.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.80	10.0	98.0	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	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

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Metals by EPA 6020A, Dissolved		Batch 011813C				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805671-001 Arsenic	ug/L	01/18/2013 18:44	2.00	0.200	0.50	2.4
Chromium	ug/L	01/18/2013 18:44	2.00	0.184	1.0	ND
Manganese	ug/L	01/18/2013 18:44	2.00	0.172	0.50	0.89
Molybdenum	ug/L	01/18/2013 18:44	2.00	0.414	2.0	4.2
Selenium	ug/L	01/18/2013 18:44	2.00	0.160	5.0	ND
805671-002 Arsenic	ug/L	01/18/2013 19:07	2.00	0.200	0.50	2.4
Chromium	ug/L	01/18/2013 19:07	2.00	0.184	1.0	ND
Manganese	ug/L	01/18/2013 19:07	2.00	0.172	0.50	0.78
Molybdenum	ug/L	01/18/2013 19:07	2.00	0.414	2.0	4.6
Selenium	ug/L	01/18/2013 19:07	2.00	0.160	5.0	ND
805671-005 Arsenic	ug/L	01/18/2013 19:13	2.00	0.200	0.50	2.6
Chromium	ug/L	01/18/2013 19:13	2.00	0.184	1.0	ND
Manganese	ug/L	01/18/2013 19:13	2.00	0.172	0.50	0.86
Molybdenum	ug/L	01/18/2013 19:13	2.00	0.414	2.0	4.6
Selenium	ug/L	01/18/2013 19:13	2.00	0.160	5.0	ND
805671-006 Arsenic	ug/L	01/18/2013 19:19	2.00	0.200	0.50	2.4
Chromium	ug/L	01/18/2013 19:19	2.00	0.184	1.0	ND
Manganese	ug/L	01/18/2013 19:19	2.00	0.172	0.50	0.83
Molybdenum	ug/L	01/18/2013 19:19	2.00	0.414	2.0	4.2
Selenium	ug/L	01/18/2013 19:19	2.00	0.160	5.0	ND
805671-007 Arsenic	ug/L	01/18/2013 19:25	2.00	0.200	0.50	2.3
Chromium	ug/L	01/18/2013 19:25	2.00	0.184	1.0	ND
Manganese	ug/L	01/18/2013 19:25	2.00	0.172	0.50	0.90
Selenium	ug/L	01/18/2013 19:25	2.00	0.160	5.0	ND
805671-008 Arsenic	ug/L	01/18/2013 19:49	2.00	0.200	0.50	2.4
Chromium	ug/L	01/18/2013 19:49	2.00	0.184	1.0	ND
Manganese	ug/L	01/18/2013 19:49	2.00	0.172	0.50	0.79
Molybdenum	ug/L	01/18/2013 19:49	2.00	0.414	2.0	4.4
Selenium	ug/L	01/18/2013 19:49	2.00	0.160	5.0	ND
805671-009 Arsenic	ug/L	01/18/2013 19:55	2.00	0.200	0.50	2.3
Chromium	ug/L	01/18/2013 19:55	2.00	0.184	1.0	ND
Manganese	ug/L	01/18/2013 19:55	2.00	0.172	0.50	0.82
Molybdenum	ug/L	01/18/2013 19:55	2.00	0.414	2.0	3.9
Selenium	ug/L	01/18/2013 19:55	2.00	0.160	5.0	ND


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805671-010 Arsenic	ug/L	01/18/2013 20:01	2.00	0.200	0.50	2.3
Chromium	ug/L	01/18/2013 20:01	2.00	0.184	1.0	ND
Manganese	ug/L	01/18/2013 20:01	2.00	0.172	0.50	0.66
Molybdenum	ug/L	01/18/2013 20:01	2.00	0.414	2.0	4.0
Selenium	ug/L	01/18/2013 20:01	2.00	0.160	5.0	ND
805671-011 Arsenic	ug/L	01/18/2013 20:07	2.00	0.200	0.50	2.4
Chromium	ug/L	01/18/2013 20:07	2.00	0.184	1.0	ND
Manganese	ug/L	01/18/2013 20:07	2.00	0.172	0.50	1.2
Molybdenum	ug/L	01/18/2013 20:07	2.00	0.414	2.0	3.9
Selenium	ug/L	01/18/2013 20:07	2.00	0.160	5.0	ND
805671-012 Arsenic	ug/L	01/18/2013 20:13	2.00	0.200	0.50	2.3
Chromium	ug/L	01/18/2013 20:13	2.00	0.184	1.0	ND
Manganese	ug/L	01/18/2013 20:13	2.00	0.172	0.50	1.2
Molybdenum	ug/L	01/18/2013 20:13	2.00	0.414	2.0	3.9
Selenium	ug/L	01/18/2013 20:13	2.00	0.160	5.0	ND
805671-014 Arsenic	ug/L	01/18/2013 20:19	2.00	0.200	0.50	2.4
Chromium	ug/L	01/18/2013 20:19	2.00	0.184	1.0	ND
Manganese	ug/L	01/18/2013 20:19	2.00	0.172	0.50	7.2
Molybdenum	ug/L	01/18/2013 20:19	2.00	0.414	2.0	3.9
Selenium	ug/L	01/18/2013 20:19	2.00	0.160	5.0	ND
805671-015 Chromium	ug/L	01/18/2013 20:24	2.00	0.184	1.0	ND
805671-016 Chromium	ug/L	01/18/2013 20:30	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 = 805671-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	2.46	2.45	0.407	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	0.840	0.888	5.56	0 - 20
Molybdenum	ug/L	2.00	4.35	4.22	2.99	0 - 20

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Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.226	0.200	113	70 - 130
Chromium	ug/L	1.00	0.206	0.200	103	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	0.590	0.500	118	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	0.216	0.200	108	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	0.486	0.500	97.2	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.00	48.4	50.0	96.8	85 - 115
Chromium	ug/L	2.00	50.0	50.0	100	85 - 115
Selenium	ug/L	2.00	46.9	50.0	93.8	85 - 115
Manganese	ug/L	2.00	49.5	50.0	99.0	85 - 115
Molybdenum	ug/L	2.00	49.3	50.0	98.6	85 - 115

Matrix Spike**Lab ID = 805671-001**

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	50.2	52.4(50.0)	95.5	75 - 125
Chromium	ug/L	2.00	47.6	50.0(50.0)	95.2	75 - 125
Selenium	ug/L	2.00	46.8	50.0(50.0)	93.7	75 - 125
Manganese	ug/L	2.00	47.9	50.9(50.0)	94.1	75 - 125
Molybdenum	ug/L	2.00	51.8	54.2(50.0)	95.3	75 - 125

Matrix Spike Duplicate**Lab ID = 805671-001**

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	52.5	52.4(50.0)	100	75 - 125
Chromium	ug/L	2.00	49.6	50.0(50.0)	99.2	75 - 125
Selenium	ug/L	2.00	49.0	50.0(50.0)	98.0	75 - 125
Manganese	ug/L	2.00	49.5	50.9(50.0)	97.2	75 - 125
Molybdenum	ug/L	2.00	55.5	54.2(50.0)	103	75 - 125


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Parameter	Unit	Analyzed	DF	MDL	RL	Result
805671-007 Molybdenum	ug/L	01/21/2013 14:13	2.00	0.414	2.0	4.3

Method Blank

Parameter	Unit	DF	Result
Molybdenum	ug/L	1.00	ND

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	0.539	0.500	108	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	2.00	48.2	50.0	96.3	85 - 115

Matrix Spike
Lab ID = 805671-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Molybdenum	ug/L	2.00	58.6	54.3(50.0)	108	75 - 125

Matrix Spike Duplicate
Lab ID = 805671-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Molybdenum	ug/L	2.00	54.3	54.3(50.0)	99.9	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	22.0	20.0	110	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	21.1	20.0	105	90 - 110

MRCVS - Primary

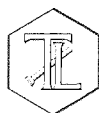
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	20.3	20.0	101	90 - 110

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		



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Metals by EPA 6010B, Dissolved		Batch 012213A				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805671-001 Iron	ug/L	01/22/2013 15:21	1.00	9.50	20.0	ND
805671-002 Iron	ug/L	01/22/2013 16:04	1.00	9.50	20.0	ND
805671-005 Iron	ug/L	01/22/2013 16:09	1.00	9.50	20.0	ND
805671-006 Iron	ug/L	01/22/2013 16:15	1.00	9.50	20.0	ND
805671-007 Iron	ug/L	01/22/2013 16:21	1.00	9.50	20.0	ND
805671-008 Iron	ug/L	01/22/2013 16:27	1.00	9.50	20.0	ND
805671-009 Iron	ug/L	01/22/2013 16:33	1.00	9.50	20.0	ND
805671-010 Iron	ug/L	01/22/2013 16:38	1.00	9.50	20.0	ND
805671-011 Iron	ug/L	01/22/2013 16:44	1.00	9.50	20.0	ND
805671-012 Iron	ug/L	01/22/2013 16:50	1.00	9.50	20.0	ND
805671-014 Iron	ug/L	01/22/2013 16:56	1.00	9.50	20.0	34.5

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 805671-001

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	56.6	50.0	113	85 - 115

Matrix Spike

Lab ID = 805671-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	57.4	50.0(50.0)	115	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5380	5000	108	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5310	5000	106	90 - 110

MRCVS - Primary

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



Client: E2 Consulting Engineers, Inc.

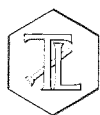
Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.RM

Printed 1/25/2013

pH by SM 4500-H B		Batch 01PH13I				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805671-001 pH	pH	01/10/2013 10:25	1.00	0.0784	4.00	8.43
805671-002 pH	pH	01/10/2013 10:27	1.00	0.0784	4.00	8.37
805671-005 pH	pH	01/10/2013 10:30	1.00	0.0784	4.00	8.37
805671-006 pH	pH	01/10/2013 10:33	1.00	0.0784	4.00	8.34
805671-007 pH	pH	01/10/2013 10:35	1.00	0.0784	4.00	8.35
805671-008 pH	pH	01/10/2013 10:37	1.00	0.0784	4.00	8.33
805671-009 pH	pH	01/10/2013 10:40	1.00	0.0784	4.00	8.32
805671-010 pH	pH	01/10/2013 10:42	1.00	0.0784	4.00	8.29
805671-011 pH	pH	01/10/2013 10:44	1.00	0.0784	4.00	8.42 J
805671-012 pH	pH	01/10/2013 10:50	1.00	0.0784	4.00	8.40 J
805671-014 pH	pH	01/10/2013 10:52	1.00	0.0784	4.00	8.16 J
805671-015 pH	pH	01/10/2013 10:55	1.00	0.0784	4.00	7.72
805671-016 pH	pH	01/10/2013 10:57	1.00	0.0784	4.00	7.52
Duplicate					Lab ID = 805671-011	
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.42	8.42	0	0 - 20
Duplicate					Lab ID = 805671-016	
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.53	7.52	0.133	0 - 20
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.03	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****Page 23 of 23****Project Number: 423575.MP.02.RM****Printed 1/25/2013**

Total Suspended Solids by SM 2540 D		Batch 01TSS13F				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805671-001 Total Suspended Solids	mg/L	01/14/2013	1.00	0.349	10.0	ND
805671-002 Total Suspended Solids	mg/L	01/14/2013	1.00	0.349	10.0	ND
805671-005 Total Suspended Solids	mg/L	01/14/2013	1.00	0.349	10.0	ND
805671-006 Total Suspended Solids	mg/L	01/14/2013	1.00	0.349	10.0	ND
805671-007 Total Suspended Solids	mg/L	01/14/2013	1.00	0.349	10.0	ND
805671-008 Total Suspended Solids	mg/L	01/14/2013	1.00	0.349	10.0	ND
805671-009 Total Suspended Solids	mg/L	01/14/2013	1.00	0.349	10.0	ND
805671-010 Total Suspended Solids	mg/L	01/14/2013	1.00	0.349	10.0	ND
805671-011 Total Suspended Solids	mg/L	01/14/2013	1.00	0.349	10.0	ND
805671-012 Total Suspended Solids	mg/L	01/14/2013	1.00	0.349	10.0	ND
805671-014 Total Suspended Solids	mg/L	01/14/2013	1.00	0.349	10.0	ND

Method Blank

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

Duplicate

Lab ID = 805671-014

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	95.0	100	95.0	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: 01TSS13F
Date Analyzed: 01/14/13

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
E47	BLANK	1000	1.4465	1.4465	1.4465	0.0000	No	0.0000	0.0	2.5	ND
E50	805628	1000	1.4298	1.4382	1.4382	0.0000	No	0.0084	8.4	2.5	8.4
E51	805631	1000	1.4578	1.4590	1.459	0.0000	No	0.0012	1.2	2.5	ND
E52	805632	1000	1.4458	1.4465	1.4465	0.0000	No	0.0007	0.7	2.5	ND
E53	805634-13	1000	1.4474	1.4500	1.45	0.0000	No	0.0026	2.6	2.5	2.6
E54	805635-1	500	1.4354	1.4464	1.4464	0.0000	No	0.0110	22.0	5.0	22.0
E55	805635-1D	500	1.4386	1.4498	1.4498	0.0000	No	0.0112	22.4	5.0	22.4
E56	805671-1	250	1.4475	1.4475	1.4475	0.0000	No	0.0000	0.0	10.0	ND
E57	805671-2	250	1.4320	1.4320	1.432	0.0000	No	0.0000	0.0	10.0	ND
E58	805671-5	250	1.4510	1.4518	1.4518	0.0000	No	0.0008	3.2	10.0	ND
E59	805671-6	250	1.4468	1.4469	1.4469	0.0000	No	0.0001	0.4	10.0	ND
E60	805671-7	250	1.4480	1.4480	1.448	0.0000	No	0.0000	0.0	10.0	ND
E61	805671-8	250	1.4491	1.4491	1.4491	0.0000	No	0.0000	0.0	10.0	ND
E62	805671-9	250	1.4286	1.4286	1.4286	0.0000	No	0.0000	0.0	10.0	ND
E63	805671-10	250	1.4427	1.4429	1.4429	0.0000	No	0.0002	0.8	10.0	ND
E64	805671-11	250	1.4345	1.4345	1.4345	0.0000	No	0.0000	0.0	10.0	ND
E65	805671-12	250	1.4375	1.4375	1.4375	0.0000	No	0.0000	0.0	10.0	ND
E66	805671-14	250	1.4340	1.4346	1.4346	0.0000	No	0.0006	2.4	10.0	ND
E67	805671-14D	250	1.4317	1.4323	1.4323	0.0000	No	0.0006	2.4	10.0	ND
E68	805661	500	1.4567	1.4902	1.4902	0.0000	No	0.0335	67.0	5.0	67.0
E69	805667	1000	1.4445	1.4567	1.4567	0.0000	No	0.0122	12.2	2.5	12.2
E48	LCS-1	100	1.4470	1.4565	1.4565	0.0000	No	0.0095	95.0	25.0	95.0
E49	LCS-2	100	1.4496	1.4592	1.4592	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	95	100	95.0%	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?
805635-1	0.11	0.112	0.9%	≤5%	Yes
805671-14	0.0006	0.0006	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:	01ALK13D
Matrix:	WATER
Date of Analysis:	1/11/13

Calculations as follows:

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

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/SD = 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	99	100	99.0%	90-110	Yes
LCSD	98	100	98.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Acceptance Limit	QC Within Control?
805671-12	130	129	0.8%	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?
805671-14	131	1	100	100	227	231.00	96%	75-125	Yes			
		1	100	100								

Melissa S.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature _____

CH2MHILL

CHAIN OF CUSTODY RECORD

1/9/2013 4:17:41 PM

Page 1 OF 2

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	2x1 Liter	<p>* Where provided w/ multiple bottles for Cr⁶ + diss. metals please analyze 1 + hold 2</p> <p>ALERT !! Level III QC</p>	Number of Containers	COMMENTS
Location Topock			Preservatives:	(NH4)2S 04/NH4O H, 4°C	(NH4)2S 04/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C			
Project Manager Jay Piper			Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA	NA			
Sample Manager Shawn Duffy			Holding Time:	28	28	180	180	180	14	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,Mn	Metals (6020AFF) Field Filtered Chromium	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Alkalinity (SI42320B)	PH (SM4500HB)	TSS (SI42540)			
Task Order			DATE	TIME	Matrix											
C-CON-D-189	1/9/2013	10:47	Water	X		X	X	X	X	X	X	X	X		9	} pH=2 metals
C-CON-S-189	1/9/2013	11:02	Water	X		X		X	X	X	X	X	X		9	
C-MW-82-189	1/9/2013	10:15	Water		X										1	For Sample Conditions See Form Attached
C-MW-83-189	1/9/2013	13:02	Water		X										1	
C-NR1-D-189	1/9/2013	11:29	Water	X		X	X	X	X	X	X	X	X		9	}
C-NR1-S-189	1/9/2013	11:46	Water	X		X	X	X	X	X	X	X	X		9	
C-NR3-D-189	1/9/2013	12:18	Water	X		X	X	X	X	X	X	X	X		9	
C-NR3-S-189	1/9/2013	12:35	Water	X		X	X	X	X	X	X	X	X		9	
C-NR4-D-189	1/9/2013	13:14	Water	X		X	X	X	X	X	X	X	X		9	
C-NR4-S-189	1/9/2013	13:29	Water	X		X	X	X	X	X	X	X	X		9	} pH=2 metals
R-19-189	1/9/2013	9:34	Water	X		X	X	X	X	X	X	X	X		9	
R-28-189	1/9/2013	9:13	Water	X		X	X	X	X	X	X	X	X		9	
RMP-AB2-189	1/9/2013	13:35	Water		X										1	
RRB-189	1/9/2013	10:02	Water	X		X	X	X	X	X	X	X	X		9	pH=2

Signatures

Date/Time

Shipping Details

Special Instructions:

Approved by

Sampled by

Relinquished by

Received by

Relinquished by

Received by

1-9-13
1630

Method of Shipment: courier

On Ice: yes / no

Airbill No:

Lab Name: Truesdall Laboratories, Inc.

Lab Phone: (714) 730-6239

ATTN:

Jan 8-10, 2013

Sample Custody

Report Copy to

Shawn Duffy
(530) 229-3303

805671

CH2MHILL

CHAIN OF CUSTODY RECORD

1/9/2013 4:17:42 PM

Page 2 OF 2

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	2x1 Liter	* Where provided w/multiple bottles for Cr6 & diss. metals please analyze 1 & hold 2	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	4°C									
Project Manager Jay Piper	Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA	NA									
Sample Manager Shawn Duffy	Holding Time:	28	28	180	180	180	14	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, Mn, Fe, Se, Mo	Metals (6020AF) Field Filtered Chromium	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Alkalinity (SM2320B)	PH (SM4500HB)	TSS (SM2540)									
Task Order																				
Project 2013-RMP-189																				
Turnaround Time 10 Days																				
Shipping Date: 1/9/2013																				
COC Number: 2																				
DATE	TIME	Matrix																		
SW1-189	1/9/2013	15:20	Water	X				X			X		5	PH=2						
SW2-189	1/9/2013	15:42	Water	X				X			X		5	6020A						
TOTAL NUMBER OF CONTAINERS												112								

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

Special Instructions:

Jan 8-10, 2013

ATTN:

Sample Custody

Report Copy to

Shawn Duffy
(530) 229-3303

Bayan Davila 1-9-13 16:30
 Rafael Davila 1-9-13 22:30
 andy, RLI 1/9/13 22:30

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
01/03/13	805561-1	7	2 ml	9.5	10:15 AM	HAV
↓	↓ -2	↓	↓	↓	10:20 AM	HAV
01/03/13	805562-1	7	2 ml	9.5	10:25 AM	HAV
↓	↓ -2	↓	↓	↓	10:30 AM	↓
↓	↓ -3	↓	↓	↓	10:35 AM	↓
01/04/13	805581-5	9	N/A	N/A	N/A	HAV
01/09/13	805650	7	2 ml	9.5	9:30 AM	HAV
01/09/13	805651-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
↓	↓ -9	↓	↓	↓	↓	↓
↓	↓ -10	↓	↓	↓	↓	↓
↓	↓ -11	↓	↓	↓	↓	↓
↓	↓ -12	↓	↓	↓	↓	↓
↓	↓ -13	↓	↓	↓	↓	↓
↓	↓ -14	↓	↓	↓	↓	↓
↓	↓ -15	↓	↓	↓	↓	↓
01/10/13	805671-1	9.5	N/A	N/A	N/A	RB
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
↓	↓ -9	↓	↓	↓	↓	↓

M
1-25-13

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
01/10/13	80567-10	9.5	N/A	N/A	N/A	RB
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
01/16/13	805813	7	2 ml	9.5	9:30 AM	HAV
01/17/13	805831-1	9.5	N/A	N/A	N/A	RB
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
01/17/13	805832-1	9.5	N/A	N/A	N/A	RB
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					

1-21-13



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
805747	<1	<2	11/15/13	ES	yes			
805748(1-4)	↓	↓	↓	↓	↓			
805670(1,2)	<1	72	11/15/13	DC	NO	12:30	11/18/13 15:30	pH <2
805753(1,2,4)	<1	72	↓	DC	NO	12:30	↓	pH <2
805803(1,1,5)	<1	>2	11/16/13	BE	NO	11:30	↓	↓
805806(1-3)	<1	↓	↓	↓	↓	↓	↓	↓
805671(1,2,5,12,14)	<1	<2	11/16/13	ES	yes			Total/DISSOLVED
805813	<1	72	↓	↓	yes	11:00		
805782	<1	<2	11/16/13	ES	yes			
805794	↓	↓	↓	↓	↓			
805795	↓	↓	↓	↓	↓			
805798	↓	↓	↓	↓	↓			
805799	↓	↓	↓	↓	↓			
805800	↓	↓	↓	↓	↓			
805801	↓	↓	↓	↓	↓			
805824	↓	↓	↓	↓	↓			
805827(1,1,2)	<1	>2	11/15/13	DC	NO	16:10	11/18/13 15:30	pH <2
805841	↓	<2	11/18/13	ES	yes			
842	↓	↓	↓	↓	↓			
843	↓	↓	↓	↓	↓			
844	↓	↓	↓	↓	↓			
845	↓	↓	↓	↓	↓			
846	↓	↓	↓	↓	↓			
847	↓	↓	↓	↓	↓			
848	↓	↓	↓	↓	↓			
805831(1-12,14)	<1	<2	11/18/13	ES	yes			
805862(1-7)	↓	↓	↓	↓	↓			
805885	<1	<2	11/21/13	DC	yes			
805832(1-11)	<1	<2	11/21/13	DC	yes			Total/Disc
805864(1,3-7)	<1	<2	↓	↓	↓			
805890(1,2,4)	<1	72	11/22/13	DC	NO	10:25		
805888	<1	<2	↓	DC	yes			
805905	↓	↓	↓	↓	↓			
805906	↓	↓	↓	↓	↓			
805907	↓	↓	↓	↓	↓			
805908	↓	↓	↓	↓	↓			
805909	↓	↓	↓	↓	↓			
805881(1-7)	↓	↓	↓	↓	yes			
805863(1-8)	↓	↓	↓	↓	↓			
805883(1-3)	↓	↓	↓	↓	↓			
805914	<1	72	11/23/13	DC	No	14:30	11/24/13 15:20	pH <2
805916(1-3)	↓	↓	↓	↓	↓		↓	↓
805937	<1	<2	↓	↓	yes			
805938-1	<1	72	↓	↓	No	14:50		

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.



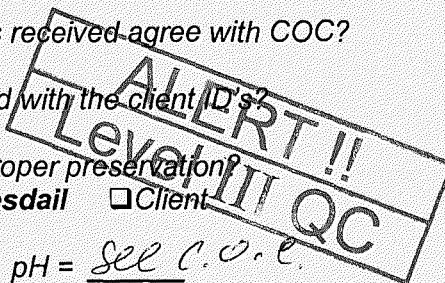
Sample Integrity & Analysis Discrepancy Form

Client: E2

Lab # 805671

Date Delivered: 01/09/13 Time: 12:30 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)? 3.3 °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? ☒ Yes ☐ No ☐ N/A
Turn Around Time (TAT): ☐ RUSH ☒ Std
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. Shabunina



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 1, 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-190, SURFACEWATER MONITORING
PROJECT, TLI NO.: 806635

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-RMP-190 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 March 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.

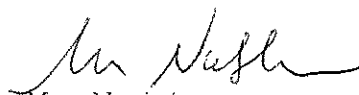
Samples for pH analysis by SM 4500-H B were received past the method specified holding time. Mr. Duffy approved the analysis of the samples.

Total Dissolved Chromium, for sample C-I-3-S-190, was re-digested and re-analyzed for each of the three sample containers (bottles A, B, C) provided due to the discrepancy between the Total Dissolved Chromium (2.0 ug/L) and Hexavalent Chromium (ND<0.20 ug/L) results. The results for all re-digested samples were ND<1.0 ug/L. At the same time, sample from the Hexavalent Chromium sample container was digested and analyzed for Total Dissolved Chromium, which also yielded a result of ND<1.0 ug/L. The original Total Dissolved Chromium digestate was also re-analyzed for confirmation and yielded a result of 2.2 ug/L. After discussing the results with Mr. Shawn Duffy, the result from the re-digested sample was reported. The detected result in the original digestate was most likely due to contamination during sample digestion.

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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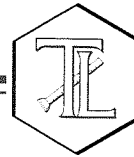
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TUSTIN, CALIFORNIA 92780-7008
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Event 2012-RMP-190 Cr by SW 6020, Surfacewater Samples

Samples field filtered unless otherwise noted

Sample ID	Initial pH	pH adjustment needed?	Amount of additional acid needed	Final pH	Comments
C-BNS-D-190	2.00	No			
C-I-3-D-190	2.00	No			
C-I-3-S-190	2.00	No			
C-MAR-D-190	2.00	No			
C-MAR-S-190	2.00	No			
C-R22A-D-190	2.00	No			
C-R22A-S-190	2.00	No			
C-R27-D-190	2.00	No			
C-R27-S-190	2.00	No			
C-TAZ-D-190	2.00	No			
C-TAZ-S-190	2.00	No			
R63-190	2.00	No			



Event 2012-RMP-190 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-190	9.50	No			
C-I-3-D-190	9.50	No			
C-I-3-S-190	9.50	No			
C-MAR-D-190	9.50	No			
C-MAR-S-190	9.50	No			
C-MW-80-190	9.50	No			
C-MW-81-190	9.50	No			
C-R22A-D-190	9.50	No			
C-R22A-S-190	9.50	No			
C-R27-D-190	9.50	No			
C-R27-S-190	9.50	No			
C-TAZ-D-190	9.50	No			
C-TAZ-S-190	9.50	No			
R63-190	9.50	No			
RMP-AB1-190	9.50	No			

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

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

Laboratory No.: 806635

Date Received: March 4, 2013

Project Name: PG&E Topock Project

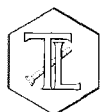
Project No.: 423575.MP.02.RM

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

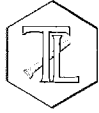
Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806635-001	C-BNS-D-190	E120.1	NONE	3/4/2013	12:35	EC	874	umhos/cm	2.00
806635-001	C-BNS-D-190	E218.6	FLDFLT	3/4/2013	12:35	Chromium, Hexavalent	ND	ug/L	0.20
806635-001	C-BNS-D-190	E300	NONE	3/4/2013	12:35	Nitrate as N	ND	mg/L	0.500
806635-001	C-BNS-D-190	SM2320B	NONE	3/4/2013	12:35	Alkalinity	125	mg/L	5.00
806635-001	C-BNS-D-190	SM2320B	NONE	3/4/2013	12:35	Alkalinity, Bicarbonate (As CaCO3)	125	mg/L	5.00
806635-001	C-BNS-D-190	SM2320B	NONE	3/4/2013	12:35	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806635-001	C-BNS-D-190	SM2540D	NONE	3/4/2013	12:35	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806635-001	C-BNS-D-190	SM4500HB	NONE	3/4/2013	12:35	PH	8.16	pH	4.00
806635-001	C-BNS-D-190	SW6010B	FLDFLT	3/4/2013	12:35	Iron	ND	ug/L	20.0
806635-001	C-BNS-D-190	SW6010B	NONE	3/4/2013	12:35	Iron	24.0	ug/L	20.0
806635-001	C-BNS-D-190	SW6020	FLDFLT	3/4/2013	12:35	Arsenic	2.2	ug/L	0.50
806635-001	C-BNS-D-190	SW6020	FLDFLT	3/4/2013	12:35	Chromium	ND	ug/L	1.0
806635-001	C-BNS-D-190	SW6020	FLDFLT	3/4/2013	12:35	Manganese	0.68	ug/L	0.50
806635-001	C-BNS-D-190	SW6020	FLDFLT	3/4/2013	12:35	Molybdenum	4.2	ug/L	2.0
806635-001	C-BNS-D-190	SW6020	FLDFLT	3/4/2013	12:35	Selenium	ND	ug/L	5.0
806635-002	C-I-3-D-190	E120.1	NONE	3/4/2013	10:42	EC	874	umhos/cm	2.00
806635-002	C-I-3-D-190	E218.6	FLDFLT	3/4/2013	10:42	Chromium, Hexavalent	ND	ug/L	0.20
806635-002	C-I-3-D-190	E300	NONE	3/4/2013	10:42	Nitrate as N	ND	mg/L	0.500
806635-002	C-I-3-D-190	SM2320B	NONE	3/4/2013	10:42	Alkalinity	119	mg/L	5.00
806635-002	C-I-3-D-190	SM2320B	NONE	3/4/2013	10:42	Alkalinity, Bicarbonate (As CaCO3)	119	mg/L	5.00
806635-002	C-I-3-D-190	SM2320B	NONE	3/4/2013	10:42	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806635-002	C-I-3-D-190	SM2540D	NONE	3/4/2013	10:42	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806635-002	C-I-3-D-190	SM4500HB	NONE	3/4/2013	10:42	PH	8.22	pH	4.00
806635-002	C-I-3-D-190	SW6010B	FLDFLT	3/4/2013	10:42	Iron	ND	ug/L	20.0
806635-002	C-I-3-D-190	SW6010B	NONE	3/4/2013	10:42	Iron	29.1	ug/L	20.0
806635-002	C-I-3-D-190	SW6020	FLDFLT	3/4/2013	10:42	Arsenic	2.3	ug/L	0.50
806635-002	C-I-3-D-190	SW6020	FLDFLT	3/4/2013	10:42	Chromium	ND	ug/L	1.0
806635-002	C-I-3-D-190	SW6020	FLDFLT	3/4/2013	10:42	Manganese	0.91	ug/L	0.50
806635-002	C-I-3-D-190	SW6020	FLDFLT	3/4/2013	10:42	Molybdenum	4.1	ug/L	2.0
806635-002	C-I-3-D-190	SW6020	FLDFLT	3/4/2013	10:42	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.



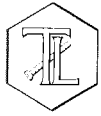
Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806635-003	C-I-3-S-190	E120.1	NONE	3/4/2013	11:00	EC	876	umhos/cm	2.00
806635-003	C-I-3-S-190	E218.6	FLDFLT	3/4/2013	11:00	Chromium, Hexavalent	ND	ug/L	0.20
806635-003	C-I-3-S-190	E300	NONE	3/4/2013	11:00	Nitrate as N	ND	mg/L	0.500
806635-003	C-I-3-S-190	SM2320B	NONE	3/4/2013	11:00	Alkalinity	125	mg/L	5.00
806635-003	C-I-3-S-190	SM2320B	NONE	3/4/2013	11:00	Alkalinity, Bicarbonate (As CaCO3)	125	mg/L	5.00
806635-003	C-I-3-S-190	SM2320B	NONE	3/4/2013	11:00	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806635-003	C-I-3-S-190	SM2540D	NONE	3/4/2013	11:00	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806635-003	C-I-3-S-190	SM4500HB	NONE	3/4/2013	11:00	PH	8.22	pH	4.00
806635-003	C-I-3-S-190	SW6010B	FLDFLT	3/4/2013	11:00	Iron	ND	ug/L	20.0
806635-003	C-I-3-S-190	SW6010B	NONE	3/4/2013	11:00	Iron	21.0	ug/L	20.0
806635-003	C-I-3-S-190	SW6020	FLDFLT	3/4/2013	11:00	Arsenic	2.3	ug/L	0.50
806635-003	C-I-3-S-190	SW6020	FLDFLT	3/4/2013	11:00	Chromium	ND	ug/L	1.0
806635-003	C-I-3-S-190	SW6020	FLDFLT	3/4/2013	11:00	Manganese	3.0	ug/L	0.50
806635-003	C-I-3-S-190	SW6020	FLDFLT	3/4/2013	11:00	Molybdenum	4.2	ug/L	2.0
806635-003	C-I-3-S-190	SW6020	FLDFLT	3/4/2013	11:00	Selenium	ND	ug/L	5.0
806635-004	C-MAR-D-190	E120.1	NONE	3/4/2013	13:12	EC	853	umhos/cm	2.00
806635-004	C-MAR-D-190	E218.6	FLDFLT	3/4/2013	13:12	Chromium, Hexavalent	ND	ug/L	0.20
806635-004	C-MAR-D-190	E300	NONE	3/4/2013	13:12	Nitrate as N	ND	mg/L	0.500
806635-004	C-MAR-D-190	SM2320B	NONE	3/4/2013	13:12	Alkalinity	130	mg/L	5.00
806635-004	C-MAR-D-190	SM2320B	NONE	3/4/2013	13:12	Alkalinity, Bicarbonate (As CaCO3)	130	mg/L	5.00
806635-004	C-MAR-D-190	SM2320B	NONE	3/4/2013	13:12	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806635-004	C-MAR-D-190	SM2540D	NONE	3/4/2013	13:12	Suspended Solids (Residue, Non-Filterable)	28.4	mg/L	10.0
806635-004	C-MAR-D-190	SM4500HB	NONE	3/4/2013	13:12	PH	8.11	pH	4.00
806635-004	C-MAR-D-190	SW6010B	FLDFLT	3/4/2013	13:12	Iron	28.1	ug/L	20.0
806635-004	C-MAR-D-190	SW6010B	NONE	3/4/2013	13:12	Iron	1220	ug/L	20.0
806635-004	C-MAR-D-190	SW6020	FLDFLT	3/4/2013	13:12	Arsenic	2.1	ug/L	0.50
806635-004	C-MAR-D-190	SW6020	FLDFLT	3/4/2013	13:12	Chromium	ND	ug/L	1.0
806635-004	C-MAR-D-190	SW6020	FLDFLT	3/4/2013	13:12	Manganese	14.3	ug/L	0.50
806635-004	C-MAR-D-190	SW6020	FLDFLT	3/4/2013	13:12	Molybdenum	4.7	ug/L	2.0
806635-004	C-MAR-D-190	SW6020	FLDFLT	3/4/2013	13:12	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806635-005	C-MAR-S-190	E120.1	NONE	3/4/2013	13:27	EC	876	umhos/cm	2.00
806635-005	C-MAR-S-190	E218.6	FLDFLT	3/4/2013	13:27	Chromium, Hexavalent	ND	ug/L	0.20
806635-005	C-MAR-S-190	E300	NONE	3/4/2013	13:27	Nitrate as N	ND	mg/L	0.500
806635-005	C-MAR-S-190	SM2320B	NONE	3/4/2013	13:27	Alkalinity	121	mg/L	5.00
806635-005	C-MAR-S-190	SM2320B	NONE	3/4/2013	13:27	Alkalinity, Bicarbonate (As CaCO ₃)	121	mg/L	5.00
806635-005	C-MAR-S-190	SM2320B	NONE	3/4/2013	13:27	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
806635-005	C-MAR-S-190	SM2540D	NONE	3/4/2013	13:27	Suspended Solids (Residue, Non-Filterable)	11.6	mg/L	10.0
806635-005	C-MAR-S-190	SM4500HB	NONE	3/4/2013	13:27	PH	8.18	pH	4.00
806635-005	C-MAR-S-190	SW6010B	FLDFLT	3/4/2013	13:27	Iron	ND	ug/L	20.0
806635-005	C-MAR-S-190	SW6010B	NONE	3/4/2013	13:27	Iron	474	ug/L	20.0
806635-005	C-MAR-S-190	SW6020	FLDFLT	3/4/2013	13:27	Arsenic	2.1	ug/L	0.50
806635-005	C-MAR-S-190	SW6020	FLDFLT	3/4/2013	13:27	Chromium	ND	ug/L	1.0
806635-005	C-MAR-S-190	SW6020	FLDFLT	3/4/2013	13:27	Manganese	8.6	ug/L	0.50
806635-005	C-MAR-S-190	SW6020	FLDFLT	3/4/2013	13:27	Molybdenum	4.1	ug/L	2.0
806635-005	C-MAR-S-190	SW6020	FLDFLT	3/4/2013	13:27	Selenium	ND	ug/L	5.0
806635-006	C-MW-80-190	E218.6	LABFLT	3/4/2013	11:37	Chromium, Hexavalent	ND	ug/L	0.20
806635-007	C-MW-81-190	E218.6	LABFLT	3/4/2013	12:22	Chromium, Hexavalent	ND	ug/L	0.20
806635-008	C-R22A-D-190	E120.1	NONE	3/4/2013	11:47	EC	871	umhos/cm	2.00
806635-008	C-R22A-D-190	E218.6	FLDFLT	3/4/2013	11:47	Chromium, Hexavalent	ND	ug/L	0.20
806635-008	C-R22A-D-190	E300	NONE	3/4/2013	11:47	Nitrate as N	ND	mg/L	0.500
806635-008	C-R22A-D-190	SM2320B	NONE	3/4/2013	11:47	Alkalinity	124	mg/L	5.00
806635-008	C-R22A-D-190	SM2320B	NONE	3/4/2013	11:47	Alkalinity, Bicarbonate (As CaCO ₃)	124	mg/L	5.00
806635-008	C-R22A-D-190	SM2320B	NONE	3/4/2013	11:47	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
806635-008	C-R22A-D-190	SM2540D	NONE	3/4/2013	11:47	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806635-008	C-R22A-D-190	SM4500HB	NONE	3/4/2013	11:47	PH	8.21	pH	4.00
806635-008	C-R22A-D-190	SW6010B	FLDFLT	3/4/2013	11:47	Iron	ND	ug/L	20.0
806635-008	C-R22A-D-190	SW6010B	NONE	3/4/2013	11:47	Iron	36.6	ug/L	20.0
806635-008	C-R22A-D-190	SW6020	FLDFLT	3/4/2013	11:47	Arsenic	2.2	ug/L	0.50
806635-008	C-R22A-D-190	SW6020	FLDFLT	3/4/2013	11:47	Chromium	ND	ug/L	1.0
806635-008	C-R22A-D-190	SW6020	FLDFLT	3/4/2013	11:47	Manganese	0.55	ug/L	0.50
806635-008	C-R22A-D-190	SW6020	FLDFLT	3/4/2013	11:47	Molybdenum	4.1	ug/L	2.0
806635-008	C-R22A-D-190	SW6020	FLDFLT	3/4/2013	11:47	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806635-009	C-R22A-S-190	E120.1	NONE	3/4/2013	12:05	EC	875	umhos/cm	2.00
806635-009	C-R22A-S-190	E218.6	FLDFLT	3/4/2013	12:05	Chromium, Hexavalent	ND	ug/L	0.20
806635-009	C-R22A-S-190	E300	NONE	3/4/2013	12:05	Nitrate as N	ND	mg/L	0.500
806635-009	C-R22A-S-190	SM2320B	NONE	3/4/2013	12:05	Alkalinity	126	mg/L	5.00
806635-009	C-R22A-S-190	SM2320B	NONE	3/4/2013	12:05	Alkalinity, Bicarbonate (As CaCO ₃)	126	mg/L	5.00
806635-009	C-R22A-S-190	SM2320B	NONE	3/4/2013	12:05	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
806635-009	C-R22A-S-190	SM2540D	NONE	3/4/2013	12:05	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806635-009	C-R22A-S-190	SM4500HB	NONE	3/4/2013	12:05	PH	8.21	pH	4.00
806635-009	C-R22A-S-190	SW6010B	FLDFLT	3/4/2013	12:05	Iron	ND	ug/L	20.0
806635-009	C-R22A-S-190	SW6010B	NONE	3/4/2013	12:05	Iron	27.7	ug/L	20.0
806635-009	C-R22A-S-190	SW6020	FLDFLT	3/4/2013	12:05	Arsenic	2.3	ug/L	0.50
806635-009	C-R22A-S-190	SW6020	FLDFLT	3/4/2013	12:05	Chromium	ND	ug/L	1.0
806635-009	C-R22A-S-190	SW6020	FLDFLT	3/4/2013	12:05	Manganese	0.72	ug/L	0.50
806635-009	C-R22A-S-190	SW6020	FLDFLT	3/4/2013	12:05	Molybdenum	4.4	ug/L	2.0
806635-009	C-R22A-S-190	SW6020	FLDFLT	3/4/2013	12:05	Selenium	ND	ug/L	5.0
806635-010	C-R27-D-190	E120.1	NONE	3/4/2013	14:01	EC	874	umhos/cm	2.00
806635-010	C-R27-D-190	E218.6	FLDFLT	3/4/2013	14:01	Chromium, Hexavalent	ND	ug/L	0.20
806635-010	C-R27-D-190	E300	NONE	3/4/2013	14:01	Nitrate as N	ND	mg/L	0.500
806635-010	C-R27-D-190	SM2320B	NONE	3/4/2013	14:01	Alkalinity	125	mg/L	5.00
806635-010	C-R27-D-190	SM2320B	NONE	3/4/2013	14:01	Alkalinity, Bicarbonate (As CaCO ₃)	125	mg/L	5.00
806635-010	C-R27-D-190	SM2320B	NONE	3/4/2013	14:01	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
806635-010	C-R27-D-190	SM2540D	NONE	3/4/2013	14:01	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806635-010	C-R27-D-190	SM4500HB	NONE	3/4/2013	14:01	PH	8.19	pH	4.00
806635-010	C-R27-D-190	SW6010B	FLDFLT	3/4/2013	14:01	Iron	ND	ug/L	20.0
806635-010	C-R27-D-190	SW6010B	NONE	3/4/2013	14:01	Iron	23.6	ug/L	20.0
806635-010	C-R27-D-190	SW6020	FLDFLT	3/4/2013	14:01	Arsenic	2.4	ug/L	0.50
806635-010	C-R27-D-190	SW6020	FLDFLT	3/4/2013	14:01	Chromium	ND	ug/L	1.0
806635-010	C-R27-D-190	SW6020	FLDFLT	3/4/2013	14:01	Manganese	0.50	ug/L	0.50
806635-010	C-R27-D-190	SW6020	FLDFLT	3/4/2013	14:01	Molybdenum	4.2	ug/L	2.0
806635-010	C-R27-D-190	SW6020	FLDFLT	3/4/2013	14:01	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806635-011	C-R27-S-190	E120.1	NONE	3/4/2013	14:16	EC	870	umhos/cm	2.00
806635-011	C-R27-S-190	E218.6	FLDFLT	3/4/2013	14:16	Chromium, Hexavalent	ND	ug/L	0.20
806635-011	C-R27-S-190	E300	NONE	3/4/2013	14:16	Nitrate as N	ND	mg/L	0.500
806635-011	C-R27-S-190	SM2320B	NONE	3/4/2013	14:16	Alkalinity	120	mg/L	5.00
806635-011	C-R27-S-190	SM2320B	NONE	3/4/2013	14:16	Alkalinity, Bicarbonate (As CaCO3)	120	mg/L	5.00
806635-011	C-R27-S-190	SM2320B	NONE	3/4/2013	14:16	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806635-011	C-R27-S-190	SM2540D	NONE	3/4/2013	14:16	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806635-011	C-R27-S-190	SM4500HB	NONE	3/4/2013	14:16	PH	8.18	pH	4.00
806635-011	C-R27-S-190	SW6010B	FLDFLT	3/4/2013	14:16	Iron	ND	ug/L	20.0
806635-011	C-R27-S-190	SW6010B	NONE	3/4/2013	14:16	Iron	21.0	ug/L	20.0
806635-011	C-R27-S-190	SW6020	FLDFLT	3/4/2013	14:16	Arsenic	2.3	ug/L	0.50
806635-011	C-R27-S-190	SW6020	FLDFLT	3/4/2013	14:16	Chromium	ND	ug/L	1.0
806635-011	C-R27-S-190	SW6020	FLDFLT	3/4/2013	14:16	Manganese	0.68	ug/L	0.50
806635-011	C-R27-S-190	SW6020	FLDFLT	3/4/2013	14:16	Molybdenum	4.6	ug/L	2.0
806635-011	C-R27-S-190	SW6020	FLDFLT	3/4/2013	14:16	Selenium	ND	ug/L	5.0
806635-012	C-TAZ-D-190	E120.1	NONE	3/4/2013	9:45	EC	875	umhos/cm	2.00
806635-012	C-TAZ-D-190	E218.6	FLDFLT	3/4/2013	9:45	Chromium, Hexavalent	ND	ug/L	0.20
806635-012	C-TAZ-D-190	E300	NONE	3/4/2013	9:45	Nitrate as N	ND	mg/L	0.500
806635-012	C-TAZ-D-190	SM2320B	NONE	3/4/2013	9:45	Alkalinity	121	mg/L	5.00
806635-012	C-TAZ-D-190	SM2320B	NONE	3/4/2013	9:45	Alkalinity, Bicarbonate (As CaCO3)	121	mg/L	5.00
806635-012	C-TAZ-D-190	SM2320B	NONE	3/4/2013	9:45	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806635-012	C-TAZ-D-190	SM2540D	NONE	3/4/2013	9:45	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806635-012	C-TAZ-D-190	SM4500HB	NONE	3/4/2013	9:45	PH	8.21	pH	4.00
806635-012	C-TAZ-D-190	SW6010B	FLDFLT	3/4/2013	9:45	Iron	ND	ug/L	20.0
806635-012	C-TAZ-D-190	SW6010B	NONE	3/4/2013	9:45	Iron	29.0	ug/L	20.0
806635-012	C-TAZ-D-190	SW6020	FLDFLT	3/4/2013	9:45	Arsenic	2.3	ug/L	0.50
806635-012	C-TAZ-D-190	SW6020	FLDFLT	3/4/2013	9:45	Chromium	ND	ug/L	1.0
806635-012	C-TAZ-D-190	SW6020	FLDFLT	3/4/2013	9:45	Manganese	ND	ug/L	0.50
806635-012	C-TAZ-D-190	SW6020	FLDFLT	3/4/2013	9:45	Molybdenum	4.2	ug/L	2.0
806635-012	C-TAZ-D-190	SW6020	FLDFLT	3/4/2013	9:45	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806635-013	C-TAZ-S-190	E120.1	NONE	3/4/2013	10:03	EC	875	umhos/cm	2.00
806635-013	C-TAZ-S-190	E218.6	FLDFLT	3/4/2013	10:03	Chromium, Hexavalent	ND	ug/L	0.20
806635-013	C-TAZ-S-190	E300	NONE	3/4/2013	10:03	Nitrate as N	ND	mg/L	0.500
806635-013	C-TAZ-S-190	SM2320B	NONE	3/4/2013	10:03	Alkalinity	118	mg/L	5.00
806635-013	C-TAZ-S-190	SM2320B	NONE	3/4/2013	10:03	Alkalinity, Bicarbonate (As CaCO3)	118	mg/L	5.00
806635-013	C-TAZ-S-190	SM2320B	NONE	3/4/2013	10:03	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806635-013	C-TAZ-S-190	SM2540D	NONE	3/4/2013	10:03	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806635-013	C-TAZ-S-190	SM4500HB	NONE	3/4/2013	10:03	PH	8.23 J	pH	4.00
806635-013	C-TAZ-S-190	SW6010B	FLDFLT	3/4/2013	10:03	Iron	ND	ug/L	20.0
806635-013	C-TAZ-S-190	SW6010B	NONE	3/4/2013	10:03	Iron	22.3	ug/L	20.0
806635-013	C-TAZ-S-190	SW6020	FLDFLT	3/4/2013	10:03	Arsenic	2.2	ug/L	0.50
806635-013	C-TAZ-S-190	SW6020	FLDFLT	3/4/2013	10:03	Chromium	ND	ug/L	1.0
806635-013	C-TAZ-S-190	SW6020	FLDFLT	3/4/2013	10:03	Manganese	0.51	ug/L	0.50
806635-013	C-TAZ-S-190	SW6020	FLDFLT	3/4/2013	10:03	Molybdenum	4.1	ug/L	2.0
806635-013	C-TAZ-S-190	SW6020	FLDFLT	3/4/2013	10:03	Selenium	ND	ug/L	5.0
806635-014	R63-190	E120.1	NONE	3/4/2013	11:20	EC	874	umhos/cm	2.00
806635-014	R63-190	E218.6	FLDFLT	3/4/2013	11:20	Chromium, Hexavalent	ND	ug/L	0.20
806635-014	R63-190	E300	NONE	3/4/2013	11:20	Nitrate as N	ND	mg/L	0.500
806635-014	R63-190	SM2320B	NONE	3/4/2013	11:20	Alkalinity	119	mg/L	5.00
806635-014	R63-190	SM2320B	NONE	3/4/2013	11:20	Alkalinity, Bicarbonate (As CaCO3)	119	mg/L	5.00
806635-014	R63-190	SM2320B	NONE	3/4/2013	11:20	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806635-014	R63-190	SM2540D	NONE	3/4/2013	11:20	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806635-014	R63-190	SM4500HB	NONE	3/4/2013	11:20	PH	8.25	pH	4.00
806635-014	R63-190	SW6010B	FLDFLT	3/4/2013	11:20	Iron	ND	ug/L	20.0
806635-014	R63-190	SW6010B	NONE	3/4/2013	11:20	Iron	33.0	ug/L	20.0
806635-014	R63-190	SW6020	FLDFLT	3/4/2013	11:20	Arsenic	2.3	ug/L	0.50
806635-014	R63-190	SW6020	FLDFLT	3/4/2013	11:20	Chromium	ND	ug/L	1.0
806635-014	R63-190	SW6020	FLDFLT	3/4/2013	11:20	Manganese	0.83	ug/L	0.50
806635-014	R63-190	SW6020	FLDFLT	3/4/2013	11:20	Molybdenum	4.1	ug/L	2.0
806635-014	R63-190	SW6020	FLDFLT	3/4/2013	11:20	Selenium	ND	ug/L	5.0
806635-015	RMP-AB1-190	E218.6	LABFLT	3/4/2013	14:30	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.

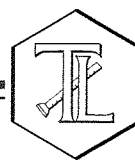
Result above or equal to 0.01ppm will have three (3) significant figures.

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

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.02.RM

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

Release Number:

Laboratory No. 806635

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Samples Received on 3/4/2013 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
C-BNS-D-190	806635-001	03/04/2013 12:35	Water
C-I-3-D-190	806635-002	03/04/2013 10:42	Water
C-I-3-S-190	806635-003	03/04/2013 11:00	Water
C-MAR-D-190	806635-004	03/04/2013 13:12	Water
C-MAR-S-190	806635-005	03/04/2013 13:27	Water
C-MW-80-190	806635-006	03/04/2013 11:37	Water
C-MW-81-190	806635-007	03/04/2013 12:22	Water
C-R22A-D-190	806635-008	03/04/2013 11:47	Water
C-R22A-S-190	806635-009	03/04/2013 12:05	Water
C-R27-D-190	806635-010	03/04/2013 14:01	Water
C-R27-S-190	806635-011	03/04/2013 14:16	Water
C-TAZ-D-190	806635-012	03/04/2013 09:45	Water
C-TAZ-S-190	806635-013	03/04/2013 10:03	Water
R63-190	806635-014	03/04/2013 11:20	Water
RMP-AB1-190	806635-015	03/04/2013 14:30	Water

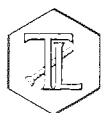
Anions By I.C. - EPA 300.0

Batch 03AN13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806635-001 Nitrate as Nitrogen	mg/L	03/05/2013 11:53	1.00	0.00830	0.500	ND
806635-002 Nitrate as Nitrogen	mg/L	03/05/2013 12:27	1.00	0.00830	0.500	ND
806635-003 Nitrate as Nitrogen	mg/L	03/05/2013 12:38	1.00	0.00830	0.500	ND
806635-004 Nitrate as Nitrogen	mg/L	03/05/2013 12:50	1.00	0.00830	0.500	ND
806635-005 Nitrate as Nitrogen	mg/L	03/05/2013 13:01	1.00	0.00830	0.500	ND
806635-008 Nitrate as Nitrogen	mg/L	03/05/2013 13:13	1.00	0.00830	0.500	ND
806635-009 Nitrate as Nitrogen	mg/L	03/05/2013 13:47	1.00	0.00830	0.500	ND
806635-010 Nitrate as Nitrogen	mg/L	03/05/2013 13:58	1.00	0.00830	0.500	ND
806635-011 Nitrate as Nitrogen	mg/L	03/05/2013 14:10	1.00	0.00830	0.500	ND
806635-012 Nitrate as Nitrogen	mg/L	03/05/2013 14:21	1.00	0.00830	0.500	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.

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806635-013 Nitrate as Nitrogen	mg/L	03/05/2013 14:33	1.00	0.00830	0.500	ND
806635-014 Nitrate as Nitrogen	mg/L	03/05/2013 14:44	1.00	0.00830	0.500	ND

Method Blank

Parameter	Unit	DF	Result
Nitrate as Nitrogen	mg/L	1.00	ND

Duplicate

Lab ID = 806635-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	ND	0.414	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	4.04	4.00	101	90 - 110

Matrix Spike

Lab ID = 806635-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.57	2.41(2.00)	108	85 - 115

MRCCS - Secondary

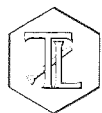
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	4.04	4.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.01	3.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.01	3.00	100	90 - 110

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

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Alkalinity by SM 2320B

Batch 03ALK13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806635-001 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	125
Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	125
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
806635-002 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	119
Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	119
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
806635-003 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	125
Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	125
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
806635-004 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	130
Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	130
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
806635-005 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	121
Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	121
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
806635-008 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	124
Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	124
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
806635-009 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	126
Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	126
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
806635-010 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	125
Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	125
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
806635-011 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	120
Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	120
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
806635-012 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	121
Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	121
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
806635-013 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	118
Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	118
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
806635-014 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	119



Client: E2 Consulting Engineers, Inc.

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806635-014 Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	119
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND

Method Blank

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

Duplicate

Lab ID = 806627-016

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	80.0	76.0	5.13	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	98.0	100	98.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	94.0	100	94.0	90 - 110

Matrix Spike

Lab ID = 806635-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	215	219(100)	96.0	75 - 125



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.RM

Printed 3/19/2013

Specific Conductivity - EPA 120.1

Batch 03EC13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806635-001 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	874
806635-002 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	874
806635-003 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	876
806635-004 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	853
806635-005 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	876
806635-008 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	871
806635-009 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	875
806635-010 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	874
806635-011 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	870
806635-012 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	875
806635-013 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	875
806635-014 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	874

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 806635-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	875	875	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	683	706	96.7	90 - 110

Lab Control Sample Duplicate

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	689	706	97.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	950	998	95.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	970	998	97.2	90 - 110



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Project Number: 423575.MP.02.RM

Printed 3/19/2013

Metals by EPA 6010B, Total

Batch 030813A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806635-001 Iron	ug/L	03/08/2013 12:32	1.00	9.50	20.0	24.0
806635-002 Iron	ug/L	03/08/2013 13:14	1.00	9.50	20.0	29.1
806635-003 Iron	ug/L	03/08/2013 13:20	1.00	9.50	20.0	21.0
806635-004 Iron	ug/L	03/08/2013 13:27	1.00	9.50	20.0	1220
806635-005 Iron	ug/L	03/08/2013 13:33	1.00	9.50	20.0	474
806635-008 Iron	ug/L	03/08/2013 13:39	1.00	9.50	20.0	36.6
806635-009 Iron	ug/L	03/08/2013 13:45	1.00	9.50	20.0	27.7
806635-010 Iron	ug/L	03/08/2013 13:52	1.00	9.50	20.0	23.6
806635-011 Iron	ug/L	03/08/2013 13:58	1.00	9.50	20.0	21.0
806635-012 Iron	ug/L	03/08/2013 14:04	1.00	9.50	20.0	29.0
806635-013 Iron	ug/L	03/08/2013 14:41	1.00	9.50	20.0	22.3
806635-014 Iron	ug/L	03/08/2013 14:47	1.00	9.50	20.0	33.0

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 806635-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	24.6	24.0	2.47	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	52.6	50.0	105	85 - 115

Matrix Spike

Lab ID = 806635-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	70.3	74.0(50.0)	92.6	75 - 125

Matrix Spike Duplicate

Lab ID = 806635-001

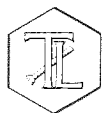
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	76.0	74.0(50.0)	104	75 - 125

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



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Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.RM

Printed 3/19/2013

Chrome VI by EPA 218.6

Batch 03CrH13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806635-001 Chromium, Hexavalent	ug/L	03/06/2013 13:01	1.00	0.00920	0.20	ND
806635-003 Chromium, Hexavalent	ug/L	03/06/2013 13:22	1.00	0.00920	0.20	ND
806635-004 Chromium, Hexavalent	ug/L	03/06/2013 13:32	1.00	0.00920	0.20	ND
806635-005 Chromium, Hexavalent	ug/L	03/06/2013 13:43	1.00	0.00920	0.20	ND
806635-006 Chromium, Hexavalent	ug/L	03/06/2013 14:55	1.00	0.00920	0.20	ND
806635-007 Chromium, Hexavalent	ug/L	03/06/2013 15:06	1.00	0.00920	0.20	ND
806635-008 Chromium, Hexavalent	ug/L	03/06/2013 15:16	1.00	0.00920	0.20	ND
806635-009 Chromium, Hexavalent	ug/L	03/06/2013 15:27	1.00	0.00920	0.20	ND
806635-010 Chromium, Hexavalent	ug/L	03/06/2013 17:31	1.00	0.00920	0.20	ND
806635-011 Chromium, Hexavalent	ug/L	03/06/2013 15:47	1.00	0.00920	0.20	ND
806635-012 Chromium, Hexavalent	ug/L	03/06/2013 16:29	1.00	0.00920	0.20	ND
806635-013 Chromium, Hexavalent	ug/L	03/06/2013 16:39	1.00	0.00920	0.20	ND
806635-014 Chromium, Hexavalent	ug/L	03/06/2013 16:50	1.00	0.00920	0.20	ND
806635-015 Chromium, Hexavalent	ug/L	03/06/2013 21:00	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate

Lab ID = 806330-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	2.56	2.58	0.653	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.210	0.200	105	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.85	5.00	97.0	90 - 110

Matrix Spike

Lab ID = 806330-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	36.3	36.5(25.0)	99.3	90 - 110

Matrix Spike

Lab ID = 806330-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.49	7.58(5.00)	98.2	90 - 110



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Matrix Spike						Lab ID = 806330-015
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	31.9	32.9(25.0)	95.8	90 - 110
Matrix Spike						Lab ID = 806635-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.03(1.00)	97.7	90 - 110
Matrix Spike						Lab ID = 806635-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.04(1.00)	96.2	90 - 110
Matrix Spike						Lab ID = 806635-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.993	1.02(1.00)	96.7	90 - 110
Matrix Spike						Lab ID = 806635-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.03(1.00)	98.1	90 - 110
Matrix Spike						Lab ID = 806635-006
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.976	1.00(1.00)	97.6	90 - 110
Matrix Spike						Lab ID = 806635-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.980	1.00(1.00)	98.0	90 - 110
Matrix Spike						Lab ID = 806635-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.03(1.00)	99.0	90 - 110
Matrix Spike						Lab ID = 806635-009
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.04(1.00)	97.6	90 - 110
Matrix Spike						Lab ID = 806635-010
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.03(1.00)	100	90 - 110
Matrix Spike						Lab ID = 806635-011
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.03(1.00)	99.9	90 - 110
Matrix Spike						Lab ID = 806635-012
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.04(1.00)	97.9	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

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Project Name: PG&E Topock Project

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Printed 3/19/2013

Matrix Spike

Lab ID = 806635-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.03(1.00)	98.0	90 - 110

Matrix Spike

Lab ID = 806635-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.04(1.00)	97.7	90 - 110

Matrix Spike

Lab ID = 806635-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.974	1.02(1.00)	95.8	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.88	5.00	97.5	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	9.98	10.0	99.8	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.98	10.0	99.8	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.97	10.0	99.7	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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Printed 3/19/2013

Chrome VI by EPA 218.6

Batch 03CrH13G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806635-002 Chromium, Hexavalent	ug/L	03/12/2013 15:37	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate

Lab ID = 806791-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	17.8	17.9	0.462	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	4.88	5.00	97.7	90 - 110

Matrix Spike

Lab ID = 806635-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.956	1.02(1.00)	93.7	90 - 110

Matrix Spike

Lab ID = 806790-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.01	6.02(5.00)	99.8	90 - 110

Matrix Spike

Lab ID = 806790-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.01	9.19(5.00)	96.4	90 - 110

Matrix Spike

Lab ID = 806790-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.60	7.90(5.00)	94.0	90 - 110

Matrix Spike

Lab ID = 806790-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.70	6.93(5.00)	95.4	90 - 110

Matrix Spike

Lab ID = 806790-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.00(1.00)	106	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 13 of 25****Project Number: 423575.MP.02.RM****Printed 3/19/2013****Metals by EPA 6020A, Dissolved**

Batch 030613A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806635-001 Arsenic	ug/L	03/06/2013 10:13	1.00	0.100	0.50	2.2
Chromium	ug/L	03/06/2013 10:13	1.00	0.0920	1.0	ND
Manganese	ug/L	03/06/2013 10:13	1.00	0.0860	0.50	0.68
Molybdenum	ug/L	03/06/2013 10:13	1.00	0.207	2.0	4.2
Selenium	ug/L	03/06/2013 10:13	1.00	0.0800	5.0	ND
806635-002 Arsenic	ug/L	03/06/2013 13:05	1.00	0.100	0.50	2.3
Chromium	ug/L	03/06/2013 13:05	1.00	0.0920	1.0	ND
Manganese	ug/L	03/06/2013 13:05	1.00	0.0860	0.50	0.91
Molybdenum	ug/L	03/06/2013 13:05	1.00	0.207	2.0	4.1
Selenium	ug/L	03/06/2013 13:05	1.00	0.0800	5.0	ND
806635-003 Arsenic	ug/L	03/06/2013 11:52	1.00	0.100	0.50	2.3
Manganese	ug/L	03/06/2013 11:52	1.00	0.0860	0.50	3.0
Molybdenum	ug/L	03/06/2013 11:52	1.00	0.207	2.0	4.2
Selenium	ug/L	03/06/2013 11:52	1.00	0.0800	5.0	ND
806635-004 Arsenic	ug/L	03/06/2013 11:59	1.00	0.100	0.50	2.1
Chromium	ug/L	03/06/2013 11:59	1.00	0.0920	1.0	ND
Manganese	ug/L	03/06/2013 11:59	1.00	0.0860	0.50	14.3
Molybdenum	ug/L	03/06/2013 11:59	1.00	0.207	2.0	4.7
Selenium	ug/L	03/06/2013 11:59	1.00	0.0800	5.0	ND
806635-005 Arsenic	ug/L	03/06/2013 12:05	1.00	0.100	0.50	2.1
Chromium	ug/L	03/06/2013 12:05	1.00	0.0920	1.0	ND
Manganese	ug/L	03/06/2013 12:05	1.00	0.0860	0.50	8.6
Molybdenum	ug/L	03/06/2013 12:05	1.00	0.207	2.0	4.1
Selenium	ug/L	03/06/2013 12:05	1.00	0.0800	5.0	ND
806635-008 Arsenic	ug/L	03/06/2013 12:11	1.00	0.100	0.50	2.2
Chromium	ug/L	03/06/2013 12:11	1.00	0.0920	1.0	ND
Manganese	ug/L	03/06/2013 12:11	1.00	0.0860	0.50	0.55
Molybdenum	ug/L	03/06/2013 12:11	1.00	0.207	2.0	4.1
Selenium	ug/L	03/06/2013 12:11	1.00	0.0800	5.0	ND
806635-009 Arsenic	ug/L	03/06/2013 12:17	1.00	0.100	0.50	2.3
Chromium	ug/L	03/06/2013 12:17	1.00	0.0920	1.0	ND
Manganese	ug/L	03/06/2013 12:17	1.00	0.0860	0.50	0.72
Molybdenum	ug/L	03/06/2013 12:17	1.00	0.207	2.0	4.4
Selenium	ug/L	03/06/2013 12:17	1.00	0.0800	5.0	ND



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806635-010 Arsenic	ug/L	03/06/2013 12:23	1.00	0.100	0.50	2.4
Chromium	ug/L	03/06/2013 12:23	1.00	0.0920	1.0	ND
Manganese	ug/L	03/06/2013 12:23	1.00	0.0860	0.50	0.50
Molybdenum	ug/L	03/06/2013 12:23	1.00	0.207	2.0	4.2
Selenium	ug/L	03/06/2013 12:23	1.00	0.0800	5.0	ND
806635-011 Arsenic	ug/L	03/06/2013 12:29	1.00	0.100	0.50	2.3
Chromium	ug/L	03/06/2013 12:29	1.00	0.0920	1.0	ND
Manganese	ug/L	03/06/2013 12:29	1.00	0.0860	0.50	0.68
Molybdenum	ug/L	03/06/2013 12:29	1.00	0.207	2.0	4.6
Selenium	ug/L	03/06/2013 12:29	1.00	0.0800	5.0	ND
806635-012 Arsenic	ug/L	03/06/2013 12:35	1.00	0.100	0.50	2.3
Chromium	ug/L	03/06/2013 12:35	1.00	0.0920	1.0	ND
Manganese	ug/L	03/06/2013 12:35	1.00	0.0860	0.50	ND
Molybdenum	ug/L	03/06/2013 12:35	1.00	0.207	2.0	4.2
Selenium	ug/L	03/06/2013 12:35	1.00	0.0800	5.0	ND
806635-013 Arsenic	ug/L	03/06/2013 12:41	1.00	0.100	0.50	2.2
Chromium	ug/L	03/06/2013 12:41	1.00	0.0920	1.0	ND
Manganese	ug/L	03/06/2013 12:41	1.00	0.0860	0.50	0.51
Molybdenum	ug/L	03/06/2013 12:41	1.00	0.207	2.0	4.1
Selenium	ug/L	03/06/2013 12:41	1.00	0.0800	5.0	ND
806635-014 Arsenic	ug/L	03/06/2013 12:59	1.00	0.100	0.50	2.3
Chromium	ug/L	03/06/2013 12:59	1.00	0.0920	1.0	ND
Manganese	ug/L	03/06/2013 12:59	1.00	0.0860	0.50	0.83
Molybdenum	ug/L	03/06/2013 12:59	1.00	0.207	2.0	4.1
Selenium	ug/L	03/06/2013 12:59	1.00	0.0800	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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Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.200	0.200	100	70 - 130
Chromium	ug/L	1.00	0.243	0.200	122	70 - 130
Selenium	ug/L	1.00	4.88	5.00	97.5	70 - 130
Manganese	ug/L	1.00	0.442	0.500	88.4	70 - 130
Molybdenum	ug/L	1.00	0.534	0.500	107	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	45.8	50.0	91.6	85 - 115
Chromium	ug/L	1.00	46.2	50.0	92.4	85 - 115
Selenium	ug/L	1.00	44.8	50.0	89.5	85 - 115
Manganese	ug/L	1.00	46.3	50.0	92.5	85 - 115
Molybdenum	ug/L	1.00	49.6	50.0	99.2	85 - 115

Matrix Spike

Lab ID = 806635-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	45.9	52.2(50.0)	87.4	75 - 125
Chromium	ug/L	1.00	43.1	50.0(50.0)	86.2	75 - 125
Selenium	ug/L	1.00	40.9	50.0(50.0)	81.8	75 - 125
Manganese	ug/L	1.00	43.0	50.7(50.0)	84.6	75 - 125
Molybdenum	ug/L	1.00	52.6	54.2(50.0)	97.0	75 - 125

Matrix Spike Duplicate

Lab ID = 806635-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	44.6	52.2(50.0)	84.8	75 - 125
Chromium	ug/L	1.00	41.9	50.0(50.0)	83.9	75 - 125
Selenium	ug/L	1.00	38.7	50.0(50.0)	77.5	75 - 125
Manganese	ug/L	1.00	41.7	50.7(50.0)	82.1	75 - 125
Molybdenum	ug/L	1.00	50.8	54.2(50.0)	93.4	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.5	20.0	97.6	90 - 110
Chromium	ug/L	1.00	20.1	20.0	101	90 - 110
Selenium	ug/L	1.00	19.2	20.0	96.2	90 - 110
Manganese	ug/L	1.00	20.2	20.0	101	90 - 110
Molybdenum	ug/L	1.00	18.7	20.0	93.4	90 - 110


Client: E2 Consulting Engineers, Inc.
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Project Number: 423575.MP.02.RM
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Metals by EPA 6020A, Dissolved

Batch 031213A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806635-003 Chromium	ug/L	03/12/2013 20:11	1.00	0.0920	1.0	ND

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	0.204	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	52.6	50.0	105	85 - 115

Matrix Spike

Lab ID = 806635-003

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

Matrix Spike Duplicate

Lab ID = 806635-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	51.0	50.0(50.0)	102	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	19.5	20.0	97.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	97.1	90 - 110

MRCVS - Primary

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

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Project Number: 423575.MP.02.RM

Printed 3/19/2013

Metals by EPA 6010B, Dissolved

Batch 030713A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806635-001 Iron	ug/L	03/07/2013 14:53	1.00	9.50	20.0	ND
806635-002 Iron	ug/L	03/07/2013 15:19	1.00	9.50	20.0	ND
806635-003 Iron	ug/L	03/07/2013 15:25	1.00	9.50	20.0	ND
806635-004 Iron	ug/L	03/07/2013 15:31	1.00	9.50	20.0	28.1
806635-005 Iron	ug/L	03/07/2013 15:37	1.00	9.50	20.0	ND
806635-008 Iron	ug/L	03/07/2013 16:01	1.00	9.50	20.0	ND
806635-009 Iron	ug/L	03/07/2013 16:07	1.00	9.50	20.0	ND
806635-010 Iron	ug/L	03/07/2013 16:13	1.00	9.50	20.0	ND
806635-011 Iron	ug/L	03/07/2013 16:20	1.00	9.50	20.0	ND
806635-012 Iron	ug/L	03/07/2013 16:26	1.00	9.50	20.0	ND
806635-013 Iron	ug/L	03/07/2013 16:32	1.00	9.50	20.0	ND
806635-014 Iron	ug/L	03/07/2013 16:38	1.00	9.50	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 806635-001

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	54.7	50.0	109	85 - 115

Matrix Spike

Lab ID = 806635-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	52.2	50.0(50.0)	104	75 - 125

Matrix Spike Duplicate

Lab ID = 806635-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	51.2	50.0(50.0)	102	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5280	5000	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5190	5000	104	90 - 110



Client: E2 Consulting Engineers, Inc.

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Project Number: 423575.MP.02.RM

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pH by SM 4500-H B

Batch 03PH13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806635-001 pH	pH	03/05/2013 09:46	1.00	0.0784	4.00	8.16
806635-002 pH	pH	03/05/2013 09:50	1.00	0.0784	4.00	8.22
806635-003 pH	pH	03/05/2013 09:55	1.00	0.0784	4.00	8.22
806635-004 pH	pH	03/05/2013 09:58	1.00	0.0784	4.00	8.11
806635-005 pH	pH	03/05/2013 10:00	1.00	0.0784	4.00	8.18
806635-008 pH	pH	03/05/2013 10:03	1.00	0.0784	4.00	8.21
806635-009 pH	pH	03/05/2013 10:05	1.00	0.0784	4.00	8.21
806635-010 pH	pH	03/05/2013 10:07	1.00	0.0784	4.00	8.19
806635-011 pH	pH	03/05/2013 10:10	1.00	0.0784	4.00	8.18
806635-012 pH	pH	03/05/2013 09:43	1.00	0.0784	4.00	8.21
806635-013 pH	pH	03/05/2013 10:17	1.00	0.0784	4.00	8.23
806635-014 pH	pH	03/05/2013 10:19	1.00	0.0784	4.00	8.25

Duplicate

Lab ID = 806635-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.19	8.18	0.122	0 - 20

Lab Control Sample

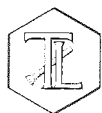
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.00	7.00	100	90 - 110

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	7.02	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

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Total Suspended Solids by SM 2540 D

Batch 03TSS13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806635-001 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	ND
806635-002 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	ND
806635-003 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	ND
806635-004 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	28.4
806635-005 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	11.6
806635-008 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	ND
806635-009 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	ND
806635-010 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	ND
806635-011 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	ND
806635-012 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	ND
806635-013 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	ND
806635-014 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	ND

Method Blank

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

Duplicate

Lab ID = 806635-014

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	101	100	101	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	97.0	100	97.0	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: 03TSS13B

Date Analyzed: 03/06/13

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
J20	BLANK	1000	1.3898	1.3898	1.3898	0.0000	No	0.0000	0.0	2.5	ND
J23	806635-1	250	1.3980	1.3980	1.398	0.0000	No	0.0000	0.0	10.0	ND
J24	806635-2	250	1.3868	1.3868	1.3868	0.0000	No	0.0000	0.0	10.0	ND
J25	806635-3	250	1.3909	1.3910	1.391	0.0000	No	0.0001	0.4	10.0	ND
J26	806635-4	250	1.4008	1.4079	1.4079	0.0000	No	0.0071	28.4	10.0	28.4
J27	806635-5	250	1.4047	1.4076	1.4076	0.0000	No	0.0029	11.6	10.0	11.6
J28	806635-8	250	1.3890	1.3890	1.389	0.0000	No	0.0000	0.0	10.0	ND
J29	806635-9	250	1.3937	1.3937	1.3937	0.0000	No	0.0000	0.0	10.0	ND
J30	806635-10	250	1.4071	1.4071	1.4071	0.0000	No	0.0000	0.0	10.0	ND
J31	806635-11	250	1.3960	1.3960	1.396	0.0000	No	0.0000	0.0	10.0	ND
J32	806635-12	250	1.3883	1.3883	1.3883	0.0000	No	0.0000	0.0	10.0	ND
J33	806635-13	250	1.3987	1.3987	1.3987	0.0000	No	0.0000	0.0	10.0	ND
J34	806635-14	250	1.3947	1.3947	1.3947	0.0000	No	0.0000	0.0	10.0	ND
J35	806635-14D	250	1.3950	1.3950	1.395	0.0000	No	0.0000	0.0	10.0	ND
J36	806581	500	1.3947	1.4292	1.4292	0.0000	No	0.0345	69.0	5.0	69.0
J37	806584	1000	1.4078	1.4154	1.4154	0.0000	No	0.0076	7.6	2.5	7.6
J38	806585	1000	1.3992	1.4115	1.4115	0.0000	No	0.0123	12.3	2.5	12.3
J39	806687	500	1.4012	1.4215	1.4215	0.0000	No	0.0203	40.6	5.0	40.6
J40	806587D	500	1.4015	1.4220	1.422	0.0000	No	0.0205	41.0	5.0	41.0
J41	806594	1000	1.3902	1.4088	1.4088	0.0000	No	0.0166	16.6	2.5	16.6
J21	LCS-1	100	1.3951	1.4052	1.4052	0.0000	No	0.0101	101.0	25.0	101.0
J22	LCS-2	100	1.3986	1.4083	1.4083	0.0000	No	0.0097	97.0	25.0	97.0

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	101	100	101.0%	90-110%	Yes
LCSD	97	100	97.0%	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?
806635-14	0	0	#DIV/0!	≤5%	#DIV/0!
806587	0.0203	0.0205	0.5%	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

Reviewer Printed Name

Reviewer Signature



Alkalinity by SM 2320B

Calculations

Analytical Batch: 03ALK13A
 Matrix: WATER
 Date of Analysis: 3/5/13

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	6.90	50	0.02		0.0	0.00		0.0	5	ND	ND	ND	ND	
806627-16	7.55	50	0.02		0.0	3.80		76.0	5	76.0	76.0	ND	ND	
806627-20	8.02	50	0.02		0.0	4.50		90.0	5	90.0	90.0	ND	ND	
806635-1	8.17	50	0.02		0.0	6.25		125.0	5	125.0	125.0	ND	ND	
806635-2	8.19	50	0.02		0.0	5.95		119.0	5	119.0	119.0	ND	ND	
806635-3	8.19	50	0.02		0.0	6.25		125.0	5	125.0	125.0	ND	ND	
806635-4	8.09	50	0.02		0.0	6.50		130.0	5	130.0	130.0	ND	ND	
806635-8	8.20	50	0.02		0.0	6.20		124.0	5	124.0	124.0	ND	ND	
806635-9	8.20	50	0.02		0.0	6.30		126.0	5	126.0	126.0	ND	ND	
806635-10	8.18	50	0.02		0.0	6.25		125.0	5	125.0	125.0	ND	ND	
806635-11	8.17	50	0.02		0.0	6.00		120.0	5	120.0	120.0	ND	ND	
806635-12	8.22	50	0.02		0.0	6.05		121.0	5	121.0	121.0	ND	ND	
806635-13	8.22	50	0.02		0.0	5.90		118.0	5	118.0	118.0	ND	ND	
806635-14	8.23	50	0.02		0.0	5.95		119.0	5	119.0	119.0	ND	ND	
806627-16 DUP	7.47	50	0.02		0.0	4.00		80.0	5	80.0	80.0	ND	ND	
806635-14 MS	9.45	50	0.02	2.3	45.0	10.75		215.0	5	215.0	125.0	90	ND	
LCS	10.34	50	0.02	2.2	44.0	4.90		98.0	5	98.0	10.0	88	ND	
LCSD	10.32	50	0.02	2.2	43.0	4.70		94.0	5	94.0	8.0	86	ND	
806635-5	8.15	50	0.02		0.0	6.05		121.0	5	121.0	121.0	ND	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

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

Where: B = mL titrant to first recorded pH

C = Total mL titrant to reach pH 0.3 unit lower

N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate

MS/MSD = Matrix Spike/Duplicate

ND = Not Detected (below the reporting limit)

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	98	100	98.0%	90-110	Yes
LCSD	94	100	94.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Acceptance Limit	QC Within Control?
806627-16	76	80	5.1%	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?
806635-14	119	1	100	100	215	219.00	96%	75-125	Yes			
		1	100	100								

Melissa S.

Analyst Printed Name

030513a

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

CH2MHILL

CHAIN OF CUSTODY RECORD

3/4/2013 3:52:47 PM

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806635

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	2x1 Liter	For Sample Conditions See Form Attached	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	4°C				
Project Manager Jay Piper		Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA	NA				
Sample Manager Shawn Duffy		Holding Time:	28	28	180	180	180	14	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,Mn,Fe,Se,Mo	Metals (6020AFF) Field Filtered Chromium /	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Alkalinity (SM2320B)	PH (SM4500HB)	TSS (SM2540)				
Task Order																
Project 2013-RMP-190																
Turnaround Time 10 Days																
Shipping Date: 3/4/2013																
COC Number: 1																
DATE	TIME	Matrix														
1	C-BNS-D-190	3/4/2013	12:35	Water	X		X	X	X	X	X	X			9	
2	C-I-3-D-190	3/4/2013	10:42	Water	X		X	X	X	X	X	X			9	
3	C-I-3-S-190	3/4/2013	11:00	Water	X		X	X	X	X	X	X			9	PH=2
4	C-MAR-D-190	3/4/2013	13:12	Water	X		X	X	X	X	X	X			9	6020.4
5	C-MAR-S-190	3/4/2013	13:27	Water	X		X	X	X	X	X	X			9	6010.8
6	C-MW-80-190	3/4/2013	11:37	Water		X									1	
7	C-MW-81-190	3/4/2013	12:22	Water		X									1	
8	C-R22A-D-190	3/4/2013	11:47	Water	X		X	X	X	X	X	X			9	
9	C-R22A-S-190	3/4/2013	12:05	Water	X		X	X	X	X	X	X			9	
10	C-R27-D-190	3/4/2013	14:01	Water	X		X	X	X	X	X	X			9	
11	C-R27-S-190	3/4/2013	14:16	Water	X		X	X	X	X	X	X			9	PH=2
12	C-TAZ-D-190	3/4/2013	9:45	Water	X		X	X	X	X	X	X			9	6020.4
13	C-TAZ-S-190	3/4/2013	10:03	Water	X		X	X	X	X	X	X			9	6010.8
14	R63-190	3/4/2013	11:20	Water	X		X	X	X	X	X	X			9	

Signatures

Date/Time

Shipping Details

Approved by

Sampled by

Relinquished by

Received by

Relinquished by

Received by

3-4-13

1630

Method of Shipment: courier

On Ice: yes / no

Airbill No:

Lab Name: Truesdail Laboratories, Inc.

Lab Phone: (714) 730-6239

ATTN:

Special Instructions:

March 4-5, 2013

Sample Custody

Report Copy to

Shawn Duffy
(530) 229-3303

806635

3/4/2013 3:52:47 PM

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	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	4°C			
Project Manager Jay Piper	Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA	NA			
Sample Manager Shawn Duffy	Holding Time:	28	28	180	180	180	14	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, Mn, Fe, Se, Mo	Metals (6020AFF) Field Filtered Chromium	Specific Conductance (E120,1)	Anions (E300,0) Nitrate	Alkalinity (Si12320B)	PH (Si14500HB)	TSS (Si12540)			
Task Order														
Project 2013-RMP-190														
Turnaround Time 10 Days														
Shipping Date: 3/4/2013														
COC Number: 1														
DATE TIME Matrix														
RMP-AB1-190	3/4/2013	14:30	Water		X									
TOTAL NUMBER OF CONTAINERS												111		

Approved by	Signatures	Date/Time	Shipping Details
Sampled by	<i>[Signature]</i>	3-4-13	Method of Shipment: courier
Relinquished by	<i>[Signature]</i>	1630	On Ice: yes / no
Received by	<i>Rafael Davila</i>	3/4/13 16:30	Airbill No:
Relinquished by	<i>Rafael Davila</i>	3-4-13 22:30	Lab Name: Truesdail Laboratories, Inc.
Received by	<i>Linda, TLI</i>	3/4/13 22:30	Lab Phone: (714) 730-6239

ATTN:

Sample Custody

Special Instructions:

March 4-5, 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
3/5/13	806633-3	9.5	N/A	N/A	N/A	RB
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
3/5/13	806634-1	9.5	N/A	N/A	N/A	RB
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
3/5/13	806635-1	9.5	N/A	N/A	N/A	RB
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					

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
3/5/13	806635-9	9.5	N/A	N/A	N/A	RM
↓	-10	↓	↓	↓	↓	↓
↓	-11	↓	↓	↓	↓	↓
↓	-12	↓	↓	↓	↓	↓
↓	-13	↓	↓	↓	↓	↓
↓	-14	↓	↓	↓	↓	↓
↓	-15	↓	↓	↓	↓	↓
3/6/13	803668-1	9.5	N/A	N/A	N/A	TM
↓	-2	↓	↓	↓	↓	↓
↓	-3	↓	↓	↓	↓	↓
↓	-4	↓	↓	↓	↓	↓
↓	-5	↓	↓	↓	↓	↓
↓	-6	↓	↓	↓	↓	↓
↓	-7	↓	↓	↓	↓	↓
↓	-8	↓	↓	↓	↓	↓
↓	-9	↓	↓	↓	↓	↓
↓	-10	↓	↓	↓	↓	↓
↓	-11	↓	↓	↓	↓	↓
↓	-12	↓	↓	↓	↓	↓
↓	-13	↓	↓	↓	↓	↓
↓	-14	↓	↓	↓	↓	↓
↓	-15	↓	↓	↓	↓	↓
↓	-16	↓	↓	↓	↓	↓
3/6/13	806669-1	7.0	2mL/100mL	9.5	10:20	TM
↓	-2	↓	↓	↓	↓	↓
3/6/13	806670-1	7.0	2mL/100mL	9.5	10:20	TM
↓	-2	↓	↓	↓	↓	↓
3/6/13	806673	9.5	N/A	N/A	N/A	TM
3/6/13	806696-1	7.0	2mL/100mL	9.5	15:45	TM
↓	↓ -2	↓	2mL/100mL	↓	↓	TM



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806497(1,2)	<1	<2	2/25/13	DC	yes			
806520	>1	<2						
806493(1-5)	>1	<2						
806494(1-5)	>1	<2						
806552	<1	>2	2-27-13	BE	yes	11:00		
806553(1-4)		<2						
806554(1-4)								
806555(1-4-7)								
806542(1-3)		>2			no	12:00	2/28/13 2:15:35	
806545								
806537	<1	<2		DC	yes			
806565	<1	>2			yes	14:00	2/28/13 2:15:30	
806562(1-14)	<1	>2	2/28/13	ES	no	9:30	3/1/13 2:16:00	pH < 2
806567(10-12)								
806570(1-2)	>1	<2			yes			
806572(1-2)	>1	<2			yes			
806586(1,2)	<1	>2		DC	yes	15:30		
806617	>1	<2	3/4/13	DC	yes			
806632(1-12)	<1		3-5-13	BE				
806633(1-12)								
806634(1-3-6)								
806635(1-5-8-14)								
806620(1-2,4)	<1	>2	3/5/13	ES	no	12:00		
806627(16,23)								
806625		<2			yes			
806626								
806688(1-2,5,14-16)	<1	<2	3-6-13	BE	yes			
806669(1-2)		>2						Lab Filter Acidified
806670(1-2)								
806679(1-5)		<2						
806643	>1	<2		DC	yes			
806651	<1							
806688	>1	>2				12:30		
806667	<1	>2		BE	no	14:00		
806663(1-3)						15:00		
806694(1-12)								
806682(4-6)								
806650	<1	<2	3/6/13	DC	yes			
806649								
806648								
806647								
806646								
806652								
806671								

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 # 806635

Date Delivered: 03/04/13 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)? 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 = secc. v. 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. Shabunsky



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 1, 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-190, SURFACEWATER MONITORING
PROJECT, TLI No.: 806668

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-RMP-190 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 March 5, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

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

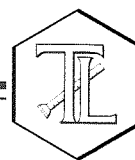
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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Event 2012-RMP-190 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-CON-D-190	2.00	No			
C-CON-S-190	2.00	No			
C-NR1-D-190	2.00	No			
C-NR1-S-190	2.00	No			
C-NR3-D-190	2.00	No			
C-NR3-S-190	2.00	No			
C-NR4-D-190	2.00	No			
C-NR4-S-190	2.00	No			
R-19-190	2.00	No			
R-28-190	2.00	No			
RRB-190	2.00	No			
SW1-190	2.00	No			
SW2-190	2.00	No			



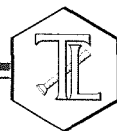
Event 2012-RMP-190 Cr (VI) by EPA 218.6, Surfacewater Samples

Samples field filtered unless otherwise noted

Sample ID	Initial pH	pH adjustment needed?	Amount of additional buffer needed	Final pH	Comments
C-CON-D-190	9.50	No			
C-CON-S-190	9.50	No			
C-MW-82-190	9.50	No			
C-MW-83-190	9.50	No			
C-NR1-D-190	9.50	No			
C-NR1-S-190	9.50	No			
C-NR3-D-190	9.50	No			
C-NR3-S-190	9.50	No			
C-NR4-D-190	9.50	No			
C-NR4-S-190	9.50	No			
R-19-190	9.50	No			
R-28-190	9.50	No			
RMP-AB2-190	9.50	No			
RRB-190	9.50	No			
SW1-190	9.50	No			
SW2-190	9.50	No			

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

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

Laboratory No.: 806668
Date Received: March 5, 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
806668-001	C-CON-D-190	E120.1	NONE	3/5/2013	9:49	EC	866	umhos/cm	2.00
806668-001	C-CON-D-190	E218.6	FLDFLT	3/5/2013	9:49	Chromium, Hexavalent	ND	ug/L	0.20
806668-001	C-CON-D-190	E300	NONE	3/5/2013	9:49	Nitrate as N	ND	mg/L	0.500
806668-001	C-CON-D-190	SM2320B	NONE	3/5/2013	9:49	Alkalinity	130	mg/L	5.00
806668-001	C-CON-D-190	SM2320B	NONE	3/5/2013	9:49	Alkalinity, Bicarbonate (As CaCO ₃)	130	mg/L	5.00
806668-001	C-CON-D-190	SM2320B	NONE	3/5/2013	9:49	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
806668-001	C-CON-D-190	SM2540D	NONE	3/5/2013	9:49	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806668-001	C-CON-D-190	SM4500HB	NONE	3/5/2013	9:49	PH	8.28 J	pH	4.00
806668-001	C-CON-D-190	SW6010B	FLDFLT	3/5/2013	9:49	Iron	ND	ug/L	20.0
806668-001	C-CON-D-190	SW6010B	NONE	3/5/2013	9:49	Iron	24.5	ug/L	20.0
806668-001	C-CON-D-190	SW6020	FLDFLT	3/5/2013	9:49	Arsenic	2.2	ug/L	0.50
806668-001	C-CON-D-190	SW6020	FLDFLT	3/5/2013	9:49	Chromium	ND	ug/L	1.0
806668-001	C-CON-D-190	SW6020	FLDFLT	3/5/2013	9:49	Manganese	0.74	ug/L	0.50
806668-001	C-CON-D-190	SW6020	FLDFLT	3/5/2013	9:49	Molybdenum	4.1	ug/L	2.0
806668-001	C-CON-D-190	SW6020	FLDFLT	3/5/2013	9:49	Selenium	ND	ug/L	5.0
806668-002	C-CON-S-190	E120.1	NONE	3/5/2013	10:06	EC	865	umhos/cm	2.00
806668-002	C-CON-S-190	E218.6	FLDFLT	3/5/2013	10:06	Chromium, Hexavalent	ND	ug/L	0.20
806668-002	C-CON-S-190	E300	NONE	3/5/2013	10:06	Nitrate as N	ND	mg/L	0.500
806668-002	C-CON-S-190	SM2320B	NONE	3/5/2013	10:06	Alkalinity	124	mg/L	5.00
806668-002	C-CON-S-190	SM2320B	NONE	3/5/2013	10:06	Alkalinity, Bicarbonate (As CaCO ₃)	124	mg/L	5.00
806668-002	C-CON-S-190	SM2320B	NONE	3/5/2013	10:06	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
806668-002	C-CON-S-190	SM2540D	NONE	3/5/2013	10:06	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806668-002	C-CON-S-190	SM4500HB	NONE	3/5/2013	10:06	PH	8.29 J	pH	4.00
806668-002	C-CON-S-190	SW6010B	FLDFLT	3/5/2013	10:06	Iron	ND	ug/L	20.0
806668-002	C-CON-S-190	SW6010B	NONE	3/5/2013	10:06	Iron	ND	ug/L	20.0
806668-002	C-CON-S-190	SW6020	FLDFLT	3/5/2013	10:06	Arsenic	2.1	ug/L	0.50
806668-002	C-CON-S-190	SW6020	FLDFLT	3/5/2013	10:06	Chromium	ND	ug/L	1.0
806668-002	C-CON-S-190	SW6020	FLDFLT	3/5/2013	10:06	Manganese	0.58	ug/L	0.50
806668-002	C-CON-S-190	SW6020	FLDFLT	3/5/2013	10:06	Molybdenum	4.2	ug/L	2.0
806668-002	C-CON-S-190	SW6020	FLDFLT	3/5/2013	10:06	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.



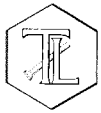
Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806668-003	C-MW-82-190	E218.6	LABFLT	3/5/2013	8:30	Chromium, Hexavalent	ND	ug/L	0.20
806668-004	C-MW-83-190	E218.6	LABFLT	3/5/2013	9:17	Chromium, Hexavalent	ND	ug/L	0.20
806668-005	C-NR1-D-190	E120.1	NONE	3/5/2013	10:47	EC	867	umhos/cm	2.00
806668-005	C-NR1-D-190	E218.6	FLDFLT	3/5/2013	10:47	Chromium, Hexavalent	ND	ug/L	0.20
806668-005	C-NR1-D-190	E300	NONE	3/5/2013	10:47	Nitrate as N	ND	mg/L	0.500
806668-005	C-NR1-D-190	SM2320B	NONE	3/5/2013	10:47	Alkalinity	127	mg/L	5.00
806668-005	C-NR1-D-190	SM2320B	NONE	3/5/2013	10:47	Alkalinity, Bicarbonate (As CaCO3)	127	mg/L	5.00
806668-005	C-NR1-D-190	SM2320B	NONE	3/5/2013	10:47	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806668-005	C-NR1-D-190	SM2540D	NONE	3/5/2013	10:47	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806668-005	C-NR1-D-190	SM4500HB	NONE	3/5/2013	10:47	PH	8.25	pH	4.00
806668-005	C-NR1-D-190	SW6010B	FLDFLT	3/5/2013	10:47	Iron	ND	ug/L	20.0
806668-005	C-NR1-D-190	SW6010B	NONE	3/5/2013	10:47	Iron	ND	ug/L	20.0
806668-005	C-NR1-D-190	SW6020	FLDFLT	3/5/2013	10:47	Arsenic	2.3	ug/L	0.50
806668-005	C-NR1-D-190	SW6020	FLDFLT	3/5/2013	10:47	Chromium	ND	ug/L	1.0
806668-005	C-NR1-D-190	SW6020	FLDFLT	3/5/2013	10:47	Manganese	0.57	ug/L	0.50
806668-005	C-NR1-D-190	SW6020	FLDFLT	3/5/2013	10:47	Molybdenum	4.2	ug/L	2.0
806668-005	C-NR1-D-190	SW6020	FLDFLT	3/5/2013	10:47	Selenium	ND	ug/L	5.0
806668-006	C-NR1-S-190	E120.1	NONE	3/5/2013	11:01	EC	872	umhos/cm	2.00
806668-006	C-NR1-S-190	E218.6	FLDFLT	3/5/2013	11:01	Chromium, Hexavalent	ND	ug/L	0.20
806668-006	C-NR1-S-190	E300	NONE	3/5/2013	11:01	Nitrate as N	ND	mg/L	0.500
806668-006	C-NR1-S-190	SM2320B	NONE	3/5/2013	11:01	Alkalinity	124	mg/L	5.00
806668-006	C-NR1-S-190	SM2320B	NONE	3/5/2013	11:01	Alkalinity, Bicarbonate (As CaCO3)	124	mg/L	5.00
806668-006	C-NR1-S-190	SM2320B	NONE	3/5/2013	11:01	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806668-006	C-NR1-S-190	SM2540D	NONE	3/5/2013	11:01	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806668-006	C-NR1-S-190	SM4500HB	NONE	3/5/2013	11:01	PH	8.26	pH	4.00
806668-006	C-NR1-S-190	SW6010B	FLDFLT	3/5/2013	11:01	Iron	ND	ug/L	20.0
806668-006	C-NR1-S-190	SW6010B	NONE	3/5/2013	11:01	Iron	ND	ug/L	20.0
806668-006	C-NR1-S-190	SW6020	FLDFLT	3/5/2013	11:01	Arsenic	2.2	ug/L	0.50
806668-006	C-NR1-S-190	SW6020	FLDFLT	3/5/2013	11:01	Chromium	ND	ug/L	1.0
806668-006	C-NR1-S-190	SW6020	FLDFLT	3/5/2013	11:01	Manganese	0.56	ug/L	0.50
806668-006	C-NR1-S-190	SW6020	FLDFLT	3/5/2013	11:01	Molybdenum	4.1	ug/L	2.0
806668-006	C-NR1-S-190	SW6020	FLDFLT	3/5/2013	11:01	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806668-007	C-NR3-D-190	E120.1	NONE	3/5/2013	11:35	EC	875	umhos/cm	2.00
806668-007	C-NR3-D-190	E218.6	FLDFLT	3/5/2013	11:35	Chromium, Hexavalent	ND	ug/L	0.20
806668-007	C-NR3-D-190	E300	NONE	3/5/2013	11:35	Nitrate as N	ND	mg/L	0.500
806668-007	C-NR3-D-190	SM2320B	NONE	3/5/2013	11:35	Alkalinity	126	mg/L	5.00
806668-007	C-NR3-D-190	SM2320B	NONE	3/5/2013	11:35	Alkalinity, Bicarbonate (As CaCO ₃)	126	mg/L	5.00
806668-007	C-NR3-D-190	SM2320B	NONE	3/5/2013	11:35	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
806668-007	C-NR3-D-190	SM2540D	NONE	3/5/2013	11:35	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806668-007	C-NR3-D-190	SM4500HB	NONE	3/5/2013	11:35	PH	8.24	pH	4.00
806668-007	C-NR3-D-190	SW6010B	FLDFLT	3/5/2013	11:35	Iron	ND	ug/L	20.0
806668-007	C-NR3-D-190	SW6010B	NONE	3/5/2013	11:35	Iron	21.7	ug/L	20.0
806668-007	C-NR3-D-190	SW6020	FLDFLT	3/5/2013	11:35	Arsenic	2.1	ug/L	0.50
806668-007	C-NR3-D-190	SW6020	FLDFLT	3/5/2013	11:35	Chromium	ND	ug/L	1.0
806668-007	C-NR3-D-190	SW6020	FLDFLT	3/5/2013	11:35	Manganese	0.53	ug/L	0.50
806668-007	C-NR3-D-190	SW6020	FLDFLT	3/5/2013	11:35	Molybdenum	4.2	ug/L	2.0
806668-007	C-NR3-D-190	SW6020	FLDFLT	3/5/2013	11:35	Selenium	ND	ug/L	5.0
806668-008	C-NR3-S-190	E120.1	NONE	3/5/2013	11:48	EC	875	umhos/cm	2.00
806668-008	C-NR3-S-190	E218.6	FLDFLT	3/5/2013	11:48	Chromium, Hexavalent	ND	ug/L	0.20
806668-008	C-NR3-S-190	E300	NONE	3/5/2013	11:48	Nitrate as N	ND	mg/L	0.500
806668-008	C-NR3-S-190	SM2320B	NONE	3/5/2013	11:48	Alkalinity	123	mg/L	5.00
806668-008	C-NR3-S-190	SM2320B	NONE	3/5/2013	11:48	Alkalinity, Bicarbonate (As CaCO ₃)	123	mg/L	5.00
806668-008	C-NR3-S-190	SM2320B	NONE	3/5/2013	11:48	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
806668-008	C-NR3-S-190	SM2540D	NONE	3/5/2013	11:48	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806668-008	C-NR3-S-190	SM4500HB	NONE	3/5/2013	11:48	PH	8.24	pH	4.00
806668-008	C-NR3-S-190	SW6010B	FLDFLT	3/5/2013	11:48	Iron	ND	ug/L	20.0
806668-008	C-NR3-S-190	SW6010B	NONE	3/5/2013	11:48	Iron	ND	ug/L	20.0
806668-008	C-NR3-S-190	SW6020	FLDFLT	3/5/2013	11:48	Arsenic	2.2	ug/L	0.50
806668-008	C-NR3-S-190	SW6020	FLDFLT	3/5/2013	11:48	Chromium	ND	ug/L	1.0
806668-008	C-NR3-S-190	SW6020	FLDFLT	3/5/2013	11:48	Manganese	0.54	ug/L	0.50
806668-008	C-NR3-S-190	SW6020	FLDFLT	3/5/2013	11:48	Molybdenum	3.9	ug/L	2.0
806668-008	C-NR3-S-190	SW6020	FLDFLT	3/5/2013	11:48	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806668-009	C-NR4-D-190	E120.1	NONE	3/5/2013	12:15	EC	876	umhos/cm	2.00
806668-009	C-NR4-D-190	E218.6	FLDFLT	3/5/2013	12:15	Chromium, Hexavalent	ND	ug/L	0.20
806668-009	C-NR4-D-190	E300	NONE	3/5/2013	12:15	Nitrate as N	ND	mg/L	0.500
806668-009	C-NR4-D-190	SM2320B	NONE	3/5/2013	12:15	Alkalinity	123	mg/L	5.00
806668-009	C-NR4-D-190	SM2320B	NONE	3/5/2013	12:15	Alkalinity, Bicarbonate (As CaCO3)	123	mg/L	5.00
806668-009	C-NR4-D-190	SM2320B	NONE	3/5/2013	12:15	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806668-009	C-NR4-D-190	SM2540D	NONE	3/5/2013	12:15	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806668-009	C-NR4-D-190	SM4500HB	NONE	3/5/2013	12:15	PH	8.24	pH	4.00
806668-009	C-NR4-D-190	SW6010B	FLDFLT	3/5/2013	12:15	Iron	ND	ug/L	20.0
806668-009	C-NR4-D-190	SW6010B	NONE	3/5/2013	12:15	Iron	22.4	ug/L	20.0
806668-009	C-NR4-D-190	SW6020	FLDFLT	3/5/2013	12:15	Arsenic	2.2	ug/L	0.50
806668-009	C-NR4-D-190	SW6020	FLDFLT	3/5/2013	12:15	Chromium	ND	ug/L	1.0
806668-009	C-NR4-D-190	SW6020	FLDFLT	3/5/2013	12:15	Manganese	0.56	ug/L	0.50
806668-009	C-NR4-D-190	SW6020	FLDFLT	3/5/2013	12:15	Molybdenum	4.2	ug/L	2.0
806668-009	C-NR4-D-190	SW6020	FLDFLT	3/5/2013	12:15	Selenium	ND	ug/L	5.0
806668-010	C-NR4-S-190	E120.1	NONE	3/5/2013	12:32	EC	871	umhos/cm	2.00
806668-010	C-NR4-S-190	E218.6	FLDFLT	3/5/2013	12:32	Chromium, Hexavalent	ND	ug/L	0.20
806668-010	C-NR4-S-190	E300	NONE	3/5/2013	12:32	Nitrate as N	ND	mg/L	0.500
806668-010	C-NR4-S-190	SM2320B	NONE	3/5/2013	12:32	Alkalinity	125	mg/L	5.00
806668-010	C-NR4-S-190	SM2320B	NONE	3/5/2013	12:32	Alkalinity, Bicarbonate (As CaCO3)	125	mg/L	5.00
806668-010	C-NR4-S-190	SM2320B	NONE	3/5/2013	12:32	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806668-010	C-NR4-S-190	SM2540D	NONE	3/5/2013	12:32	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806668-010	C-NR4-S-190	SM4500HB	NONE	3/5/2013	12:32	PH	8.2	pH	4.00
806668-010	C-NR4-S-190	SW6010B	FLDFLT	3/5/2013	12:32	Iron	ND	ug/L	20.0
806668-010	C-NR4-S-190	SW6010B	NONE	3/5/2013	12:32	Iron	ND	ug/L	20.0
806668-010	C-NR4-S-190	SW6020	FLDFLT	3/5/2013	12:32	Arsenic	2.2	ug/L	0.50
806668-010	C-NR4-S-190	SW6020	FLDFLT	3/5/2013	12:32	Chromium	ND	ug/L	1.0
806668-010	C-NR4-S-190	SW6020	FLDFLT	3/5/2013	12:32	Manganese	0.52	ug/L	0.50
806668-010	C-NR4-S-190	SW6020	FLDFLT	3/5/2013	12:32	Molybdenum	4.2	ug/L	2.0
806668-010	C-NR4-S-190	SW6020	FLDFLT	3/5/2013	12:32	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806668-011	R-19-190	E120.1	NONE	3/5/2013	8:54	EC	873	umhos/cm	2.00
806668-011	R-19-190	E218.6	FLDFLT	3/5/2013	8:54	Chromium, Hexavalent	ND	ug/L	0.20
806668-011	R-19-190	E300	NONE	3/5/2013	8:54	Nitrate as N	ND	mg/L	0.500
806668-011	R-19-190	SM2320B	NONE	3/5/2013	8:54	Alkalinity	121	mg/L	5.00
806668-011	R-19-190	SM2320B	NONE	3/5/2013	8:54	Alkalinity, Bicarbonate (As CaCO3)	121	mg/L	5.00
806668-011	R-19-190	SM2320B	NONE	3/5/2013	8:54	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806668-011	R-19-190	SM2540D	NONE	3/5/2013	8:54	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806668-011	R-19-190	SM4500HB	NONE	3/5/2013	8:54	PH	8.30 J	pH	4.00
806668-011	R-19-190	SW6010B	FLDFLT	3/5/2013	8:54	Iron	ND	ug/L	20.0
806668-011	R-19-190	SW6010B	NONE	3/5/2013	8:54	Iron	ND	ug/L	20.0
806668-011	R-19-190	SW6020	FLDFLT	3/5/2013	8:54	Arsenic	2.3	ug/L	0.50
806668-011	R-19-190	SW6020	FLDFLT	3/5/2013	8:54	Chromium	ND	ug/L	1.0
806668-011	R-19-190	SW6020	FLDFLT	3/5/2013	8:54	Manganese	0.64	ug/L	0.50
806668-011	R-19-190	SW6020	FLDFLT	3/5/2013	8:54	Molybdenum	4.2	ug/L	2.0
806668-011	R-19-190	SW6020	FLDFLT	3/5/2013	8:54	Selenium	ND	ug/L	5.0
806668-012	R-28-190	E120.1	NONE	3/5/2013	8:41	EC	874	umhos/cm	2.00
806668-012	R-28-190	E218.6	FLDFLT	3/5/2013	8:41	Chromium, Hexavalent	ND	ug/L	0.20
806668-012	R-28-190	E300	NONE	3/5/2013	8:41	Nitrate as N	ND	mg/L	0.500
806668-012	R-28-190	SM2320B	NONE	3/5/2013	8:41	Alkalinity	122	mg/L	5.00
806668-012	R-28-190	SM2320B	NONE	3/5/2013	8:41	Alkalinity, Bicarbonate (As CaCO3)	122	mg/L	5.00
806668-012	R-28-190	SM2320B	NONE	3/5/2013	8:41	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806668-012	R-28-190	SM2540D	NONE	3/5/2013	8:41	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806668-012	R-28-190	SM4500HB	NONE	3/5/2013	8:41	PH	8.33 J	pH	4.00
806668-012	R-28-190	SW6010B	FLDFLT	3/5/2013	8:41	Iron	ND	ug/L	20.0
806668-012	R-28-190	SW6010B	NONE	3/5/2013	8:41	Iron	ND	ug/L	20.0
806668-012	R-28-190	SW6020	FLDFLT	3/5/2013	8:41	Arsenic	2.1	ug/L	0.50
806668-012	R-28-190	SW6020	FLDFLT	3/5/2013	8:41	Chromium	ND	ug/L	1.0
806668-012	R-28-190	SW6020	FLDFLT	3/5/2013	8:41	Manganese	0.62	ug/L	0.50
806668-012	R-28-190	SW6020	FLDFLT	3/5/2013	8:41	Molybdenum	4.2	ug/L	2.0
806668-012	R-28-190	SW6020	FLDFLT	3/5/2013	8:41	Selenium	ND	ug/L	5.0
806668-013	RMP-AB2-190	E218.6	LABFLT	3/5/2013	12:40	Chromium, Hexavalent	ND	ug/L	0.20



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806668-014	RRB-190	E120.1	NONE	3/5/2013	9:13	EC	876	umhos/cm	2.00
806668-014	RRB-190	E218.6	FLDFLT	3/5/2013	9:13	Chromium, Hexavalent	ND	ug/L	0.20
806668-014	RRB-190	E300	NONE	3/5/2013	9:13	Nitrate as N	ND	mg/L	0.500
806668-014	RRB-190	SM2320B	NONE	3/5/2013	9:13	Alkalinity	128	mg/L	5.00
806668-014	RRB-190	SM2320B	NONE	3/5/2013	9:13	Alkalinity, Bicarbonate (As CaCO ₃)	128	mg/L	5.00
806668-014	RRB-190	SM2320B	NONE	3/5/2013	9:13	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
806668-014	RRB-190	SM2540D	NONE	3/5/2013	9:13	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806668-014	RRB-190	SM4500HB	NONE	3/5/2013	9:13	PH	8.23 J	pH	4.00
806668-014	RRB-190	SW6010B	FLDFLT	3/5/2013	9:13	Iron	ND	ug/L	20.0
806668-014	RRB-190	SW6010B	NONE	3/5/2013	9:13	Iron	76.8	ug/L	20.0
806668-014	RRB-190	SW6020	FLDFLT	3/5/2013	9:13	Arsenic	2.2	ug/L	0.50
806668-014	RRB-190	SW6020	FLDFLT	3/5/2013	9:13	Chromium	ND	ug/L	1.0
806668-014	RRB-190	SW6020	FLDFLT	3/5/2013	9:13	Manganese	4.1	ug/L	0.50
806668-014	RRB-190	SW6020	FLDFLT	3/5/2013	9:13	Molybdenum	4.4	ug/L	2.0
806668-014	RRB-190	SW6020	FLDFLT	3/5/2013	9:13	Selenium	ND	ug/L	5.0
806668-015	SW1-190	E120.1	NONE	3/5/2013	7:15	EC	920	umhos/cm	2.00
806668-015	SW1-190	E218.6	FLDFLT	3/5/2013	7:15	Chromium, Hexavalent	ND	ug/L	0.20
806668-015	SW1-190	SM4500HB	NONE	3/5/2013	7:15	PH	7.50 J	pH	4.00
806668-015	SW1-190	SW6020	FLDFLT	3/5/2013	7:15	Chromium	ND	ug/L	1.0
806668-016	SW2-190	E120.1	NONE	3/5/2013	7:31	EC	891	umhos/cm	2.00
806668-016	SW2-190	E218.6	FLDFLT	3/5/2013	7:31	Chromium, Hexavalent	ND	ug/L	0.20
806668-016	SW2-190	SM4500HB	NONE	3/5/2013	7:31	PH	7.57 J	pH	4.00
806668-016	SW2-190	SW6020	FLDFLT	3/5/2013	7:31	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:

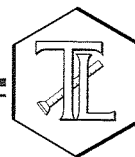
Results below 0.01ppm will have two (2) significant figures.

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.02.RM

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

Release Number:

Laboratory No. 806668

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Printed 3/20/2013

Samples Received on 3/5/2013 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
C-CON-D-190	806668-001	03/05/2013 09:49	Water
C-CON-S-190	806668-002	03/05/2013 10:06	Water
C-MW-82-190	806668-003	03/05/2013 08:30	Water
C-MW-83-190	806668-004	03/05/2013 09:17	Water
C-NR1-D-190	806668-005	03/05/2013 10:47	Water
C-NR1-S-190	806668-006	03/05/2013 11:01	Water
C-NR3-D-190	806668-007	03/05/2013 11:35	Water
C-NR3-S-190	806668-008	03/05/2013 11:48	Water
C-NR4-D-190	806668-009	03/05/2013 12:15	Water
C-NR4-S-190	806668-010	03/05/2013 12:32	Water
R-19-190	806668-011	03/05/2013 08:54	Water
R-28-190	806668-012	03/05/2013 08:41	Water
RMP-AB2-190	806668-013	03/05/2013 12:40	Water
RRB-190	806668-014	03/05/2013 09:13	Water
SW1-190	806668-015	03/05/2013 07:15	Water
SW2-190	806668-016	03/05/2013 07:31	Water

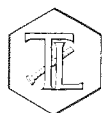
Anions By I.C. - EPA 300.0

Batch 03AN13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-001 Nitrate as Nitrogen	mg/L	03/06/2013 14:01	1.00	0.00830	0.500	ND
806668-002 Nitrate as Nitrogen	mg/L	03/06/2013 14:14	1.00	0.00830	0.500	ND
806668-005 Nitrate as Nitrogen	mg/L	03/06/2013 14:25	1.00	0.00830	0.500	ND
806668-006 Nitrate as Nitrogen	mg/L	03/06/2013 14:37	1.00	0.00830	0.500	ND
806668-007 Nitrate as Nitrogen	mg/L	03/06/2013 14:48	1.00	0.00830	0.500	ND
806668-008 Nitrate as Nitrogen	mg/L	03/06/2013 14:59	1.00	0.00830	0.500	ND
806668-009 Nitrate as Nitrogen	mg/L	03/06/2013 15:11	1.00	0.00830	0.500	ND
806668-010 Nitrate as Nitrogen	mg/L	03/06/2013 15:22	1.00	0.00830	0.500	ND
806668-011 Nitrate as Nitrogen	mg/L	03/06/2013 15:34	1.00	0.00830	0.500	ND
806668-012 Nitrate as Nitrogen	mg/L	03/06/2013 15:45	1.00	0.00830	0.500	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.

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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 3/20/2013

806668-014 Nitrate as Nitrogen	mg/L	03/06/2013 16:31	1.00	0.00830	0.500	ND
Method Blank						
Parameter	Unit	DF	Result			
Fluoride	mg/L	1.00	ND			
Sulfate	mg/L	1.00	ND			
Nitrate as Nitrogen	mg/L	1.00	ND			
Duplicate						Lab ID = 806670-001
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sulfate	mg/L	100	546	550	0.689	0 - 20
Duplicate						Lab ID = 806670-002
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.74	2.51	8.65	0 - 20
Nitrate as Nitrogen	mg/L	5.00	3.16	3.34	5.44	0 - 20
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	4.16	4.00	104	90 - 110
Sulfate	mg/L	1.00	20.6	20.0	103	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.07	4.00	102	90 - 110
Matrix Spike						Lab ID = 806670-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sulfate	mg/L	100	1060	1050(500)	102	85 - 115
Matrix Spike						Lab ID = 806670-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	23.6	22.5(20.0)	106	85 - 115
Nitrate as Nitrogen	mg/L	5.00	22.8	23.3(20.0)	97.2	85 - 115
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	4.15	4.00	104	90 - 110
Sulfate	mg/L	1.00	20.6	20.0	103	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.06	4.00	102	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.20	3.00	107	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.19	3.00	106	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 4 of 29****Project Number: 423575.MP.02.RM****Printed 3/20/2013****Alkalinity by SM 2320B**

Batch 03ALK13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-001 Alkalinity as CaCO ₃	mg/L	03/06/2013	1.00	0.555	5.00	130
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	130
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND
806668-002 Alkalinity as CaCO ₃	mg/L	03/06/2013	1.00	0.555	5.00	124
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	124
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND
806668-005 Alkalinity as CaCO ₃	mg/L	03/06/2013	1.00	0.555	5.00	127
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	127
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND
806668-006 Alkalinity as CaCO ₃	mg/L	03/06/2013	1.00	0.555	5.00	124
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	124
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND
806668-007 Alkalinity as CaCO ₃	mg/L	03/06/2013	1.00	0.555	5.00	126
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	126
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND
806668-008 Alkalinity as CaCO ₃	mg/L	03/06/2013	1.00	0.555	5.00	123
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	123
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND
806668-009 Alkalinity as CaCO ₃	mg/L	03/06/2013	1.00	0.555	5.00	123
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	123
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND
806668-010 Alkalinity as CaCO ₃	mg/L	03/06/2013	1.00	0.555	5.00	125
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	125
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND
806668-011 Alkalinity as CaCO ₃	mg/L	03/06/2013	1.00	0.555	5.00	121
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	121
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND
806668-012 Alkalinity as CaCO ₃	mg/L	03/06/2013	1.00	0.555	5.00	122
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	122
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND
806668-014 Alkalinity as CaCO ₃	mg/L	03/06/2013	1.00	0.555	5.00	128
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	128
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 5 of 29****Project Number: 423575.MP.02.RM****Printed 3/20/2013****Method Blank**

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

Duplicate

Lab ID = 806668-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	126	126	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	99.0	100	99.0	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

Matrix Spike

Lab ID = 806670-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	246	243(100)	103	75 - 125



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.RM

Printed 3/20/2013

Specific Conductivity - EPA 120.1

Batch 03EC13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-001 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	866
806668-002 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	865
806668-005 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	867
806668-006 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	872
806668-007 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	875
806668-008 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	875
806668-009 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	876
806668-010 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	871
806668-011 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	873
806668-012 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	874
806668-014 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	876
806668-015 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	920
806668-016 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	891

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 806668-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	874	874	0	0 - 10

Duplicate

Lab ID = 806670-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7440	7440	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	710	706	100	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	707	706	100	90 - 110



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Project Number: 423575.MP.02.RM

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Metals by EPA 6010B, Total

Batch 031313A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-001 Iron	ug/L	03/13/2013 15:29	1.00	9.50	20.0	24.5
806668-002 Iron	ug/L	03/13/2013 15:54	1.00	9.50	20.0	ND
806668-005 Iron	ug/L	03/13/2013 16:00	1.00	9.50	20.0	ND
806668-006 Iron	ug/L	03/13/2013 16:06	1.00	9.50	20.0	ND
806668-007 Iron	ug/L	03/13/2013 16:13	1.00	9.50	20.0	21.7
806668-008 Iron	ug/L	03/13/2013 16:37	1.00	9.50	20.0	ND
806668-009 Iron	ug/L	03/13/2013 16:44	1.00	9.50	20.0	22.4
806668-010 Iron	ug/L	03/13/2013 16:50	1.00	9.50	20.0	ND
806668-011 Iron	ug/L	03/13/2013 16:56	1.00	9.50	20.0	ND
806668-012 Iron	ug/L	03/13/2013 17:02	1.00	9.50	20.0	ND
806668-014 Iron	ug/L	03/13/2013 17:09	1.00	9.50	20.0	76.8

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	27.0	24.5	9.71	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	53.5	50.0	107	85 - 115

Matrix Spike

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	74.9	74.5(50.0)	101	75 - 125

Matrix Spike Duplicate

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	75.5	74.5(50.0)	102	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5080	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4970	5000	99.4	90 - 110



Client: E2 Consulting Engineers, Inc.

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Printed 3/20/2013

Chrome VI by EPA 218.6

Batch 03CrH13K

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-001 Chromium, Hexavalent	ug/L	03/14/2013 08:15	1.00	0.00920	0.20	ND
806668-002 Chromium, Hexavalent	ug/L	03/14/2013 08:26	1.00	0.00920	0.20	ND
806668-003 Chromium, Hexavalent	ug/L	03/14/2013 08:36	1.00	0.00920	0.20	ND
806668-004 Chromium, Hexavalent	ug/L	03/14/2013 08:47	1.00	0.00920	0.20	ND
806668-005 Chromium, Hexavalent	ug/L	03/14/2013 08:57	1.00	0.00920	0.20	ND
806668-006 Chromium, Hexavalent	ug/L	03/14/2013 09:07	1.00	0.00920	0.20	ND
806668-007 Chromium, Hexavalent	ug/L	03/14/2013 09:18	1.00	0.00920	0.20	ND
806668-008 Chromium, Hexavalent	ug/L	03/14/2013 09:59	1.00	0.00920	0.20	ND
806668-009 Chromium, Hexavalent	ug/L	03/14/2013 10:10	1.00	0.00920	0.20	ND
806668-010 Chromium, Hexavalent	ug/L	03/14/2013 10:20	1.00	0.00920	0.20	ND
806668-011 Chromium, Hexavalent	ug/L	03/14/2013 10:31	1.00	0.00920	0.20	ND
806668-012 Chromium, Hexavalent	ug/L	03/14/2013 10:41	1.00	0.00920	0.20	ND
806668-013 Chromium, Hexavalent	ug/L	03/14/2013 10:51	1.00	0.00920	0.20	ND
806668-014 Chromium, Hexavalent	ug/L	03/14/2013 11:02	1.00	0.00920	0.20	ND
806668-015 Chromium, Hexavalent	ug/L	03/14/2013 11:12	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate

Lab ID = 806668-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0336	0.0390	14.9	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.203	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 = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.04(1.00)	99.7	90 - 110

Matrix Spike

Lab ID = 806668-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.998	1.04(1.00)	96.0	90 - 110



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Matrix Spike						Lab ID = 806668-003
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 = 806668-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.964	1.00(1.00)	96.4	90 - 110
Matrix Spike						Lab ID = 806668-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.986	1.03(1.00)	95.5	90 - 110
Matrix Spike						Lab ID = 806668-006
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.03(1.00)	97.2	90 - 110
Matrix Spike						Lab ID = 806668-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.973	1.03(1.00)	94.0	90 - 110
Matrix Spike						Lab ID = 806668-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.03(1.00)	96.7	90 - 110
Matrix Spike						Lab ID = 806668-009
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.978	1.03(1.00)	94.5	90 - 110
Matrix Spike						Lab ID = 806668-010
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.07	1.03(1.00)	104	90 - 110
Matrix Spike						Lab ID = 806668-011
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.990	1.03(1.00)	95.7	90 - 110
Matrix Spike						Lab ID = 806668-012
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.11	1.03(1.00)	108	90 - 110
Matrix Spike						Lab ID = 806668-013
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.959	1.00(1.00)	95.9	90 - 110
Matrix Spike						Lab ID = 806668-014
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.988	1.03(1.00)	95.9	90 - 110



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Matrix Spike

Lab ID = 806668-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.961	1.01(1.00)	94.7	90 - 110

Matrix Spike

Lab ID = 806826-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.08(1.00)	96.1	90 - 110

Matrix Spike

Lab ID = 806826-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.80	5.11(5.00)	93.8	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.97	5.00	99.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.94	10.0	99.4	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	10.1	10.0	101	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


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Project Name: PG&E Topock Project
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Printed 3/20/2013
Chrome VI by EPA 218.6
Batch 03CrH13L

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-016 Chromium, Hexavalent	ug/L	03/18/2013 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 = 806909-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	100	1740	1740	0.142	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.02	5.00	100	90 - 110

Matrix Spike
Lab ID = 806668-016

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.02(1.00)	99.2	90 - 110

Matrix Spike
Lab ID = 806909-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	280	282(150)	99.0	90 - 110

Matrix Spike
Lab ID = 806909-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	286	285(150)	100	90 - 110

Matrix Spike
Lab ID = 806909-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	6360	6370(3750)	99.6	90 - 110

Matrix Spike
Lab ID = 806909-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	3710	3740(2000)	98.3	90 - 110

Matrix Spike
Lab ID = 806909-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	3720	3680(2000)	102	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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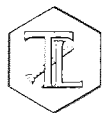
Project Number: 423575.MP.02.RM

Printed 3/20/2013

Metals by EPA 6020A, Dissolved

Batch 030813B-ICPMS-1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-001 Arsenic	ug/L	03/08/2013 19:45	2.00	0.200	0.50	2.2
Chromium	ug/L	03/08/2013 19:45	2.00	0.184	1.0	ND
Manganese	ug/L	03/08/2013 19:45	2.00	0.172	0.50	0.74
Molybdenum	ug/L	03/08/2013 19:45	2.00	0.414	2.0	4.1
806668-002 Arsenic	ug/L	03/08/2013 20:57	2.00	0.200	0.50	2.1
Chromium	ug/L	03/08/2013 20:57	2.00	0.184	1.0	ND
Manganese	ug/L	03/08/2013 20:57	2.00	0.172	0.50	0.58
Molybdenum	ug/L	03/08/2013 20:57	2.00	0.414	2.0	4.2
806668-005 Arsenic	ug/L	03/08/2013 21:04	2.00	0.200	0.50	2.3
Chromium	ug/L	03/08/2013 21:04	2.00	0.184	1.0	ND
Manganese	ug/L	03/08/2013 21:04	2.00	0.172	0.50	0.57
Molybdenum	ug/L	03/08/2013 21:04	2.00	0.414	2.0	4.2
806668-006 Arsenic	ug/L	03/08/2013 21:11	2.00	0.200	0.50	2.2
Chromium	ug/L	03/08/2013 21:11	2.00	0.184	1.0	ND
Manganese	ug/L	03/08/2013 21:11	2.00	0.172	0.50	0.56
Molybdenum	ug/L	03/08/2013 21:11	2.00	0.414	2.0	4.1
806668-007 Arsenic	ug/L	03/08/2013 21:18	2.00	0.200	0.50	2.1
Chromium	ug/L	03/08/2013 21:18	2.00	0.184	1.0	ND
Manganese	ug/L	03/08/2013 21:18	2.00	0.172	0.50	0.53
Molybdenum	ug/L	03/08/2013 21:18	2.00	0.414	2.0	4.2
806668-008 Arsenic	ug/L	03/08/2013 21:25	2.00	0.200	0.50	2.2
Chromium	ug/L	03/08/2013 21:25	2.00	0.184	1.0	ND
Manganese	ug/L	03/08/2013 21:25	2.00	0.172	0.50	0.54
Molybdenum	ug/L	03/08/2013 21:25	2.00	0.414	2.0	3.9
806668-009 Arsenic	ug/L	03/08/2013 21:32	2.00	0.200	0.50	2.2
Chromium	ug/L	03/08/2013 21:32	2.00	0.184	1.0	ND
Manganese	ug/L	03/08/2013 21:32	2.00	0.172	0.50	0.56
Molybdenum	ug/L	03/08/2013 21:32	2.00	0.414	2.0	4.2
806668-010 Arsenic	ug/L	03/08/2013 21:39	2.00	0.200	0.50	2.2
Chromium	ug/L	03/08/2013 21:39	2.00	0.184	1.0	ND
806668-011 Arsenic	ug/L	03/08/2013 21:47	2.00	0.200	0.50	2.3
Chromium	ug/L	03/08/2013 21:47	2.00	0.184	1.0	ND
Manganese	ug/L	03/08/2013 21:47	2.00	0.172	0.50	0.64
Molybdenum	ug/L	03/08/2013 21:47	2.00	0.414	2.0	4.2



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806668-012 Arsenic	ug/L	03/08/2013 21:54	2.00	0.200	0.50	2.1
Chromium	ug/L	03/08/2013 21:54	2.00	0.184	1.0	ND
Manganese	ug/L	03/08/2013 21:54	2.00	0.172	0.50	0.62
Molybdenum	ug/L	03/08/2013 21:54	2.00	0.414	2.0	4.2
806668-014 Arsenic	ug/L	03/08/2013 22:44	2.00	0.200	0.50	2.2
Chromium	ug/L	03/08/2013 22:44	2.00	0.184	1.0	ND
Manganese	ug/L	03/08/2013 22:44	2.00	0.172	0.50	4.1
Molybdenum	ug/L	03/08/2013 22:44	2.00	0.414	2.0	4.4
806668-015 Chromium	ug/L	03/08/2013 22:51	2.00	0.184	1.0	ND
806668-016 Chromium	ug/L	03/08/2013 22:58	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
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Duplicate

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	2.12	2.18	2.65	0 - 20
Chromium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	0.720	0.736	2.14	0 - 20
Molybdenum	ug/L	2.00	4.08	4.13	1.10	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.235	0.200	117	70 - 130
Chromium	ug/L	1.00	0.148	0.200	74.1	70 - 130
Manganese	ug/L	1.00	0.198	0.200	98.9	70 - 130
Molybdenum	ug/L	1.00	0.508	0.500	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.00	45.5	50.0	91.0	85 - 115
Chromium	ug/L	2.00	49.4	50.0	98.9	85 - 115
Manganese	ug/L	2.00	47.7	50.0	95.5	85 - 115
Molybdenum	ug/L	2.00	50.7	50.0	101	85 - 115



Client: E2 Consulting Engineers, Inc.

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Project Number: 423575.MP.02.RM

Printed 3/20/2013

Matrix Spike

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	43.0	52.2(50.0)	81.5	75 - 125
Chromium	ug/L	2.00	44.7	50.0(50.0)	89.5	75 - 125
Manganese	ug/L	2.00	42.7	50.7(50.0)	83.9	75 - 125
Molybdenum	ug/L	2.00	54.2	54.1(50.0)	100	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	18.8	20.0	93.8	90 - 110
Chromium	ug/L	1.00	19.3	20.0	96.4	90 - 110
Manganese	ug/L	1.00	18.3	20.0	91.4	90 - 110
Molybdenum	ug/L	1.00	19.3	20.0	96.6	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.9	20.0	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.9	20.0	94.5	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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	96.9	90 - 110
Manganese	ug/L	1.00	18.7	20.0	93.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	18.6	20.0	92.8	90 - 110



Client: E2 Consulting Engineers, Inc.

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Printed 3/20/2013

Metals by EPA 6020A, Dissolved

Batch 031213A-ICPMS-1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-001 Selenium	ug/L	03/12/2013 14:57	2.00	0.160	5.0	ND
806668-002 Selenium	ug/L	03/12/2013 16:01	2.00	0.160	5.0	ND
806668-005 Selenium	ug/L	03/12/2013 16:09	2.00	0.160	5.0	ND
806668-006 Selenium	ug/L	03/12/2013 16:16	2.00	0.160	5.0	ND
806668-007 Selenium	ug/L	03/12/2013 16:23	2.00	0.160	5.0	ND
806668-008 Selenium	ug/L	03/12/2013 16:30	2.00	0.160	5.0	ND
806668-009 Selenium	ug/L	03/12/2013 16:37	2.00	0.160	5.0	ND
806668-010 Selenium	ug/L	03/12/2013 16:44	2.00	0.160	5.0	ND
806668-011 Selenium	ug/L	03/12/2013 16:52	2.00	0.160	5.0	ND
806668-012 Selenium	ug/L	03/12/2013 16:59	2.00	0.160	5.0	ND
806668-014 Selenium	ug/L	03/12/2013 17:06	2.00	0.160	5.0	ND

Method Blank

Parameter	Unit	DF	Result
Selenium	ug/L	1.00	ND

Duplicate

Lab ID = 806668-001

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	0.208	0.200	104	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	2.00	44.2	50.0	88.5	85 - 115

Matrix Spike

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium	ug/L	2.00	40.9	50.0(50.0)	81.9	75 - 125

Matrix Spike Duplicate

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium	ug/L	2.00	41.8	50.0(50.0)	83.6	75 - 125

MRCCS - Secondary

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



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.RM

Printed 3/20/2013

Metals by EPA 6020A, Dissolved

Batch 031513A-ICPMS-1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-010 Manganese	ug/L	03/15/2013 13:57	2.00	0.172	0.50	0.52
Molybdenum	ug/L	03/15/2013 13:57	2.00	0.414	2.0	4.2

Method Blank

Parameter	Unit	DF	Result
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Duplicate

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	2.00	0.653	0.648	0.738	0 - 20
Molybdenum	ug/L	2.00	4.78	5.44	12.8	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	0.209	0.200	105	70 - 130
Molybdenum	ug/L	1.00	0.525	0.500	105	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	2.00	50.2	50.0	100	85 - 115
Molybdenum	ug/L	2.00	48.0	50.0	95.9	85 - 115

Matrix Spike

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	47.9	50.6(50.0)	94.5	75 - 125
Molybdenum	ug/L	2.00	53.1	55.4(50.0)	95.4	75 - 125

Matrix Spike Duplicate

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	46.9	50.6(50.0)	92.5	75 - 125
Molybdenum	ug/L	2.00	53.3	55.4(50.0)	95.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	18.7	20.0	93.4	90 - 110
Molybdenum	ug/L	1.00	21.5	20.0	107	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	18.9	20.0	94.4	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.RM

Printed 3/20/2013

Metals by EPA 6010B, Dissolved

Batch 031213A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-001 Iron	ug/L	03/12/2013 16:10	1.00	9.50	20.0	ND
806668-002 Iron	ug/L	03/12/2013 16:52	1.00	9.50	20.0	ND
806668-005 Iron	ug/L	03/12/2013 16:58	1.00	9.50	20.0	ND
806668-006 Iron	ug/L	03/12/2013 17:04	1.00	9.50	20.0	ND
806668-007 Iron	ug/L	03/12/2013 17:10	1.00	9.50	20.0	ND
806668-008 Iron	ug/L	03/12/2013 17:17	1.00	9.50	20.0	ND
806668-009 Iron	ug/L	03/12/2013 17:23	1.00	9.50	20.0	ND
806668-010 Iron	ug/L	03/12/2013 17:29	1.00	9.50	20.0	ND
806668-011 Iron	ug/L	03/12/2013 17:35	1.00	9.50	20.0	ND
806668-012 Iron	ug/L	03/12/2013 17:42	1.00	9.50	20.0	ND
806668-014 Iron	ug/L	03/12/2013 17:48	1.00	9.50	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 806668-001

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	52.3	50.0	105	85 - 115

Matrix Spike

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	53.3	50.0(50.0)	107	75 - 125

Matrix Spike Duplicate

Lab ID = 806668-001

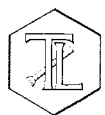
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	50.0	50.0(50.0)	100	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4930	5000	98.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4780	5000	95.5	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.RM

Printed 3/20/2013

pH by SM 4500-H B

Batch 03PH13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
806668-001 pH	pH	03/06/2013 10:30	1.00	0.0784	4.00	8.28	J
806668-002 pH	pH	03/06/2013 10:32	1.00	0.0784	4.00	8.29	J
806668-005 pH	pH	03/06/2013 10:35	1.00	0.0784	4.00	8.25	
806668-006 pH	pH	03/06/2013 10:38	1.00	0.0784	4.00	8.26	
806668-007 pH	pH	03/06/2013 10:40	1.00	0.0784	4.00	8.24	
806668-008 pH	pH	03/06/2013 10:42	1.00	0.0784	4.00	8.24	
806668-009 pH	pH	03/06/2013 10:45	1.00	0.0784	4.00	8.24	

Duplicate

Lab ID = 806668-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.24	8.24	0	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	7.03	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

**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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pH by SM 4500-H B

Batch 03PH13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
806668-010 pH	pH	03/06/2013 10:55	1.00	0.0784	4.00	8.20	
806668-011 pH	pH	03/06/2013 10:57	1.00	0.0784	4.00	8.30	J
806668-012 pH	pH	03/06/2013 11:00	1.00	0.0784	4.00	8.33	J
806668-014 pH	pH	03/06/2013 11:03	1.00	0.0784	4.00	8.23	J
806668-015 pH	pH	03/06/2013 11:05	1.00	0.0784	4.00	7.50	J
806668-016 pH	pH	03/06/2013 11:07	1.00	0.0784	4.00	7.57	J

Duplicate

Lab ID = 806669-002

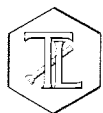
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.25	7.25	0	0 - 20

Lab Control Sample

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



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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Total Suspended Solids by SM 2540 D

Batch 03TSS13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-001 Total Suspended Solids	mg/L	03/08/2013	1.00	0.349	10.0	ND
806668-002 Total Suspended Solids	mg/L	03/08/2013	1.00	0.349	10.0	ND
806668-005 Total Suspended Solids	mg/L	03/08/2013	1.00	0.349	10.0	ND
806668-006 Total Suspended Solids	mg/L	03/08/2013	1.00	0.349	10.0	ND
806668-007 Total Suspended Solids	mg/L	03/08/2013	1.00	0.349	10.0	ND
806668-008 Total Suspended Solids	mg/L	03/08/2013	1.00	0.349	10.0	ND
806668-009 Total Suspended Solids	mg/L	03/08/2013	1.00	0.349	10.0	ND
806668-010 Total Suspended Solids	mg/L	03/08/2013	1.00	0.349	10.0	ND
806668-011 Total Suspended Solids	mg/L	03/08/2013	1.00	0.349	10.0	ND
806668-012 Total Suspended Solids	mg/L	03/08/2013	1.00	0.349	10.0	ND
806668-014 Total Suspended Solids	mg/L	03/08/2013	1.00	0.349	10.0	ND

Method Blank

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

Duplicate

Lab ID = 806668-014

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	98.0	100	98.0	90 - 110

Lab Control Sample Duplicate

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

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 

Mona Nassimi

Manager, Analytical Services

**Total Suspended Solids by SM 2540 D****Calculations**

Batch: 03TSS13D

Date Analyzed: 03/08/13

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
J59	BLK	1000	1.3945	1.3945	1.3945	0.0000	No	0.0000	0.0	2.5	ND
J62	806668-1	250	1.3932	1.3932	1.3932	0.0000	No	0.0000	0.0	10.0	ND
J63	806668-2	250	1.3978	1.3978	1.3978	0.0000	No	0.0000	0.0	10.0	ND
J64	806668-5	250	1.3972	1.3972	1.3972	0.0000	No	0.0000	0.0	10.0	ND
J65	806668-6	250	1.3952	1.3952	1.3952	0.0000	No	0.0000	0.0	10.0	ND
J66	806668-7	250	1.4048	1.4048	1.4048	0.0000	No	0.0000	0.0	10.0	ND
J67	806668-8	250	1.4040	1.4040	1.404	0.0000	No	0.0000	0.0	10.0	ND
J68	806668-9	250	1.3848	1.3848	1.3848	0.0000	No	0.0000	0.0	10.0	ND
J69	806668-10	250	1.3998	1.3998	1.3998	0.0000	No	0.0000	0.0	10.0	ND
J70	806668-11	250	1.3969	1.3969	1.3969	0.0000	No	0.0000	0.0	10.0	ND
J71	806668-12	250	1.4090	1.4090	1.409	0.0000	No	0.0000	0.0	10.0	ND
J72	806668-14	250	1.3909	1.3911	1.3911	0.0000	No	0.0002	0.8	10.0	ND
J73	806668-14D	250	1.3911	1.3913	1.3913	0.0000	No	0.0002	0.8	10.0	ND
J74	806722-1	25	1.3989	1.4533	1.4533	0.0000	No	0.0544	2176.0	100.0	2176.0
J75	806722-2	10	1.3941	1.4365	1.4365	0.0000	No	0.0424	4240.0	250.0	4240.0
J76	806722-3	10	1.3977	1.4426	1.4426	0.0000	No	0.0449	4490.0	250.0	4490.0
J77	806722-3D	10	1.3980	1.4430	1.443	0.0000	No	0.0450	4500.0	250.0	4500.0
J60	LCS-1	100	1.3932	1.4030	1.403	0.0000	No	0.0098	98.0	25.0	98.0
J61	LCS-2	100	1.3889	1.3986	1.3986	0.0000	No	0.0097	97.0	25.0	97.0

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	98	100	98.0%	90-110%	Yes
LCS2	97	100	97.0%	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?
806668-14	0.0002	0.0002	0.0%	≤5%	Yes
806722-3	0.0449	0.045	0.1%	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

806668

CH2MHILL

CHAIN OF CUSTODY RECORD

3/5/2013 2:14:57 PM

Page 1 OF 2

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy				Container:	3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	<div style="border: 2px solid black; padding: 5px; transform: rotate(-5deg); display: inline-block;"> ALERT !! Level III QC </div>	Number of Containers	COMMENTS
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	4°C				
Filtered:				Field	NA	NA	Field	Field	NA	NA	NA	NA	NA				
Holding Time:				28	28	180	180	180	14	14	14	14	14				
Project Number 423575.MP.02.RM Task Order Project 2013-RMP-190 Turnaround Time 10 Days Shipping Date: 3/5/2013 COC Number: 2					Cr6 (E218.6 - river) Field Filtered	Field QC Cr6 (E218.6 - river)	Metals (6010B) Total Fe	Metals (6020AFF) Field Filtered Chromium	Metals (SW6010B/SW6020A)dis) Field Filtered As, Mn, Fe, Se, Hg	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Alkalinity (Si42320B)	PH (SM4500-HB)	TSS (SM2540)			
DATE	TIME	Matrix															
1	C-CON-D-190	3/5/2013	9:49	Water	X		X	X	X	X	X	X	X		9	7	
2	C-CON-S-190	3/5/2013	10:06	Water	X		X	X	X	X	X	X	X		9	PH=2	
3	C-MW-82-190	3/5/2013	8:30	Water		X									1	6020A/	
4	C-MW-83-190	3/5/2013	9:17	Water		X									1	6010B	
5	C-NR1-D-190	3/5/2013	10:47	Water	X		X	X	X	X	X	X	X		9		
6	C-NR1-S-190	3/5/2013	11:01	Water	X		X	X	X	X	X	X	X		9		
7	C-NR3-D-190	3/5/2013	11:35	Water	X		X	X	X	X	X	X	X		9		
8	C-NR3-S-190	3/5/2013	11:48	Water	X		X	X	X	X	X	X	X		9	PH=2	
9	C-NR4-D-190	3/5/2013	12:15	Water	X		X	X	X	X	X	X	X		9	6020A/	
10	C-NR4-S-190	3/5/2013	12:32	Water	X		X	X	X	X	X	X	X		9	6010B	
11	R-19-190	3/5/2013	8:54	Water	X		X	X	X	X	X	X	X		9		
12	R-28-190	3/5/2013	8:41	Water	X		X	X	X	X	X	X	X		9		
13	RMP-AB2-190	3/5/2013	12:40	Water		X									1		
14	RRB-190	3/5/2013	9:13	Water	X		X	X	X	X	X	X	X		9	PH=2	

For Sample Conditions
See Form Attached

Signatures

Date/Time
3-5-13
1625

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:

March 4-5, 2013

Report Copy to

Shawn Duffy
(530) 229-3303

Approved by

Sampled by

Relinquished by

Received by

Relinquished by

Received by

Rafael Davila 3/5/13 16:25
Rafael Davila 3-5-13 22:30
Linda Inaburner 3/5/13 22:30

CH2MHILL

CHAIN OF CUSTODY RECORD

3/5/2013 2:14:58 PM

Page 2 OF 2

806668

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-190 Turnaround Time 10 Days Shipping Date: 3/5/2013 COC Number: 2		Container: 3X250 ml Poly Preservatives: (NH4)2S O4/NH4O H, 4°C Filtered: Field Holding Time: 28	250 Poly (NH4)2S O4/NH4O H, 4°C NA 28	500 ml Poly HNO3, 4°C NA 180	3x500 ml Poly HNO3, 4°C Field 180	3x500 ml Poly HNO3, 4°C Field 180	2x1 Liter 4°C NA 14	2x1 Liter 4°C NA 14	2x1 Liter 4°C NA 14	2x1 Liter 4°C NA 14	2x1 Liter 4°C NA 14	Number of Containers	COMMENTS	
		Field 28	NA 180	Field 180	Field 180	NA 14	NA 14	NA 14	NA 14	NA 14				
		Cr6 (E218.6 - river) Field Filtered	Field QC Cr6 (E218.6 - river)	Metals (6010B) Total Fe	Metals (6020AFF) Field Filtered Chromium	Metals (SW6010B/SW6020ADis) Field Filtered As,Mn,Fe,Se,Mo	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Alkalinity (SM2320B)	PH (SM4500HB)	TSS (SM2540)			
		DATE	TIME	Matrix										
SW1-190	3/5/2013	7:15	Water	X			X	X			X		5	Total = 2 600-19
SW2-190	3/5/2013	7:31	Water	X			X	X			X		5	
TOTAL NUMBER OF CONTAINERS												112		

ALERT !!

Level III QC

Approved by Sampled by Relinquished by Received by Relinquished by Received by	Signatures 	Date/Time 3-5-13 1625 3/5/13 16:25 3-5-13 22:30 3/5/13 22:30	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:
March 4-5, 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
3/5/13	806635-9	9.5	N/A	N/A	N/A	RM
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
3/6/13	803668-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
3/6/13	806669-1	7.0	2mL/100mL	9.5	10:20	TM
	-2					
3/6/13	806670-1	7.0	2mL/100mL	9.5	10:20	TM
	-2					
3/6/13	806673	9.5	N/A	N/A	N/A	TM
3/6/13	806696-1	7.0	2mL/100mL	9.5	15:45	TM
	-2		2mL/100mL			TM



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806497(1,2)	<1	<2	2/25/13	DC	yes			
806520	>1	<2						
806493(1-5)	>1	<2						
806494(1-5)	>1	<2						
806552	<1	>2	2-27-13	BE	yes	11:00		
806553(1-4)		<2						
806554(1-4)								
806555(1-4-7)								
806542(1-3)		>2			no	12:00	2/28/13 @ 15:35	
806545								
806537	<1	<2		DC	yes			
806565	<1	>2			yes	14:00	2/28/13 @ 15:30	
806562(1-14)	<1	>2	2/28/13	ES	no	9:30	3/1/13 @ 16:00	pH < 2
806567(10-12)								
806570(1-2)	>1	<2			yes			
806572(1-2)	>1	<2			yes			
806586(1,2)	<1	>2		DC	yes	15:30		
806617	>1	<2	3/4/13	DC	yes			
806632(1-12)	<1		3-5-13	BE				
806633(1-12)								
806634(1-3-6)								
806635(1-5-8-14)								
806620(1-2,4)	<1	>2	3/5/13	ES	no	12:00		
806621(16,23)								
806625		<2			yes			
806626								
806688(1-2,5-12)	<1	<2	3-6-13	BE	yes			
806689(1-2)		>2						Lab filter Acidified
806670(1-2)								
806679(1-5)		<2						
806643	>1	<2		DC	yes			
806651	<1							
806688	>1	>2				12:30		
806667	<1	>2		BE	no	14:00		
806663(1-3)						15:00		
806694(10-12)								
806682(4-6)								
806650	<1	<2	3/6/13	DC	yes			
806649								
806648								
806647								
806646								
806652								
806671								

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 # 806668

Date Delivered: 03/05/13 Time: 12:30 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)? 3.2 °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

January 24, 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 2012-RMP-189, SURFACEWATER MONITORING
PROJECT, TLI No.: 805651

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-RMP-189 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 January 8, 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 early sampling time and late arrival of the samples, samples C-MAR-D-189, C-MAR-S-189, C-TAZ-D-189, and C-TAZ-S-189 for pH analysis by SM 4500-H B were analyzed past the method specified holding time.

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.

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Event 2012-RMP-189 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-189	2.00	No			
C-I-3-D-189	2.00	No			
C-I-3-S-189	2.00	No			
C-MAR-D-189	2.00	No			
C-MAR-S-189	2.00	No			
C-MW-80-189	2.00	No			
C-MW-81-189	2.00	No			
C-R22A-D-189	2.00	No			
C-R22A-S-189	2.00	No			
C-R27-D-189	2.00	No			
C-R27-S-189	2.00	No			
C-TAZ-D-189	2.00	No			
C-TAZ-S-189	2.00	No			
R63-189	2.00	No			
RMP-AB1-189	2.00	No			

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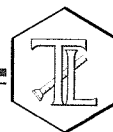
Event 2012-RMP-189 Cr (VI) by EPA 218.6, Surfacewater Samples

Samples field filtered unless otherwise noted

Sample ID	Initial pH	pH adjustment needed?	Amount of additional buffer needed	Final pH	Comments
C-BNS-D-189	9.50	No			
C-I-3-D-189	9.50	No			
C-I-3-S-189	9.50	No			
C-MAR-D-189	9.50	No			
C-MAR-S-189	9.50	No			
C-MW-80-189	9.50	No			
C-MW-81-189	9.50	No			
C-R22A-D-189	9.50	No			
C-R22A-S-189	9.50	No			
C-R27-D-189	9.50	No			
C-R27-S-189	9.50	No			
C-TAZ-D-189	9.50	No			
C-TAZ-S-189	9.50	No			
R63-189	9.50	No			
RMP-AB1-189	9.50	No			

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.: 805651

Date Received: January 8, 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
805651-001	C-BNS-D-189	E120.1	NONE	1/8/2013	13:28	EC	855	umhos/cm	2.00
805651-001	C-BNS-D-189	E218.6	FLDFLT	1/8/2013	13:28	Chromium, Hexavalent	ND	ug/L	0.20
805651-001	C-BNS-D-189	E300	NONE	1/8/2013	13:28	Nitrate as N	ND	mg/L	0.500
805651-001	C-BNS-D-189	SM2320B	NONE	1/8/2013	13:28	Alkalinity	123	mg/L	5.00
805651-001	C-BNS-D-189	SM2320B	NONE	1/8/2013	13:28	Alkalinity, Bicarbonate (As CaCO ₃)	123	mg/L	5.00
805651-001	C-BNS-D-189	SM2320B	NONE	1/8/2013	13:28	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805651-001	C-BNS-D-189	SM2540D	NONE	1/8/2013	13:28	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805651-001	C-BNS-D-189	SM4500HB	NONE	1/8/2013	13:28	PH	8.28	pH	4.00
805651-001	C-BNS-D-189	SW6010B	FLDFLT	1/8/2013	13:28	Iron	ND	ug/L	20.0
805651-001	C-BNS-D-189	SW6010B	NONE	1/8/2013	13:28	Iron	26.3	ug/L	20.0
805651-001	C-BNS-D-189	SW6020	FLDFLT	1/8/2013	13:28	Arsenic	2.5	ug/L	0.50
805651-001	C-BNS-D-189	SW6020	FLDFLT	1/8/2013	13:28	Chromium	ND	ug/L	1.0
805651-001	C-BNS-D-189	SW6020	FLDFLT	1/8/2013	13:28	Manganese	0.71	ug/L	0.50
805651-001	C-BNS-D-189	SW6020	FLDFLT	1/8/2013	13:28	Molybdenum	4.4	ug/L	2.0
805651-001	C-BNS-D-189	SW6020	FLDFLT	1/8/2013	13:28	Selenium	ND	ug/L	5.0
805651-002	C-I-3-D-189	E120.1	NONE	1/8/2013	11:29	EC	860	umhos/cm	2.00
805651-002	C-I-3-D-189	E218.6	FLDFLT	1/8/2013	11:29	Chromium, Hexavalent	ND	ug/L	0.20
805651-002	C-I-3-D-189	E300	NONE	1/8/2013	11:29	Nitrate as N	ND	mg/L	0.500
805651-002	C-I-3-D-189	SM2320B	NONE	1/8/2013	11:29	Alkalinity	120	mg/L	5.00
805651-002	C-I-3-D-189	SM2320B	NONE	1/8/2013	11:29	Alkalinity, Bicarbonate (As CaCO ₃)	120	mg/L	5.00
805651-002	C-I-3-D-189	SM2320B	NONE	1/8/2013	11:29	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805651-002	C-I-3-D-189	SM2540D	NONE	1/8/2013	11:29	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805651-002	C-I-3-D-189	SM4500HB	NONE	1/8/2013	11:29	PH	8.31	pH	4.00
805651-002	C-I-3-D-189	SW6010B	FLDFLT	1/8/2013	11:29	Iron	ND	ug/L	20.0
805651-002	C-I-3-D-189	SW6010B	NONE	1/8/2013	11:29	Iron	22.2	ug/L	20.0
805651-002	C-I-3-D-189	SW6020	FLDFLT	1/8/2013	11:29	Arsenic	2.6	ug/L	0.50
805651-002	C-I-3-D-189	SW6020	FLDFLT	1/8/2013	11:29	Chromium	ND	ug/L	1.0
805651-002	C-I-3-D-189	SW6020	FLDFLT	1/8/2013	11:29	Manganese	1.3	ug/L	0.50
805651-002	C-I-3-D-189	SW6020	FLDFLT	1/8/2013	11:29	Molybdenum	4.6	ug/L	2.0
805651-002	C-I-3-D-189	SW6020	FLDFLT	1/8/2013	11:29	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
805651-003	C-I-3-S-189	E120.1	NONE	1/8/2013	11:49	EC	853	umhos/cm	2.00
805651-003	C-I-3-S-189	E218.6	FLDFLT	1/8/2013	11:49	Chromium, Hexavalent	ND	ug/L	0.20
805651-003	C-I-3-S-189	E300	NONE	1/8/2013	11:49	Nitrate as N	ND	mg/L	0.500
805651-003	C-I-3-S-189	SM2320B	NONE	1/8/2013	11:49	Alkalinity	121	mg/L	5.00
805651-003	C-I-3-S-189	SM2320B	NONE	1/8/2013	11:49	Alkalinity, Bicarbonate (As CaCO ₃)	121	mg/L	5.00
805651-003	C-I-3-S-189	SM2320B	NONE	1/8/2013	11:49	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805651-003	C-I-3-S-189	SM2540D	NONE	1/8/2013	11:49	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805651-003	C-I-3-S-189	SM4500HB	NONE	1/8/2013	11:49	PH	8.30	pH	4.00
805651-003	C-I-3-S-189	SW6010B	FLDFLT	1/8/2013	11:49	Iron	ND	ug/L	20.0
805651-003	C-I-3-S-189	SW6010B	NONE	1/8/2013	11:49	Iron	21.1	ug/L	20.0
805651-003	C-I-3-S-189	SW6020	FLDFLT	1/8/2013	11:49	Arsenic	2.4	ug/L	0.50
805651-003	C-I-3-S-189	SW6020	FLDFLT	1/8/2013	11:49	Chromium	ND	ug/L	1.0
805651-003	C-I-3-S-189	SW6020	FLDFLT	1/8/2013	11:49	Manganese	0.68	ug/L	0.50
805651-003	C-I-3-S-189	SW6020	FLDFLT	1/8/2013	11:49	Molybdenum	4.6	ug/L	2.0
805651-003	C-I-3-S-189	SW6020	FLDFLT	1/8/2013	11:49	Selenium	ND	ug/L	5.0
805651-004	C-MAR-D-189	E120.1	NONE	1/8/2013	9:16	EC	943	umhos/cm	2.00
805651-004	C-MAR-D-189	E218.6	FLDFLT	1/8/2013	9:16	Chromium, Hexavalent	ND	ug/L	0.20
805651-004	C-MAR-D-189	E300	NONE	1/8/2013	9:16	Nitrate as N	ND	mg/L	0.500
805651-004	C-MAR-D-189	SM2320B	NONE	1/8/2013	9:16	Alkalinity	129	mg/L	5.00
805651-004	C-MAR-D-189	SM2320B	NONE	1/8/2013	9:16	Alkalinity, Bicarbonate (As CaCO ₃)	129	mg/L	5.00
805651-004	C-MAR-D-189	SM2320B	NONE	1/8/2013	9:16	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805651-004	C-MAR-D-189	SM2540D	NONE	1/8/2013	9:16	Suspended Solids (Residue, Non-Filterable)	40.8	mg/L	10.0
805651-004	C-MAR-D-189	SM4500HB	NONE	1/8/2013	9:16	PH	8.14 J	pH	4.00
805651-004	C-MAR-D-189	SW6010B	FLDFLT	1/8/2013	9:16	Iron	ND	ug/L	20.0
805651-004	C-MAR-D-189	SW6010B	NONE	1/8/2013	9:16	Iron	940	ug/L	20.0
805651-004	C-MAR-D-189	SW6020	FLDFLT	1/8/2013	9:16	Arsenic	2.4	ug/L	0.50
805651-004	C-MAR-D-189	SW6020	FLDFLT	1/8/2013	9:16	Chromium	ND	ug/L	1.0
805651-004	C-MAR-D-189	SW6020	FLDFLT	1/8/2013	9:16	Manganese	23.2	ug/L	0.50
805651-004	C-MAR-D-189	SW6020	FLDFLT	1/8/2013	9:16	Molybdenum	4.9	ug/L	2.0
805651-004	C-MAR-D-189	SW6020	FLDFLT	1/8/2013	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
805651-005	C-MAR-S-189	E120.1	NONE	1/8/2013	9:31	EC	916	umhos/cm	2.00
805651-005	C-MAR-S-189	E218.6	FLDFLT	1/8/2013	9:31	Chromium, Hexavalent	ND	ug/L	0.20
805651-005	C-MAR-S-189	E300	NONE	1/8/2013	9:31	Nitrate as N	ND	mg/L	0.500
805651-005	C-MAR-S-189	SM2320B	NONE	1/8/2013	9:31	Alkalinity	120	mg/L	5.00
805651-005	C-MAR-S-189	SM2320B	NONE	1/8/2013	9:31	Alkalinity, Bicarbonate (As CaCO ₃)	120	mg/L	5.00
805651-005	C-MAR-S-189	SM2320B	NONE	1/8/2013	9:31	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805651-005	C-MAR-S-189	SM2540D	NONE	1/8/2013	9:31	Suspended Solids (Residue, Non-Filterable)	14.8	mg/L	10.0
805651-005	C-MAR-S-189	SM4500HB	NONE	1/8/2013	9:31	PH	8.16 J	pH	4.00
805651-005	C-MAR-S-189	SW6010B	FLDFLT	1/8/2013	9:31	Iron	61.0	ug/L	20.0
805651-005	C-MAR-S-189	SW6010B	NONE	1/8/2013	9:31	Iron	490	ug/L	20.0
805651-005	C-MAR-S-189	SW6020	FLDFLT	1/8/2013	9:31	Arsenic	2.4	ug/L	0.50
805651-005	C-MAR-S-189	SW6020	FLDFLT	1/8/2013	9:31	Chromium	ND	ug/L	1.0
805651-005	C-MAR-S-189	SW6020	FLDFLT	1/8/2013	9:31	Manganese	19.7	ug/L	0.50
805651-005	C-MAR-S-189	SW6020	FLDFLT	1/8/2013	9:31	Molybdenum	4.4	ug/L	2.0
805651-005	C-MAR-S-189	SW6020	FLDFLT	1/8/2013	9:31	Selenium	ND	ug/L	5.0
805651-006	C-MW-80-189	E218.6	FLDFLT	1/8/2013	12:05	Chromium, Hexavalent	ND	ug/L	0.20
805651-007	C-MW-81-189	E218.6	FLDFLT	1/8/2013	13:10	Chromium, Hexavalent	ND	ug/L	0.20
805651-008	C-R22A-D-189	E120.1	NONE	1/8/2013	12:44	EC	863	umhos/cm	2.00
805651-008	C-R22A-D-189	E218.6	FLDFLT	1/8/2013	12:44	Chromium, Hexavalent	ND	ug/L	0.20
805651-008	C-R22A-D-189	E300	NONE	1/8/2013	12:44	Nitrate as N	ND	mg/L	0.500
805651-008	C-R22A-D-189	SM2320B	NONE	1/8/2013	12:44	Alkalinity	124	mg/L	5.00
805651-008	C-R22A-D-189	SM2320B	NONE	1/8/2013	12:44	Alkalinity, Bicarbonate (As CaCO ₃)	124	mg/L	5.00
805651-008	C-R22A-D-189	SM2320B	NONE	1/8/2013	12:44	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805651-008	C-R22A-D-189	SM2540D	NONE	1/8/2013	12:44	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805651-008	C-R22A-D-189	SM4500HB	NONE	1/8/2013	12:44	PH	8.30	pH	4.00
805651-008	C-R22A-D-189	SW6010B	FLDFLT	1/8/2013	12:44	Iron	ND	ug/L	20.0
805651-008	C-R22A-D-189	SW6010B	NONE	1/8/2013	12:44	Iron	22.4	ug/L	20.0
805651-008	C-R22A-D-189	SW6020	FLDFLT	1/8/2013	12:44	Arsenic	2.4	ug/L	0.50
805651-008	C-R22A-D-189	SW6020	FLDFLT	1/8/2013	12:44	Chromium	ND	ug/L	1.0
805651-008	C-R22A-D-189	SW6020	FLDFLT	1/8/2013	12:44	Manganese	0.96	ug/L	0.50
805651-008	C-R22A-D-189	SW6020	FLDFLT	1/8/2013	12:44	Molybdenum	4.2	ug/L	2.0
805651-008	C-R22A-D-189	SW6020	FLDFLT	1/8/2013	12:44	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805651-009	C-R22A-S-189	E120.1	NONE	1/8/2013	13:01	EC	847	umhos/cm	2.00
805651-009	C-R22A-S-189	E218.6	FLDFLT	1/8/2013	13:01	Chromium, Hexavalent	ND	ug/L	0.20
805651-009	C-R22A-S-189	E300	NONE	1/8/2013	13:01	Nitrate as N	ND	mg/L	0.500
805651-009	C-R22A-S-189	SM2320B	NONE	1/8/2013	13:01	Alkalinity	119	mg/L	5.00
805651-009	C-R22A-S-189	SM2320B	NONE	1/8/2013	13:01	Alkalinity, Bicarbonate (As CaCO ₃)	119	mg/L	5.00
805651-009	C-R22A-S-189	SM2320B	NONE	1/8/2013	13:01	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.0
805651-009	C-R22A-S-189	SM2540D	NONE	1/8/2013	13:01	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805651-009	C-R22A-S-189	SM4500HB	NONE	1/8/2013	13:01	PH	8.33	pH	4.00
805651-009	C-R22A-S-189	SW6010B	FLDFLT	1/8/2013	13:01	Iron	ND	ug/L	20.0
805651-009	C-R22A-S-189	SW6010B	NONE	1/8/2013	13:01	Iron	ND	ug/L	20.0
805651-009	C-R22A-S-189	SW6020	FLDFLT	1/8/2013	13:01	Arsenic	2.4	ug/L	0.50
805651-009	C-R22A-S-189	SW6020	FLDFLT	1/8/2013	13:01	Chromium	ND	ug/L	1.0
805651-009	C-R22A-S-189	SW6020	FLDFLT	1/8/2013	13:01	Manganese	1.0	ug/L	0.50
805651-009	C-R22A-S-189	SW6020	FLDFLT	1/8/2013	13:01	Molybdenum	4.1	ug/L	2.0
805651-009	C-R22A-S-189	SW6020	FLDFLT	1/8/2013	13:01	Selenium	ND	ug/L	5.0
805651-010	C-R27-D-189	E120.1	NONE	1/8/2013	14:00	EC	856	umhos/cm	2.00
805651-010	C-R27-D-189	E218.6	FLDFLT	1/8/2013	14:00	Chromium, Hexavalent	ND	ug/L	0.20
805651-010	C-R27-D-189	E300	NONE	1/8/2013	14:00	Nitrate as N	ND	mg/L	0.500
805651-010	C-R27-D-189	SM2320B	NONE	1/8/2013	14:00	Alkalinity	120	mg/L	5.00
805651-010	C-R27-D-189	SM2320B	NONE	1/8/2013	14:00	Alkalinity, Bicarbonate (As CaCO ₃)	120	mg/L	5.00
805651-010	C-R27-D-189	SM2320B	NONE	1/8/2013	14:00	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805651-010	C-R27-D-189	SM2540D	NONE	1/8/2013	14:00	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805651-010	C-R27-D-189	SM4500HB	NONE	1/8/2013	14:00	PH	8.27	pH	4.00
805651-010	C-R27-D-189	SW6010B	FLDFLT	1/8/2013	14:00	Iron	ND	ug/L	20.0
805651-010	C-R27-D-189	SW6010B	NONE	1/8/2013	14:00	Iron	ND	ug/L	20.0
805651-010	C-R27-D-189	SW6020	FLDFLT	1/8/2013	14:00	Arsenic	2.5	ug/L	0.50
805651-010	C-R27-D-189	SW6020	FLDFLT	1/8/2013	14:00	Chromium	ND	ug/L	1.0
805651-010	C-R27-D-189	SW6020	FLDFLT	1/8/2013	14:00	Manganese	1.0	ug/L	0.50
805651-010	C-R27-D-189	SW6020	FLDFLT	1/8/2013	14:00	Molybdenum	4.2	ug/L	2.0
805651-010	C-R27-D-189	SW6020	FLDFLT	1/8/2013	14:00	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805651-011	C-R27-S-189	E120.1	NONE	1/8/2013	14:16	EC	848	umhos/cm	2.00
805651-011	C-R27-S-189	E218.6	FLDFLT	1/8/2013	14:16	Chromium, Hexavalent	ND	ug/L	0.20
805651-011	C-R27-S-189	E300	NONE	1/8/2013	14:16	Nitrate as N	ND	mg/L	0.500
805651-011	C-R27-S-189	SM2320B	NONE	1/8/2013	14:16	Alkalinity	129	mg/L	5.00
805651-011	C-R27-S-189	SM2320B	NONE	1/8/2013	14:16	Alkalinity, Bicarbonate (As CaCO ₃)	129	mg/L	5.00
805651-011	C-R27-S-189	SM2320B	NONE	1/8/2013	14:16	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805651-011	C-R27-S-189	SM2540D	NONE	1/8/2013	14:16	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805651-011	C-R27-S-189	SM4500HB	NONE	1/8/2013	14:16	PH	8.27	pH	4.00
805651-011	C-R27-S-189	SW6010B	FLDFLT	1/8/2013	14:16	Iron	ND	ug/L	20.0
805651-011	C-R27-S-189	SW6010B	NONE	1/8/2013	14:16	Iron	ND	ug/L	20.0
805651-011	C-R27-S-189	SW6020	FLDFLT	1/8/2013	14:16	Arsenic	2.4	ug/L	0.50
805651-011	C-R27-S-189	SW6020	FLDFLT	1/8/2013	14:16	Chromium	ND	ug/L	1.0
805651-011	C-R27-S-189	SW6020	FLDFLT	1/8/2013	14:16	Manganese	0.81	ug/L	0.50
805651-011	C-R27-S-189	SW6020	FLDFLT	1/8/2013	14:16	Molybdenum	4.1	ug/L	2.0
805651-011	C-R27-S-189	SW6020	FLDFLT	1/8/2013	14:16	Selenium	ND	ug/L	5.0
805651-012	C-TAZ-D-189	E120.1	NONE	1/8/2013	10:25	EC	856	umhos/cm	2.00
805651-012	C-TAZ-D-189	E218.6	FLDFLT	1/8/2013	10:25	Chromium, Hexavalent	ND	ug/L	0.20
805651-012	C-TAZ-D-189	E300	NONE	1/8/2013	10:25	Nitrate as N	ND	mg/L	0.500
805651-012	C-TAZ-D-189	SM2320B	NONE	1/8/2013	10:25	Alkalinity	124	mg/L	5.00
805651-012	C-TAZ-D-189	SM2320B	NONE	1/8/2013	10:25	Alkalinity, Bicarbonate (As CaCO ₃)	124	mg/L	5.00
805651-012	C-TAZ-D-189	SM2320B	NONE	1/8/2013	10:25	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805651-012	C-TAZ-D-189	SM2540D	NONE	1/8/2013	10:25	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805651-012	C-TAZ-D-189	SM4500HB	NONE	1/8/2013	10:25	PH	8.34 J	pH	4.00
805651-012	C-TAZ-D-189	SW6010B	FLDFLT	1/8/2013	10:25	Iron	ND	ug/L	20.0
805651-012	C-TAZ-D-189	SW6010B	NONE	1/8/2013	10:25	Iron	23.3	ug/L	20.0
805651-012	C-TAZ-D-189	SW6020	FLDFLT	1/8/2013	10:25	Arsenic	2.4	ug/L	0.50
805651-012	C-TAZ-D-189	SW6020	FLDFLT	1/8/2013	10:25	Chromium	ND	ug/L	1.0
805651-012	C-TAZ-D-189	SW6020	FLDFLT	1/8/2013	10:25	Manganese	0.84	ug/L	0.50
805651-012	C-TAZ-D-189	SW6020	FLDFLT	1/8/2013	10:25	Molybdenum	4.0	ug/L	2.0
805651-012	C-TAZ-D-189	SW6020	FLDFLT	1/8/2013	10:25	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805651-013	C-TAZ-S-189	E120.1	NONE	1/8/2013	10:40	EC	859	umhos/cm	2.00
805651-013	C-TAZ-S-189	E218.6	FLDFLT	1/8/2013	10:40	Chromium, Hexavalent	ND	ug/L	0.20
805651-013	C-TAZ-S-189	E300	NONE	1/8/2013	10:40	Nitrate as N	ND	mg/L	0.500
805651-013	C-TAZ-S-189	SM2320B	NONE	1/8/2013	10:40	Alkalinity	113	mg/L	5.00
805651-013	C-TAZ-S-189	SM2320B	NONE	1/8/2013	10:40	Alkalinity, Bicarbonate (As CaCO3)	113	mg/L	5.00
805651-013	C-TAZ-S-189	SM2320B	NONE	1/8/2013	10:40	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
805651-013	C-TAZ-S-189	SM2540D	NONE	1/8/2013	10:40	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805651-013	C-TAZ-S-189	SM4500HB	NONE	1/8/2013	10:40	PH	8.32 J	pH	4.00
805651-013	C-TAZ-S-189	SW6010B	FLDFLT	1/8/2013	10:40	Iron	ND	ug/L	20.0
805651-013	C-TAZ-S-189	SW6010B	NONE	1/8/2013	10:40	Iron	24.2	ug/L	20.0
805651-013	C-TAZ-S-189	SW6020	FLDFLT	1/8/2013	10:40	Arsenic	2.5	ug/L	0.50
805651-013	C-TAZ-S-189	SW6020	FLDFLT	1/8/2013	10:40	Chromium	ND	ug/L	1.0
805651-013	C-TAZ-S-189	SW6020	FLDFLT	1/8/2013	10:40	Manganese	1.0	ug/L	0.50
805651-013	C-TAZ-S-189	SW6020	FLDFLT	1/8/2013	10:40	Molybdenum	4.2	ug/L	2.0
805651-013	C-TAZ-S-189	SW6020	FLDFLT	1/8/2013	10:40	Selenium	ND	ug/L	5.0
805651-014	R63-189	E120.1	NONE	1/8/2013	12:15	EC	864	umhos/cm	2.00
805651-014	R63-189	E218.6	FLDFLT	1/8/2013	12:15	Chromium, Hexavalent	ND	ug/L	0.20
805651-014	R63-189	E300	NONE	1/8/2013	12:15	Nitrate as N	ND	mg/L	0.500
805651-014	R63-189	SM2320B	NONE	1/8/2013	12:15	Alkalinity	120	mg/L	5.00
805651-014	R63-189	SM2320B	NONE	1/8/2013	12:15	Alkalinity, Bicarbonate (As CaCO3)	120	mg/L	5.00
805651-014	R63-189	SM2320B	NONE	1/8/2013	12:15	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
805651-014	R63-189	SM2540D	NONE	1/8/2013	12:15	Suspended Solids (Residue, Non-Filterable)	53.6	mg/L	10.0
805651-014	R63-189	SM4500HB	NONE	1/8/2013	12:15	PH	8.33	pH	4.00
805651-014	R63-189	SW6010B	FLDFLT	1/8/2013	12:15	Iron	ND	ug/L	20.0
805651-014	R63-189	SW6010B	NONE	1/8/2013	12:15	Iron	603	ug/L	20.0
805651-014	R63-189	SW6020	FLDFLT	1/8/2013	12:15	Arsenic	2.6	ug/L	0.50
805651-014	R63-189	SW6020	FLDFLT	1/8/2013	12:15	Chromium	ND	ug/L	1.0
805651-014	R63-189	SW6020	FLDFLT	1/8/2013	12:15	Manganese	1.3	ug/L	0.50
805651-014	R63-189	SW6020	FLDFLT	1/8/2013	12:15	Molybdenum	4.4	ug/L	2.0
805651-014	R63-189	SW6020	FLDFLT	1/8/2013	12:15	Selenium	ND	ug/L	5.0
805651-015	RMP-AB1-189	E218.6	FLDFLT	1/8/2013	14:25	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.02.RM

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

Release Number:

Laboratory No. 805651

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Samples Received on 1/8/2013 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
C-BNS-D-189	805651-001	01/08/2013 13:28	Water
C-I-3-D-189	805651-002	01/08/2013 11:29	Water
C-I-3-S-189	805651-003	01/08/2013 11:49	Water
C-MAR-D-189	805651-004	01/08/2013 09:16	Water
C-MAR-S-189	805651-005	01/08/2013 09:31	Water
C-MW-80-189	805651-006	01/08/2013 12:05	Water
C-MW-81-189	805651-007	01/08/2013 13:10	Water
C-R22A-D-189	805651-008	01/08/2013 12:44	Water
C-R22A-S-189	805651-009	01/08/2013 13:01	Water
C-R27-D-189	805651-010	01/08/2013 14:00	Water
C-R27-S-189	805651-011	01/08/2013 14:16	Water
C-TAZ-D-189	805651-012	01/08/2013 10:25	Water
C-TAZ-S-189	805651-013	01/08/2013 10:40	Water
R63-189	805651-014	01/08/2013 12:15	Water
RMP-AB1-189	805651-015	01/08/2013 14:25	Water

Anions By I.C. - EPA 300.0

Batch 01AN13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805651-001 Nitrate as Nitrogen	mg/L	01/09/2013 14:02	1.00	0.00830	0.500	ND
805651-002 Nitrate as Nitrogen	mg/L	01/09/2013 18:59	1.00	0.00830	0.500	ND
805651-003 Nitrate as Nitrogen	mg/L	01/09/2013 19:10	1.00	0.00830	0.500	ND
805651-004 Nitrate as Nitrogen	mg/L	01/09/2013 19:21	1.00	0.00830	0.500	ND
805651-005 Nitrate as Nitrogen	mg/L	01/09/2013 19:33	1.00	0.00830	0.500	ND
805651-008 Nitrate as Nitrogen	mg/L	01/09/2013 19:44	1.00	0.00830	0.500	ND
805651-009 Nitrate as Nitrogen	mg/L	01/09/2013 19:56	1.00	0.00830	0.500	ND
805651-010 Nitrate as Nitrogen	mg/L	01/09/2013 20:07	1.00	0.00830	0.500	ND
805651-011 Nitrate as Nitrogen	mg/L	01/09/2013 20:19	1.00	0.00830	0.500	ND
805651-012 Nitrate as Nitrogen	mg/L	01/09/2013 20:53	1.00	0.00830	0.500	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

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Project Number: 423575.MP.02.RM

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805651-013 Nitrate as Nitrogen	mg/L	01/09/2013 21:04	1.00	0.00830	0.500	ND
805651-014 Nitrate as Nitrogen	mg/L	01/09/2013 21:16	1.00	0.00830	0.500	ND

Method Blank

Parameter	Unit	DF	Result
Nitrate as Nitrogen	mg/L	1.00	ND

Duplicate

Lab ID = 805651-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	ND	0.287	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	4.00	4.00	99.9	90 - 110

Matrix Spike

Lab ID = 805651-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.41	2.29(2.00)	106	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.99	4.00	99.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.00	3.00	99.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.98	3.00	99.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.98	3.00	99.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.00	3.00	99.9	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 3 of 23****Project Number: 423575.MP.02.RM****Printed 1/24/2013**

Alkalinity by SM 2320B		Batch 01ALK13C				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805651-001 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	123
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	123
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805651-002 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	120
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	120
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805651-003 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	121
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	121
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805651-004 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	129
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	129
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805651-005 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	120
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	120
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805651-008 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	124
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	124
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805651-009 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	119
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	119
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805651-010 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	120
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	120
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805651-011 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	129
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	129
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805651-012 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	124
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	124
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805651-013 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	113
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	113
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805651-014 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	120

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805651-014 Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	120
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND

Method Blank

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

Duplicate

Lab ID = 805651-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	124	123	0.810	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	96.0	100	96.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	96.0	100	96.0	90 - 110

Matrix Spike

Lab ID = 805651-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	220	220(100)	100	75 - 125



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Specific Conductivity - EPA 120.1		Batch 01EC13G				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805651-001 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	855
805651-002 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	860
805651-003 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	853
805651-004 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	943
805651-005 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	916
805651-008 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	863
805651-009 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	847
805651-010 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	856
805651-011 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	848
805651-012 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	856
805651-013 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	859
805651-014 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.0380	2.00	864

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 805651-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	847	856	1.06	0 - 10

Duplicate

Lab ID = 805651-014

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	862	864	0.232	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	663	706	93.9	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	660	706	93.5	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	661	706	93.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	924	998	92.6	90 - 110



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Metals by EPA 6010B, Total		Batch 012113B-Th2				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805651-001 Iron	ug/L	01/21/2013 17:34	1.00	9.50	20.0	26.3
805651-002 Iron	ug/L	01/21/2013 17:40	1.00	9.50	20.0	22.2
805651-003 Iron	ug/L	01/21/2013 18:13	1.00	9.50	20.0	21.1
805651-004 Iron	ug/L	01/21/2013 18:19	1.00	9.50	20.0	940
805651-005 Iron	ug/L	01/21/2013 18:25	1.00	9.50	20.0	490
805651-008 Iron	ug/L	01/21/2013 18:32	1.00	9.50	20.0	22.4
805651-009 Iron	ug/L	01/21/2013 18:38	1.00	9.50	20.0	ND
805651-010 Iron	ug/L	01/21/2013 18:44	1.00	9.50	20.0	ND
805651-011 Iron	ug/L	01/21/2013 18:50	1.00	9.50	20.0	ND
805651-012 Iron	ug/L	01/21/2013 18:56	1.00	9.50	20.0	23.3
805651-013 Iron	ug/L	01/21/2013 19:03	1.00	9.50	20.0	24.2
805651-014 Iron	ug/L	01/21/2013 19:09	1.00	9.50	20.0	603

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 805651-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	21.9	22.2	1.36	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2140	2000	107	85 - 115

Matrix Spike

Lab ID = 805651-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2050	2020(2000)	101	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5010	5000	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5150	5000	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5130	5000	103	90 - 110



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Chrome VI by EPA 218.6		Batch 01CrH13C				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805651-001 Chromium, Hexavalent	ug/L	01/09/2013 19:31	1.00	0.00920	0.20	ND
805651-002 Chromium, Hexavalent	ug/L	01/09/2013 19:42	1.00	0.00920	0.20	ND
805651-003 Chromium, Hexavalent	ug/L	01/09/2013 19:52	1.00	0.00920	0.20	ND
805651-004 Chromium, Hexavalent	ug/L	01/09/2013 20:02	1.00	0.00920	0.20	ND
805651-005 Chromium, Hexavalent	ug/L	01/09/2013 20:44	1.00	0.00920	0.20	ND
805651-006 Chromium, Hexavalent	ug/L	01/09/2013 20:54	1.00	0.00920	0.20	ND
805651-007 Chromium, Hexavalent	ug/L	01/09/2013 21:05	1.00	0.00920	0.20	ND
805651-008 Chromium, Hexavalent	ug/L	01/09/2013 21:15	1.00	0.00920	0.20	ND
805651-009 Chromium, Hexavalent	ug/L	01/09/2013 21:26	1.00	0.00920	0.20	ND
805651-010 Chromium, Hexavalent	ug/L	01/09/2013 21:36	1.00	0.00920	0.20	ND
805651-011 Chromium, Hexavalent	ug/L	01/09/2013 21:47	1.00	0.00920	0.20	ND
805651-012 Chromium, Hexavalent	ug/L	01/09/2013 21:57	1.00	0.00920	0.20	ND
805651-013 Chromium, Hexavalent	ug/L	01/09/2013 22:07	1.00	0.00920	0.20	ND
805651-014 Chromium, Hexavalent	ug/L	01/09/2013 22:18	1.00	0.00920	0.20	ND
805651-015 Chromium, Hexavalent	ug/L	01/09/2013 22:49	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate

Lab ID = 805581-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0658	0.0611	7.41	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	4.70	5.00	93.9	90 - 110

Matrix Spike

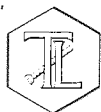
Lab ID = 805581-005

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 = 805650-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.06(1.00)	95.0	90 - 110

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Matrix Spike						Lab ID = 805650-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.81	5.06(5.00)	94.9	90 - 110
Matrix Spike						Lab ID = 805651-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.992	1.02(1.00)	96.6	90 - 110
Matrix Spike						Lab ID = 805651-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.942	1.03(1.00)	91.4	90 - 110
Matrix Spike						Lab ID = 805651-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.03(1.00)	101	90 - 110
Matrix Spike						Lab ID = 805651-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.958	1.02(1.00)	93.8	90 - 110
Matrix Spike						Lab ID = 805651-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.09	1.02(1.00)	107	90 - 110
Matrix Spike						Lab ID = 805651-006
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.04(1.00)	96.9	90 - 110
Matrix Spike						Lab ID = 805651-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.04(1.00)	96.3	90 - 110
Matrix Spike						Lab ID = 805651-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.03(1.00)	97.8	90 - 110
Matrix Spike						Lab ID = 805651-009
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.983	1.02(1.00)	96.4	90 - 110
Matrix Spike						Lab ID = 805651-010
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.989	1.02(1.00)	96.8	90 - 110
Matrix Spike						Lab ID = 805651-011
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.03(1.00)	97.8	90 - 110

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Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.11	1.03(1.00)	108	90 - 110

Matrix Spike**Lab ID = 805651-013**

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.998	1.02(1.00)	97.4	90 - 110

Matrix Spike**Lab ID = 805651-014**

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.03(1.00)	97.1	90 - 110

Matrix Spike**Lab ID = 805651-015**

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.04(1.00)	99.5	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.69	5.00	93.9	90 - 110

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	9.97	10.0	99.7	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	10.0	10.0	100	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



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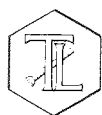
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Metals by EPA 6020A, Dissolved		Batch 011713B				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805651-001 Arsenic	ug/L	01/17/2013 22:59	1.00	0.100	0.50	2.5
Chromium	ug/L	01/17/2013 22:59	1.00	0.0920	1.0	ND
Manganese	ug/L	01/17/2013 22:59	1.00	0.0860	0.50	0.71
805651-002 Arsenic	ug/L	01/17/2013 23:34	1.00	0.100	0.50	2.6
Chromium	ug/L	01/17/2013 23:34	1.00	0.0920	1.0	ND
Manganese	ug/L	01/17/2013 23:34	1.00	0.0860	0.50	1.3
805651-003 Arsenic	ug/L	01/17/2013 23:40	1.00	0.100	0.50	2.4
Chromium	ug/L	01/17/2013 23:40	1.00	0.0920	1.0	ND
Manganese	ug/L	01/17/2013 23:40	1.00	0.0860	0.50	0.68
805651-004 Arsenic	ug/L	01/17/2013 23:46	1.00	0.100	0.50	2.4
Chromium	ug/L	01/17/2013 23:46	1.00	0.0920	1.0	ND
Manganese	ug/L	01/17/2013 23:46	1.00	0.0860	0.50	23.2
805651-005 Arsenic	ug/L	01/17/2013 23:52	1.00	0.100	0.50	2.4
Chromium	ug/L	01/17/2013 23:52	1.00	0.0920	1.0	ND
Manganese	ug/L	01/17/2013 23:52	1.00	0.0860	0.50	19.7
805651-008 Arsenic	ug/L	01/17/2013 23:58	1.00	0.100	0.50	2.4
Chromium	ug/L	01/17/2013 23:58	1.00	0.0920	1.0	ND
Manganese	ug/L	01/17/2013 23:58	1.00	0.0860	0.50	0.96
805651-009 Arsenic	ug/L	01/18/2013 00:04	1.00	0.100	0.50	2.4
Chromium	ug/L	01/18/2013 00:04	1.00	0.0920	1.0	ND
Manganese	ug/L	01/18/2013 00:04	1.00	0.0860	0.50	1.0
805651-010 Arsenic	ug/L	01/18/2013 00:10	1.00	0.100	0.50	2.5
Chromium	ug/L	01/18/2013 00:10	1.00	0.0920	1.0	ND
Manganese	ug/L	01/18/2013 00:10	1.00	0.0860	0.50	1.0
805651-011 Arsenic	ug/L	01/18/2013 00:16	1.00	0.100	0.50	2.4
Chromium	ug/L	01/18/2013 00:16	1.00	0.0920	1.0	ND
Manganese	ug/L	01/18/2013 00:16	1.00	0.0860	0.50	0.81
805651-012 Arsenic	ug/L	01/18/2013 00:22	1.00	0.100	0.50	2.4
Chromium	ug/L	01/18/2013 00:22	1.00	0.0920	1.0	ND
Manganese	ug/L	01/18/2013 00:22	1.00	0.0860	0.50	0.84
805651-013 Arsenic	ug/L	01/18/2013 00:28	1.00	0.100	0.50	2.5
Chromium	ug/L	01/18/2013 00:28	1.00	0.0920	1.0	ND
Manganese	ug/L	01/18/2013 00:28	1.00	0.0860	0.50	1.0
805651-014 Arsenic	ug/L	01/18/2013 00:45	1.00	0.100	0.50	2.6



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805651-014 Chromium	ug/L	01/18/2013 00:45	1.00	0.0920	1.0	ND
Manganese	ug/L	01/18/2013 00:45	1.00	0.0860	0.50	1.3

Method Blank

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

Duplicate

Lab ID = 805651-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	1.00	2.48	2.46	0.648	0 - 20
Chromium	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	0.848	0.714	17.2	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.232	0.200	116	70 - 130
Chromium	ug/L	1.00	0.212	0.200	106	70 - 130
Manganese	ug/L	1.00	0.190	0.200	95.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	46.9	50.0	93.8	85 - 115
Chromium	ug/L	1.00	49.1	50.0	98.2	85 - 115
Manganese	ug/L	1.00	46.8	50.0	93.7	85 - 115

Matrix Spike

Lab ID = 805651-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	55.4	52.5(50.0)	106	75 - 125
Chromium	ug/L	1.00	53.5	50.0(50.0)	107	75 - 125
Manganese	ug/L	1.00	50.8	50.7(50.0)	100	75 - 125

Matrix Spike Duplicate

Lab ID = 805651-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	49.7	52.5(50.0)	94.5	75 - 125
Chromium	ug/L	1.00	48.0	50.0(50.0)	96.0	75 - 125
Manganese	ug/L	1.00	45.5	50.7(50.0)	89.6	75 - 125


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Metals by EPA 6020A, Dissolved		Batch 011813B				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805651-001 Molybdenum	ug/L	01/18/2013 14:16	2.00	0.414	2.0	4.4
Selenium	ug/L	01/18/2013 14:16	2.00	0.160	5.0	ND
805651-002 Molybdenum	ug/L	01/18/2013 14:46	2.00	0.414	2.0	4.6
Selenium	ug/L	01/18/2013 14:46	2.00	0.160	5.0	ND
805651-003 Molybdenum	ug/L	01/18/2013 14:52	2.00	0.414	2.0	4.6
Selenium	ug/L	01/18/2013 14:52	2.00	0.160	5.0	ND
805651-004 Molybdenum	ug/L	01/18/2013 14:58	2.00	0.414	2.0	4.9
Selenium	ug/L	01/18/2013 14:58	2.00	0.160	5.0	ND
805651-005 Molybdenum	ug/L	01/18/2013 15:03	2.00	0.414	2.0	4.4
Selenium	ug/L	01/18/2013 15:03	2.00	0.160	5.0	ND
805651-008 Molybdenum	ug/L	01/18/2013 15:09	2.00	0.414	2.0	4.2
Selenium	ug/L	01/18/2013 15:09	2.00	0.160	5.0	ND
805651-009 Molybdenum	ug/L	01/18/2013 15:15	2.00	0.414	2.0	4.1
Selenium	ug/L	01/18/2013 15:15	2.00	0.160	5.0	ND
805651-010 Molybdenum	ug/L	01/18/2013 15:21	2.00	0.414	2.0	4.2
Selenium	ug/L	01/18/2013 15:21	2.00	0.160	5.0	ND
805651-011 Molybdenum	ug/L	01/18/2013 15:27	2.00	0.414	2.0	4.1
Selenium	ug/L	01/18/2013 15:27	2.00	0.160	5.0	ND
805651-012 Molybdenum	ug/L	01/18/2013 15:33	2.00	0.414	2.0	4.0
Selenium	ug/L	01/18/2013 15:33	2.00	0.160	5.0	ND
805651-013 Molybdenum	ug/L	01/18/2013 15:39	2.00	0.414	2.0	4.2
Selenium	ug/L	01/18/2013 15:39	2.00	0.160	5.0	ND
805651-014 Molybdenum	ug/L	01/18/2013 15:57	2.00	0.414	2.0	4.4
Selenium	ug/L	01/18/2013 15:57	2.00	0.160	5.0	ND

Method Blank

Parameter	Unit	DF	Result
Selenium	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	0.824	1.00	82.4	70 - 130

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 18 of 23****Project Number: 423575.MP.02.RM****Printed 1/24/2013****Low Level Calibration Verification**

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	0.469	0.500	93.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	2.00	49.2	50.0	98.4	85 - 115
Molybdenum	ug/L	2.00	48.5	50.0	97.0	85 - 115

Matrix Spike

Lab ID = 805651-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium	ug/L	2.00	56.1	50.0(50.0)	112	75 - 125
Molybdenum	ug/L	2.00	65.7	54.4(50.0)	122	75 - 125

Matrix Spike Duplicate

Lab ID = 805651-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium	ug/L	2.00	49.1	50.0(50.0)	98.1	75 - 125
Molybdenum	ug/L	2.00	56.2	54.4(50.0)	103	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	20.3	20.0	101	90 - 110
Molybdenum	ug/L	1.00	20.2	20.0	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	19.2	20.0	96.0	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	19.6	20.0	98.0	90 - 110
Molybdenum	ug/L	1.00	19.1	20.0	95.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	18.4	20.0	92.1	90 - 110

MRCVS - Primary

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



Client: E2 Consulting Engineers, Inc.

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Printed 1/24/2013

Metals by EPA 6010B, Dissolved		Batch 012113A-Th2				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805651-001 Iron	ug/L	01/21/2013 14:28	1.00	9.50	20.0	ND
805651-002 Iron	ug/L	01/21/2013 14:34	1.00	9.50	20.0	ND
805651-003 Iron	ug/L	01/21/2013 14:41	1.00	9.50	20.0	ND
805651-004 Iron	ug/L	01/21/2013 15:15	1.00	9.50	20.0	ND
805651-005 Iron	ug/L	01/21/2013 15:21	1.00	9.50	20.0	61.0
805651-008 Iron	ug/L	01/21/2013 15:27	1.00	9.50	20.0	ND
805651-009 Iron	ug/L	01/21/2013 15:33	1.00	9.50	20.0	ND
805651-010 Iron	ug/L	01/21/2013 15:40	1.00	9.50	20.0	ND
805651-011 Iron	ug/L	01/21/2013 15:46	1.00	9.50	20.0	ND
805651-012 Iron	ug/L	01/21/2013 15:52	1.00	9.50	20.0	ND
805651-013 Iron	ug/L	01/21/2013 15:58	1.00	9.50	20.0	ND
805651-014 Iron	ug/L	01/21/2013 16:04	1.00	9.50	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 805651-003

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	2150	2000	107	85 - 115

Matrix Spike

Lab ID = 805651-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2070	2000(2000)	104	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5110	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5260	5000	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5100	5000	102	90 - 110



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Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2270	2000	114	80 - 120

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2160	2000	108	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2280	2000	114	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2170	2000	109	80 - 120

pH by SM 4500-H B

Batch 01PH13G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805651-001 pH	pH	01/09/2013 10:40	1.00	0.0784	4.00	8.28
805651-002 pH	pH	01/09/2013 10:43	1.00	0.0784	4.00	8.31
805651-003 pH	pH	01/09/2013 10:45	1.00	0.0784	4.00	8.30
805651-004 pH	pH	01/09/2013 10:48	1.00	0.0784	4.00	8.14 J
805651-005 pH	pH	01/09/2013 10:50	1.00	0.0784	4.00	8.16 J
805651-008 pH	pH	01/09/2013 10:52	1.00	0.0784	4.00	8.30
805651-009 pH	pH	01/09/2013 10:55	1.00	0.0784	4.00	8.33

Duplicate

Lab ID = 805651-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.34	8.33	0.120	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	7.01	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****Page 22 of 23****Project Number: 423575.MP.02.RM****Printed 1/24/2013****pH by SM 4500-H B**

Batch 01PH13H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805651-010 pH	pH	01/09/2013 11:07	1.00	0.0784	4.00	8.27
805651-011 pH	pH	01/09/2013 11:10	1.00	0.0784	4.00	8.27
805651-012 pH	pH	01/09/2013 11:12	1.00	0.0784	4.00	8.34 J
805651-013 pH	pH	01/09/2013 11:15	1.00	0.0784	4.00	8.32 J
805651-014 pH	pH	01/09/2013 11:17	1.00	0.0784	4.00	8.33

Duplicate

Lab ID = 805651-014

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.33	8.33	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.00	7.00	100	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 1/24/2013

Total Suspended Solids by SM 2540 D		Batch 01TSS13E				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805651-001 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	ND
805651-002 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	ND
805651-003 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	ND
805651-004 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	40.8
805651-005 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	14.8
805651-008 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	ND
805651-009 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	ND
805651-010 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	ND
805651-011 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	ND
805651-012 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	ND
805651-013 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	ND
805651-014 Total Suspended Solids	mg/L	01/11/2013	1.00	0.349	10.0	53.6

Method Blank

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

Duplicate

Lab ID = 805651-014

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Suspended Solids	mg/L	1.00	54.4	53.6	1.48	0 - 10

Lab Control Sample


Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	98.0	100	98.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	101	100	101	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: 01TSS13E

Date Analyzed: 01/11/13

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
E24	BLK	1000	1.4311	1.4311	1.4311	0.0000	No	0.0000	0.0	2.5	ND
E27	805611-1	300	1.4310	1.4833	1.4833	0.0000	No	0.0523	174.3	8.3	174.3
E28	805611-1D	300	1.4315	1.4843	1.4843	0.0000	No	0.0528	176.0	8.3	176.0
E29	805611-2	300	1.4489	1.4690	1.469	0.0000	No	0.0201	67.0	8.3	67.0
E30	805611-3	300	1.4537	1.4694	1.4694	0.0000	No	0.0157	52.3	8.3	52.3
E31	805613-1	1000	1.4361	1.4451	1.4451	0.0000	No	0.0090	9.0	2.5	9.0
E32	805613-2	1000	1.4420	1.4698	1.4698	0.0000	No	0.0278	27.8	2.5	27.8
E33	805613-3	1000	1.4310	1.4365	1.4365	0.0000	No	0.0055	5.5	2.5	5.5
E34	805651-1	250	1.4501	1.4502	1.4502	0.0000	No	0.0001	0.4	10.0	ND
E35	805651-2	250	1.4400	1.4400	1.44	0.0000	No	0.0000	0.0	10.0	ND
E36	805651-3	250	1.4486	1.4486	1.4486	0.0000	No	0.0000	0.0	10.0	ND
E37	805651-4	250	1.4332	1.4434	1.4434	0.0000	No	0.0102	40.8	10.0	40.8
E38	805651-5	250	1.4388	1.4425	1.4425	0.0000	No	0.0037	14.8	10.0	14.8
E39	805651-8	250	1.4330	1.4330	1.433	0.0000	No	0.0000	0.0	10.0	ND
E40	805651-9	250	1.4326	1.4326	1.4326	0.0000	No	0.0000	0.0	10.0	ND
E41	805651-10	250	1.4342	1.4343	1.4343	0.0000	No	0.0001	0.4	10.0	ND
E42	805651-11	250	1.4336	1.4336	1.4336	0.0000	No	0.0000	0.0	10.0	ND
E43	805651-12	250	1.4272	1.4274	1.4274	0.0000	No	0.0002	0.8	10.0	ND
E44	805651-13	250	1.4271	1.4272	1.4272	0.0000	No	0.0001	0.4	10.0	ND
E45	805651-14	250	1.4298	1.4432	1.4432	0.0000	No	0.0134	53.6	10.0	53.6
E46	805651-14D	250	1.4371	1.4507	1.4507	0.0000	No	0.0136	54.4	10.0	54.4
E25	LCS-1	100	1.4360	1.4458	1.4458	0.0000	No	0.0098	98.0	25.0	98.0
E26	LCS-2	100	1.4306	1.4407	1.4407	0.0000	No	0.0101	101.0	25.0	101.0

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	98	100	98.0%	90-110%	Yes
LCS2	101	100	101.0%	90-110%	Yes

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
805611-1	0.0523	0.0528	0.5%	≤5%	Yes
805651-14	0.0134	0.0136	0.7%	5%	Yes

LCS Recovery

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

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

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

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

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

C = Average weight in (g).

Gautam S.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

047



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Analytical Batch:	01ALK13C
Matrix:	WATER
Date of Analysis:	1/11/13

[illegible]

T or P =

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

Where:

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

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

T = Total Alkalinity, mg CaCO₃/L

P = Phenolphthalein Alkalinity, mg CaCO₃/L

A = mL standard acid used

N = normality of standard acid

Laboratory Control Sample (LCS/LCSD) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Acceptance Limit	QC Within Control?
LCS	96	100	96.0%	90-110	Yes
LCSD	96	100	96.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Acceptance Limit	QC Within Control?
805651-1	123	124	0.8%	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?
805651-14	120	1	100	100	220	220.00	100%	75-125	Yes			
		1	100	100								

Analyst Signature

Maksim G.

Reviewer Signature _____

805651

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy				Container:	3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	<p>* Where provided w/multiple bottles for Cr6 + diss. metals please analyze 1 + hold 2</p> <p>Sample Conditions See Form Attached</p>	Number of Containers	COMMENTS
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	4°C				
Filtered:				Field	NA	NA	Field	Field	NA	NA	NA	NA	NA				
Holding Time:				28	28	180	180	180	14	14	14	14	14				
				Cr6 (E218.6 - river) Field Filtered	Field QC Cr6 (E218.6 - river)	Metals (6010B) Total Fe	Metals (6020AF) Field Filtered Chromium	Metals (SW6010B/SW6020Adis) Field Filtered As,Mn,Fe,Se,Mo	Metals (6020AF) Field Filtered Chromium	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Alkalinity (SM2320B)	PH (SM4500HB)	TSS (SM2540)			
DATE	TIME	Matrix															
C-BNS-D-189	1/8/2013	13:28	Water	X		X	X	X	X	X	X	X	X		9		
C-I-3-D-189	1/8/2013	11:29	Water	X		X	X	X	X	X	X	X	X		9		
C-I-3-S-189	1/8/2013	11:49	Water	X		X	X	X	X	X	X	X	X		9	pH=2 metals	
C-MAR-D-189	1/8/2013	9:16	Water	X		X	X	X	X	X	X	X	X		9		
C-MAR-S-189	1/8/2013	9:31	Water	X		X	X	X	X	X	X	X	X		9		
C-MW-80-189	1/8/2013	12:05	Water		X										1		
C-MW-81-189	1/8/2013	13:10	Water		X										1		
C-R22A-D-189	1/8/2013	12:44	Water	X		X	X	X	X	X	X	X	X		9		
C-R22A-S-189	1/8/2013	13:01	Water	X		X	X	X	X	X	X	X	X		9		
C-R27-D-189	1/8/2013	14:00	Water	X		X	X	X	X	X	X	X	X		9	pH=2 metals	
C-R27-S-189	1/8/2013	14:16	Water	X		X	X	X	X	X	X	X	X		9		
C-TAZ-D-189	1/8/2013	10:25	Water	X		X	X	X	X	X	X	X	X		9		
C-TAZ-S-189	1/8/2013	10:40	Water	X		X	X	X	X	X	X	X	X		9		
R63-189	1/8/2013	12:15	Water	X		X	X	X	X	X	X	X	X		9		

Signatures

Date/Time

Shipping Details

Special Instructions:

Approved by

Sampled by

Relinquished by

Received by

Relinquished by

Received by

1-8-13

1630

1-8-13 16:30

1-8-13 22:30

1/8/13 22:30

Method of Shipment: courier

On Ice: yes / no

Airbill No:

Lab Name: Truesdail Laboratories, Inc.

Lab Phone: (714) 730-6239

ATTN:

Jan 8-10, 2013

Sample Custody

Report Copy to

Shawn Duffy
(530) 229-3303

CH2MHILL

CHAIN OF CUSTODY RECORD

1/8/2013 3:45:16 PM

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805651

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	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	4°C			
Project Manager Jay Piper	Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA	NA			
Sample Manager Shawn Duffy	Holding Time:	28	28	180	180	180	14	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 (6020AFF) Field Filtered Chromium	Metals (SW6010B/SW6020A)dis) Field Filtered As,Mn,Fe,Se,Ilo	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Alkalinity (SM2320B)	PH (SM4500HB)	TSS (SM2540)			
Task Order														
Project 2013-RMP-189														
Turnaround Time 10 Days														
Shipping Date: 1/8/2013														
COC Number: 1														
DATE TIME Matrix														
RMP-AB1-189	1/8/2013	14:25	Water		X									
TOTAL NUMBER OF CONTAINERS												111		

Approved by	Signatures	Date/Time	Shipping Details
Sampled by	<i>[Signature]</i>	1-8-13	Method of Shipment: courier
Relinquished by	<i>[Signature]</i>	1630	On Ice: yes / no
Received by	<i>Rafael Davila</i>	1-8-13 16:30	Airbill No:
Relinquished by	<i>Rafael Davila</i>	1-8-13 22:30	Lab Name: Truesdail Laboratories, Inc.
Received by	<i>A. Shabunina</i>	1/8/13 22:30	Lab Phone: (714) 730-6239

ATTN:

Special Instructions:

Jan 8-10, 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
01/03/13	805561-1	7	2 ml	9.5	10:15 AM	HAV
↓	↓ -2	↓	↓	↓	10:20 AM	HAV
01/03/13	805562-1	7	2 ml	9.5	10:25 AM	HAV
↓	↓ -2	↓	↓	↓	10:30 AM	↓
↓	↓ -3	↓	↓	↓	10:35 AM	↓
01/04/13	805581-5	9	N/A	N/A	N/A	HAV
01/09/13	805650	7	2 ml	9.5	9:30 AM	HAV
01/09/13	805651-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
↓	↓ -9	↓	↓	↓	↓	↓
↓	↓ -10	↓	↓	↓	↓	↓
↓	↓ -11	↓	↓	↓	↓	↓
↓	↓ -12	↓	↓	↓	↓	↓
↓	↓ -13	↓	↓	↓	↓	↓
↓	↓ -14	↓	↓	↓	↓	↓
↓	↓ -15	↓	↓	↓	↓	↓
01/10/13	805671-1	9.5	N/A	N/A	N/A	RB
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
↓	↓ -9	↓	↓	↓	↓	↓

1-16-13

HAV

01/11/13

096

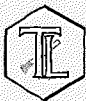


Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
805593	71 BE	< 2	1-2-13	136	yes		1/10/13	pH < 2
805596	71							
805594								
805597								
805598								
805599 (1-4)								
805600 (1-4)								
805612								
805614 (1-4)		72				8:00	1/10/13	pH < 2
805380	< 1	72	1-9-13	ES	yes	10:30		
805305 (1-10, 21-23)	< 1	< 2	1-9-13	ES	yes			-5, 10 turbidity > 1
805619-6	< 1	72			NO	1:30	1/10/13	pH < 2
805622 (1-4)	↓	↓	↓	↓	↓	↓		
805638	< 1	72	1-9-13	BE	no	11:00am	1/10/13	pH < 2
805649 (1-3)					↓	↓	1/10/13	pH < 2
805632	< 1	< 2		DC	yes			
805630	< 1	< 2						
805628	< 1	< 2						
805631								
805627								
805629	↓	↓	↓	↓	↓			
805633	SOLID		↓	DC	TTLC			
805662	72	72	1/10/13	ES	yes	9:00am	1/10/13 15:30	pH < 2
805504	< 1	< 2	1/10/13	ES	yes			
805375 (1-3, 8-12) 15-18	< 1	< 2						
805506 (1-3)	< 1	< 2						
805528 (1-5)		↓						
805561 (1-2)		72				10:00		Filtered then acidify
805562 (1-3)		< 2						
805650	↓	72	↓	↓	↓	10:00		
805560	SLUDGE		1/14/13	ES	TTLC			
805651 (1-5, 8-14)	< 1	< 2	↓	↓	yes			TOTAL/DISSOLVED
805652 (1-5)	< 1	< 2	↓	↓	↓			
805663 (1-12)	< 1	72	1/15/13	BE	no	10:00 AM	1/10/13 15:30	pH < 2
805669	< 1	< 2	1/15/13	ES	yes			
805675								
805677								
805679								
805680								
805681								
805686								
805732								
805733	↓	↓	↓	↓	↓			

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: E 2

Lab # 805651

Date Delivered: 01/08/13 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)? 3.3 °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.c.e ☒ 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. Swabeneer

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

January 25, 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 2012-RMP-189, SURFACEWATER MONITORING
PROJECT, TLI No.: 805671

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-RMP-189 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 January 9, 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 early sampling time and late arrival of the samples, samples R-19-189, R-28-189, and RRB-189 for pH analysis by SM 4500-H B were analyzed past the method specified holding time.

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.

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Event 2012-RMP-189 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-CON-D-189	2.00	No			
C-CON-S-189	2.00	No			
C-MW-82-189	2.00	No			
C-MW-83-189	2.00	No			
C-NR1-D-189	2.00	No			
C-NR1-S-189	2.00	No			
C-NR3-D-189	2.00	No			
C-NR3-S-189	2.00	No			
C-NR4-D-189	2.00	No			
C-NR4-S-189	2.00	No			
R-19-189	2.00	No			
R-28-189	2.00	No			
RMP-AB2-189	2.00	No			
RRB-189	2.00	No			
SW1-189	2.00	No			
SW2-189	2.00	No			

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Event 2012-RMP-189 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-CON-D-189	9.50	No			
C-CON-S-189	9.50	No			
C-MW-82-189	9.50	No			
C-MW-83-189	9.50	No			
C-NR1-D-189	9.50	No			
C-NR1-S-189	9.50	No			
C-NR3-D-189	9.50	No			
C-NR3-S-189	9.50	No			
C-NR4-D-189	9.50	No			
C-NR4-S-189	9.50	No			
R-19-189	9.50	No			
R-28-189	9.50	No			
RMP-AB2-189	9.50	No			
RRB-189	9.50	No			
SW1-189	9.50	No			
SW2-189	9.50	No			

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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.: 805671

Date Received: January 9, 2013

Project Name: PG&E Topock Project

Project No.: 423575.MP.02.RM

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

Analytical Results Summary

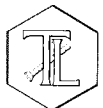
Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805671-001	C-CON-D-189	E120.1	NONE	1/9/2013	10:47	EC	858	umhos/cm	2.00
805671-001	C-CON-D-189	E218.6	FLDFLT	1/9/2013	10:47	Chromium, Hexavalent	ND	ug/L	0.20
805671-001	C-CON-D-189	E300	NONE	1/9/2013	10:47	Nitrate as N	ND	mg/L	0.500
805671-001	C-CON-D-189	SM2320B	NONE	1/9/2013	10:47	Alkalinity	126	mg/L	5.00
805671-001	C-CON-D-189	SM2320B	NONE	1/9/2013	10:47	Alkalinity, Bicarbonate (As CaCO ₃)	126	mg/L	5.00
805671-001	C-CON-D-189	SM2320B	NONE	1/9/2013	10:47	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805671-001	C-CON-D-189	SM2540D	NONE	1/9/2013	10:47	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805671-001	C-CON-D-189	SM4500HB	NONE	1/9/2013	10:47	PH	8.43	pH	4.00
805671-001	C-CON-D-189	SW6010B	NONE	1/9/2013	10:47	Iron	21.4	ug/L	20.0
805671-001	C-CON-D-189	SW6010B	FLDFLT	1/9/2013	10:47	Iron	ND	ug/L	20.0
805671-001	C-CON-D-189	SW6020	FLDFLT	1/9/2013	10:47	Arsenic	2.4	ug/L	0.50
805671-001	C-CON-D-189	SW6020	FLDFLT	1/9/2013	10:47	Chromium	ND	ug/L	1.0
805671-001	C-CON-D-189	SW6020	FLDFLT	1/9/2013	10:47	Manganese	0.89	ug/L	0.50
805671-001	C-CON-D-189	SW6020	FLDFLT	1/9/2013	10:47	Molybdenum	4.2	ug/L	2.0
805671-001	C-CON-D-189	SW6020	FLDFLT	1/9/2013	10:47	Selenium	ND	ug/L	5.0
805671-002	C-CON-S-189	E120.1	NONE	1/9/2013	11:02	EC	858	umhos/cm	2.00
805671-002	C-CON-S-189	E218.6	FLDFLT	1/9/2013	11:02	Chromium, Hexavalent	ND	ug/L	0.20
805671-002	C-CON-S-189	E300	NONE	1/9/2013	11:02	Nitrate as N	ND	mg/L	0.500
805671-002	C-CON-S-189	SM2320B	NONE	1/9/2013	11:02	Alkalinity	126	mg/L	5.00
805671-002	C-CON-S-189	SM2320B	NONE	1/9/2013	11:02	Alkalinity, Bicarbonate (As CaCO ₃)	126	mg/L	5.00
805671-002	C-CON-S-189	SM2320B	NONE	1/9/2013	11:02	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805671-002	C-CON-S-189	SM2540D	NONE	1/9/2013	11:02	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805671-002	C-CON-S-189	SM4500HB	NONE	1/9/2013	11:02	PH	8.37	pH	4.00
805671-002	C-CON-S-189	SW6010B	NONE	1/9/2013	11:02	Iron	22.3	ug/L	20.0
805671-002	C-CON-S-189	SW6010B	FLDFLT	1/9/2013	11:02	Iron	ND	ug/L	20.0
805671-002	C-CON-S-189	SW6020	FLDFLT	1/9/2013	11:02	Arsenic	2.4	ug/L	0.50
805671-002	C-CON-S-189	SW6020	FLDFLT	1/9/2013	11:02	Chromium	ND	ug/L	1.0
805671-002	C-CON-S-189	SW6020	FLDFLT	1/9/2013	11:02	Manganese	0.78	ug/L	0.500
805671-002	C-CON-S-189	SW6020	FLDFLT	1/9/2013	11:02	Molybdenum	4.6	ug/L	2.0
805671-002	C-CON-S-189	SW6020	FLDFLT	1/9/2013	11:02	Selenium	ND	ug/L	5.0

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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
805671-003	C-MW-82-189	E218.6	FLDFLT	1/9/2013	10:15	Chromium, Hexavalent	ND	ug/L	0.20
805671-004	C-MW-83-189	E218.6	FLDFLT	1/9/2013	13:02	Chromium, Hexavalent	ND	ug/L	0.20
805671-005	C-NR1-D-189	E120.1	NONE	1/9/2013	11:29	EC	861	umhos/cm	2.00
805671-005	C-NR1-D-189	E218.6	FLDFLT	1/9/2013	11:29	Chromium, Hexavalent	ND	ug/L	0.20
805671-005	C-NR1-D-189	E300	NONE	1/9/2013	11:29	Nitrate as N	ND	mg/L	0.500
805671-005	C-NR1-D-189	SM2320B	NONE	1/9/2013	11:29	Alkalinity	126	mg/L	5.00
805671-005	C-NR1-D-189	SM2320B	NONE	1/9/2013	11:29	Alkalinity, Bicarbonate (As CaCO3)	126	mg/L	5.00
805671-005	C-NR1-D-189	SM2320B	NONE	1/9/2013	11:29	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
805671-005	C-NR1-D-189	SM2540D	NONE	1/9/2013	11:29	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805671-005	C-NR1-D-189	SM4500HB	NONE	1/9/2013	11:29	PH	8.37	pH	4.00
805671-005	C-NR1-D-189	SW6010B	NONE	1/9/2013	11:29	Iron	22.5	ug/L	20.0
805671-005	C-NR1-D-189	SW6010B	FLDFLT	1/9/2013	11:29	Iron	ND	ug/L	20.0
805671-005	C-NR1-D-189	SW6020	FLDFLT	1/9/2013	11:29	Arsenic	2.6	ug/L	0.50
805671-005	C-NR1-D-189	SW6020	FLDFLT	1/9/2013	11:29	Chromium	ND	ug/L	1.0
805671-005	C-NR1-D-189	SW6020	FLDFLT	1/9/2013	11:29	Manganese	0.86	ug/L	0.50
805671-005	C-NR1-D-189	SW6020	FLDFLT	1/9/2013	11:29	Molybdenum	4.6	ug/L	2.0
805671-005	C-NR1-D-189	SW6020	FLDFLT	1/9/2013	11:29	Selenium	ND	ug/L	5.0
805671-006	C-NR1-S-189	E120.1	NONE	1/9/2013	11:46	EC	842	umhos/cm	2.00
805671-006	C-NR1-S-189	E218.6	FLDFLT	1/9/2013	11:46	Chromium, Hexavalent	ND	ug/L	0.20
805671-006	C-NR1-S-189	E300	NONE	1/9/2013	11:46	Nitrate as N	ND	mg/L	0.500
805671-006	C-NR1-S-189	SM2320B	NONE	1/9/2013	11:46	Alkalinity	129	mg/L	5.00
805671-006	C-NR1-S-189	SM2320B	NONE	1/9/2013	11:46	Alkalinity, Bicarbonate (As CaCO3)	129	mg/L	5.00
805671-006	C-NR1-S-189	SM2320B	NONE	1/9/2013	11:46	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
805671-006	C-NR1-S-189	SM2540D	NONE	1/9/2013	11:46	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805671-006	C-NR1-S-189	SM4500HB	NONE	1/9/2013	11:46	PH	8.34	pH	4.00
805671-006	C-NR1-S-189	SW6010B	NONE	1/9/2013	11:46	Iron	22.2	ug/L	20.0
805671-006	C-NR1-S-189	SW6010B	FLDFLT	1/9/2013	11:46	Iron	ND	ug/L	20.0
805671-006	C-NR1-S-189	SW6020	FLDFLT	1/9/2013	11:46	Arsenic	2.4	ug/L	0.50
805671-006	C-NR1-S-189	SW6020	FLDFLT	1/9/2013	11:46	Chromium	ND	ug/L	1.0
805671-006	C-NR1-S-189	SW6020	FLDFLT	1/9/2013	11:46	Manganese	0.83	ug/L	0.50
805671-006	C-NR1-S-189	SW6020	FLDFLT	1/9/2013	11:46	Molybdenum	4.2	ug/L	2.0
805671-006	C-NR1-S-189	SW6020	FLDFLT	1/9/2013	11:46	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805671-007	C-NR3-D-189	E120.1	NONE	1/9/2013	12:18	EC	852	umhos/cm	2.00
805671-007	C-NR3-D-189	E218.6	FLDFLT	1/9/2013	12:18	Chromium, Hexavalent	ND	ug/L	0.20
805671-007	C-NR3-D-189	E300	NONE	1/9/2013	12:18	Nitrate as N	ND	mg/L	0.500
805671-007	C-NR3-D-189	SM2320B	NONE	1/9/2013	12:18	Alkalinity	127	mg/L	5.00
805671-007	C-NR3-D-189	SM2320B	NONE	1/9/2013	12:18	Alkalinity, Bicarbonate (As CaCO ₃)	127	mg/L	5.00
805671-007	C-NR3-D-189	SM2320B	NONE	1/9/2013	12:18	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805671-007	C-NR3-D-189	SM2540D	NONE	1/9/2013	12:18	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805671-007	C-NR3-D-189	SM4500HB	NONE	1/9/2013	12:18	PH	8.35	pH	4.00
805671-007	C-NR3-D-189	SW6010B	NONE	1/9/2013	12:18	Iron	21.8	ug/L	20.0
805671-007	C-NR3-D-189	SW6010B	FLDFLT	1/9/2013	12:18	Iron	ND	ug/L	20.0
805671-007	C-NR3-D-189	SW6020	FLDFLT	1/9/2013	12:18	Arsenic	2.3	ug/L	0.50
805671-007	C-NR3-D-189	SW6020	FLDFLT	1/9/2013	12:18	Chromium	ND	ug/L	1.0
805671-007	C-NR3-D-189	SW6020	FLDFLT	1/9/2013	12:18	Manganese	0.90	ug/L	0.50
805671-007	C-NR3-D-189	SW6020	FLDFLT	1/9/2013	12:18	Molybdenum	4.3	ug/L	2.0
805671-007	C-NR3-D-189	SW6020	FLDFLT	1/9/2013	12:18	Selenium	ND	ug/L	5.0
805671-008	C-NR3-S-189	E120.1	NONE	1/9/2013	12:35	EC	849	umhos/cm	2.00
805671-008	C-NR3-S-189	E218.6	FLDFLT	1/9/2013	12:35	Chromium, Hexavalent	ND	ug/L	0.20
805671-008	C-NR3-S-189	E300	NONE	1/9/2013	12:35	Nitrate as N	ND	mg/L	0.500
805671-008	C-NR3-S-189	SM2320B	NONE	1/9/2013	12:35	Alkalinity	128	mg/L	5.00
805671-008	C-NR3-S-189	SM2320B	NONE	1/9/2013	12:35	Alkalinity, Bicarbonate (As CaCO ₃)	128	mg/L	5.00
805671-008	C-NR3-S-189	SM2320B	NONE	1/9/2013	12:35	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805671-008	C-NR3-S-189	SM2540D	NONE	1/9/2013	12:35	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805671-008	C-NR3-S-189	SM4500HB	NONE	1/9/2013	12:35	PH	8.33	pH	4.00
805671-008	C-NR3-S-189	SW6010B	NONE	1/9/2013	12:35	Iron	20.8	ug/L	20.0
805671-008	C-NR3-S-189	SW6010B	FLDFLT	1/9/2013	12:35	Iron	ND	ug/L	20.0
805671-008	C-NR3-S-189	SW6020	FLDFLT	1/9/2013	12:35	Arsenic	2.4	ug/L	0.50
805671-008	C-NR3-S-189	SW6020	FLDFLT	1/9/2013	12:35	Chromium	ND	ug/L	1.0
805671-008	C-NR3-S-189	SW6020	FLDFLT	1/9/2013	12:35	Manganese	0.79	ug/L	0.50
805671-008	C-NR3-S-189	SW6020	FLDFLT	1/9/2013	12:35	Molybdenum	4.4	ug/L	2.0
805671-008	C-NR3-S-189	SW6020	FLDFLT	1/9/2013	12:35	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805671-009	C-NR4-D-189	E120.1	NONE	1/9/2013	13:14	EC	860	umhos/cm	2.00
805671-009	C-NR4-D-189	E218.6	FLDFLT	1/9/2013	13:14	Chromium, Hexavalent	ND	ug/L	0.20
805671-009	C-NR4-D-189	E300	NONE	1/9/2013	13:14	Nitrate as N	ND	mg/L	0.500
805671-009	C-NR4-D-189	SM2320B	NONE	1/9/2013	13:14	Alkalinity	125	mg/L	5.00
805671-009	C-NR4-D-189	SM2320B	NONE	1/9/2013	13:14	Alkalinity, Bicarbonate (As CaCO ₃)	125	mg/L	5.00
805671-009	C-NR4-D-189	SM2320B	NONE	1/9/2013	13:14	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805671-009	C-NR4-D-189	SM2540D	NONE	1/9/2013	13:14	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805671-009	C-NR4-D-189	SM4500HB	NONE	1/9/2013	13:14	PH	8.32	pH	4.00
805671-009	C-NR4-D-189	SW6010B	NONE	1/9/2013	13:14	Iron	20.1	ug/L	20.0
805671-009	C-NR4-D-189	SW6010B	FLDFLT	1/9/2013	13:14	Iron	ND	ug/L	20.0
805671-009	C-NR4-D-189	SW6020	FLDFLT	1/9/2013	13:14	Arsenic	2.3	ug/L	0.50
805671-009	C-NR4-D-189	SW6020	FLDFLT	1/9/2013	13:14	Chromium	ND	ug/L	1.0
805671-009	C-NR4-D-189	SW6020	FLDFLT	1/9/2013	13:14	Manganese	0.82	ug/L	0.50
805671-009	C-NR4-D-189	SW6020	FLDFLT	1/9/2013	13:14	Molybdenum	3.9	ug/L	2.0
805671-009	C-NR4-D-189	SW6020	FLDFLT	1/9/2013	13:14	Selenium	ND	ug/L	5.0
805671-010	C-NR4-S-189	E120.1	NONE	1/9/2013	13:29	EC	848	umhos/cm	2.00
805671-010	C-NR4-S-189	E218.6	FLDFLT	1/9/2013	13:29	Chromium, Hexavalent	ND	ug/L	0.20
805671-010	C-NR4-S-189	E300	NONE	1/9/2013	13:29	Nitrate as N	ND	mg/L	0.500
805671-010	C-NR4-S-189	SM2320B	NONE	1/9/2013	13:29	Alkalinity	116	mg/L	5.00
805671-010	C-NR4-S-189	SM2320B	NONE	1/9/2013	13:29	Alkalinity, Bicarbonate (As CaCO ₃)	116	mg/L	5.00
805671-010	C-NR4-S-189	SM2320B	NONE	1/9/2013	13:29	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805671-010	C-NR4-S-189	SM2540D	NONE	1/9/2013	13:29	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805671-010	C-NR4-S-189	SM4500HB	NONE	1/9/2013	13:29	PH	8.29	pH	4.00
805671-010	C-NR4-S-189	SW6010B	NONE	1/9/2013	13:29	Iron	ND	ug/L	20.0
805671-010	C-NR4-S-189	SW6010B	FLDFLT	1/9/2013	13:29	Iron	ND	ug/L	20.0
805671-010	C-NR4-S-189	SW6020	FLDFLT	1/9/2013	13:29	Arsenic	2.3	ug/L	0.50
805671-010	C-NR4-S-189	SW6020	FLDFLT	1/9/2013	13:29	Chromium	ND	ug/L	1.0
805671-010	C-NR4-S-189	SW6020	FLDFLT	1/9/2013	13:29	Manganese	0.66	ug/L	0.50
805671-010	C-NR4-S-189	SW6020	FLDFLT	1/9/2013	13:29	Molybdenum	4.0	ug/L	2.0
805671-010	C-NR4-S-189	SW6020	FLDFLT	1/9/2013	13:29	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805671-011	R-19-189	E120.1	NONE	1/9/2013	9:34	EC	862	umhos/cm	2.00
805671-011	R-19-189	E218.6	FLDFLT	1/9/2013	9:34	Chromium, Hexavalent	ND	ug/L	0.20
805671-011	R-19-189	E300	NONE	1/9/2013	9:34	Nitrate as N	ND	mg/L	0.500
805671-011	R-19-189	SM2320B	NONE	1/9/2013	9:34	Alkalinity	125	mg/L	5.00
805671-011	R-19-189	SM2320B	NONE	1/9/2013	9:34	Alkalinity, Bicarbonate (As CaCO ₃)	125	mg/L	5.00
805671-011	R-19-189	SM2320B	NONE	1/9/2013	9:34	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805671-011	R-19-189	SM2540D	NONE	1/9/2013	9:34	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805671-011	R-19-189	SM4500HB	NONE	1/9/2013	9:34	PH	8.42 J	pH	4.00
805671-011	R-19-189	SW6010B	NONE	1/9/2013	9:34	Iron	ND	ug/L	20.0
805671-011	R-19-189	SW6010B	FLDFLT	1/9/2013	9:34	Iron	ND	ug/L	20.0
805671-011	R-19-189	SW6020	FLDFLT	1/9/2013	9:34	Arsenic	2.4	ug/L	0.50
805671-011	R-19-189	SW6020	FLDFLT	1/9/2013	9:34	Chromium	ND	ug/L	1.0
805671-011	R-19-189	SW6020	FLDFLT	1/9/2013	9:34	Manganese	1.2	ug/L	0.50
805671-011	R-19-189	SW6020	FLDFLT	1/9/2013	9:34	Molybdenum	3.9	ug/L	2.0
805671-011	R-19-189	SW6020	FLDFLT	1/9/2013	9:34	Selenium	ND	ug/L	5.0
805671-012	R-28-189	E120.1	NONE	1/9/2013	9:13	EC	869	umhos/cm	2.00
805671-012	R-28-189	E218.6	FLDFLT	1/9/2013	9:13	Chromium, Hexavalent	ND	ug/L	0.20
805671-012	R-28-189	E300	NONE	1/9/2013	9:13	Nitrate as N	ND	mg/L	0.500
805671-012	R-28-189	SM2320B	NONE	1/9/2013	9:13	Alkalinity	130	mg/L	5.00
805671-012	R-28-189	SM2320B	NONE	1/9/2013	9:13	Alkalinity, Bicarbonate (As CaCO ₃)	130	mg/L	5.00
805671-012	R-28-189	SM2320B	NONE	1/9/2013	9:13	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805671-012	R-28-189	SM2540D	NONE	1/9/2013	9:13	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805671-012	R-28-189	SM4500HB	NONE	1/9/2013	9:13	PH	8.40 J	pH	4.00
805671-012	R-28-189	SW6010B	NONE	1/9/2013	9:13	Iron	ND	ug/L	20.0
805671-012	R-28-189	SW6010B	FLDFLT	1/9/2013	9:13	Iron	ND	ug/L	20.0
805671-012	R-28-189	SW6020	FLDFLT	1/9/2013	9:13	Arsenic	2.3	ug/L	0.50
805671-012	R-28-189	SW6020	FLDFLT	1/9/2013	9:13	Chromium	ND	ug/L	1.0
805671-012	R-28-189	SW6020	FLDFLT	1/9/2013	9:13	Manganese	1.2	ug/L	0.50
805671-012	R-28-189	SW6020	FLDFLT	1/9/2013	9:13	Molybdenum	3.9	ug/L	2.0
805671-012	R-28-189	SW6020	FLDFLT	1/9/2013	9:13	Selenium	ND	ug/L	5.0
805671-013	RMP-AB2-189	E218.6	FLDFLT	1/9/2013	13:35	Chromium, Hexavalent	ND	ug/L	0.20



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805671-014	RRB-189	E120.1	NONE	1/9/2013	10:02	EC	906	umhos/cm	2.00
805671-014	RRB-189	E218.6	FLDFLT	1/9/2013	10:02	Chromium, Hexavalent	ND	ug/L	0.20
805671-014	RRB-189	E300	NONE	1/9/2013	10:02	Nitrate as N	ND	mg/L	0.500
805671-014	RRB-189	SM2320B	NONE	1/9/2013	10:02	Alkalinity	131	mg/L	5.00
805671-014	RRB-189	SM2320B	NONE	1/9/2013	10:02	Alkalinity, Bicarbonate (As CaCO ₃)	131	mg/L	5.00
805671-014	RRB-189	SM2320B	NONE	1/9/2013	10:02	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
805671-014	RRB-189	SM2540D	NONE	1/9/2013	10:02	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
805671-014	RRB-189	SM4500HB	NONE	1/9/2013	10:02	PH	8.16 J	pH	4.00
805671-014	RRB-189	SW6010B	NONE	1/9/2013	10:02	Iron	112	ug/L	20.0
805671-014	RRB-189	SW6010B	FLDFLT	1/9/2013	10:02	Iron	34.5	ug/L	20.0
805671-014	RRB-189	SW6020	FLDFLT	1/9/2013	10:02	Arsenic	2.4	ug/L	0.50
805671-014	RRB-189	SW6020	FLDFLT	1/9/2013	10:02	Chromium	ND	ug/L	1.0
805671-014	RRB-189	SW6020	FLDFLT	1/9/2013	10:02	Manganese	7.2	ug/L	0.50
805671-014	RRB-189	SW6020	FLDFLT	1/9/2013	10:02	Molybdenum	3.9	ug/L	2.0
805671-014	RRB-189	SW6020	FLDFLT	1/9/2013	10:02	Selenium	ND	ug/L	5.0
805671-015	SW1-189	E120.1	NONE	1/9/2013	15:20	EC	1060	umhos/cm	2.00
805671-015	SW1-189	E218.6	FLDFLT	1/9/2013	15:20	Chromium, Hexavalent	ND	ug/L	0.20
805671-015	SW1-189	SM4500HB	NONE	1/9/2013	15:20	PH	7.72	pH	4.00
805671-015	SW1-189	SW6020	FLDFLT	1/9/2013	15:20	Chromium	ND	ug/L	1.0
805671-016	SW2-189	E120.1	NONE	1/9/2013	15:42	EC	941	umhos/cm	2.00
805671-016	SW2-189	E218.6	FLDFLT	1/9/2013	15:42	Chromium, Hexavalent	ND	ug/L	0.20
805671-016	SW2-189	SM4500HB	NONE	1/9/2013	15:42	PH	7.52	pH	4.00
805671-016	SW2-189	SW6020	FLDFLT	1/9/2013	15:42	Chromium	ND	ug/L	1.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

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

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

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



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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. 805671

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Printed 1/25/2013

Samples Received on 1/9/2013 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
C-CON-D-189	805671-001	01/09/2013 10:47	Water
C-CON-S-189	805671-002	01/09/2013 11:02	Water
C-MW-82-189	805671-003	01/09/2013 10:15	Water
C-MW-83-189	805671-004	01/09/2013 13:02	Water
C-NR1-D-189	805671-005	01/09/2013 11:29	Water
C-NR1-S-189	805671-006	01/09/2013 11:46	Water
C-NR3-D-189	805671-007	01/09/2013 12:18	Water
C-NR3-S-189	805671-008	01/09/2013 12:35	Water
C-NR4-D-189	805671-009	01/09/2013 13:14	Water
C-NR4-S-189	805671-010	01/09/2013 13:29	Water
R-19-189	805671-011	01/09/2013 09:34	Water
R-28-189	805671-012	01/09/2013 09:13	Water
RMP-AB2-189	805671-013	01/09/2013 13:35	Water
RRB-189	805671-014	01/09/2013 10:02	Water
SW1-189	805671-015	01/09/2013 15:20	Water
SW2-189	805671-016	01/09/2013 15:42	Water

Anions By I.C. - EPA 300.0

Batch 01AN13F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805671-001 Nitrate as Nitrogen	mg/L	01/10/2013 13:53	1.00	0.00830	0.500	ND
805671-002 Nitrate as Nitrogen	mg/L	01/10/2013 14:05	1.00	0.00830	0.500	ND
805671-005 Nitrate as Nitrogen	mg/L	01/10/2013 14:16	1.00	0.00830	0.500	ND
805671-006 Nitrate as Nitrogen	mg/L	01/10/2013 14:28	1.00	0.00830	0.500	ND
805671-007 Nitrate as Nitrogen	mg/L	01/10/2013 14:39	1.00	0.00830	0.500	ND
805671-008 Nitrate as Nitrogen	mg/L	01/10/2013 14:50	1.00	0.00830	0.500	ND
805671-009 Nitrate as Nitrogen	mg/L	01/10/2013 15:02	1.00	0.00830	0.500	ND
805671-010 Nitrate as Nitrogen	mg/L	01/10/2013 15:13	1.00	0.00830	0.500	ND
805671-011 Nitrate as Nitrogen	mg/L	01/10/2013 17:07	1.00	0.00830	0.500	ND
805671-012 Nitrate as Nitrogen	mg/L	01/10/2013 17:19	1.00	0.00830	0.500	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.

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TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

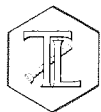
Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.RM

Printed 1/25/2013

805671-014 Nitrate as Nitrogen		mg/L	01/10/2013 17:30		1.00	0.00830	0.500	ND
Method Blank								
Parameter	Unit	DF	Result					
Nitrate as Nitrogen	mg/L	1.00	ND					
Duplicate								
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range		
Nitrate as Nitrogen	mg/L	1.00	ND	0.292	0	0 - 20		
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range		
Nitrate as Nitrogen	mg/L	1.00	3.97	4.00	99.3	90 - 110		
Matrix Spike								
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range		
Nitrate as Nitrogen	mg/L	1.00	2.41	2.29(2.00)	106	85 - 115		
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range		
Nitrate as Nitrogen	mg/L	1.00	3.97	4.00	99.3	90 - 110		
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range		
Nitrate as Nitrogen	mg/L	1.00	2.99	3.00	99.7	90 - 110		
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range		
Nitrate as Nitrogen	mg/L	1.00	2.98	3.00	99.5	90 - 110		

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 3 of 23****Project Number: 423575.MP.02.RM****Printed 1/25/2013**

Alkalinity by SM 2320B		Batch 01ALK13D				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805671-001 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	126
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	126
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805671-002 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	126
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	126
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805671-005 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	126
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	126
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805671-006 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	129
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	129
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805671-007 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	127
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	127
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805671-008 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	128
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	128
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805671-009 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	125
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	125
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805671-010 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	116
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	116
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805671-011 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	125
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	125
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805671-012 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	130
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	130
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND
805671-014 Alkalinity as CaCO ₃	mg/L	01/11/2013	1.00	0.555	5.00	131
Bicarbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	131
Carbonate (Calculated)	mg/L	01/11/2013	1.00	0.555	5.00	ND



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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Method Blank

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

Duplicate

Lab ID = 805671-012

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	99.0	100	99.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	98.0	100	98.0	90 - 110

Matrix Spike

Lab ID = 805671-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	227	231(100)	96.0	75 - 125



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Project Number: 423575.MP.02.RM

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Specific Conductivity - EPA 120.1		Batch 01EC13H				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805671-001 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	858
805671-002 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	858
805671-005 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	861
805671-006 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	842
805671-007 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	852
805671-008 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	849
805671-009 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	860
805671-010 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	848
805671-011 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	862
805671-012 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	869
805671-014 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	906
805671-015 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	1060
805671-016 Specific Conductivity	umhos/cm	01/14/2013	1.00	0.116	2.00	941

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 805671-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	834	861	3.18	0 - 10

Duplicate

Lab ID = 805671-016

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	943	941	0.212	0 - 10

Lab Control Sample

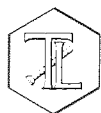
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	682	706	96.6	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	691	706	97.9	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	714	706	101	90 - 110



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Metals by EPA 6010B, Total		Batch 011713A				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805671-001 Iron	ug/L	01/17/2013 14:10	1.00	9.50	20.0	21.4
805671-002 Iron	ug/L	01/17/2013 14:53	1.00	9.50	20.0	22.3
805671-005 Iron	ug/L	01/17/2013 14:59	1.00	9.50	20.0	22.5
805671-006 Iron	ug/L	01/17/2013 15:05	1.00	9.50	20.0	22.2
805671-007 Iron	ug/L	01/17/2013 15:11	1.00	9.50	20.0	21.8
805671-008 Iron	ug/L	01/17/2013 15:16	1.00	9.50	20.0	20.8
805671-009 Iron	ug/L	01/17/2013 15:22	1.00	9.50	20.0	20.1
805671-010 Iron	ug/L	01/17/2013 15:28	1.00	9.50	20.0	ND
805671-011 Iron	ug/L	01/17/2013 15:34	1.00	9.50	20.0	ND
805671-012 Iron	ug/L	01/17/2013 15:40	1.00	9.50	20.0	ND
805671-014 Iron	ug/L	01/17/2013 16:11	1.00	9.50	20.0	112

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 805671-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	22.7	21.4	5.90	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	52.1	50.0	104	85 - 115

Matrix Spike

Lab ID = 805671-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	71.1	71.4(50.0)	99.4	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5080	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4620	5000	92.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4530	5000	90.6	90 - 110



Report Continued

Client: E2 Consulting Engineers, Inc.

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Chrome VI by EPA 218.6		Batch 01CrH13E				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805671-001 Chromium, Hexavalent	ug/L	01/15/2013 14:45	1.00	0.00920	0.20	ND
805671-002 Chromium, Hexavalent	ug/L	01/15/2013 14:55	1.00	0.00920	0.20	ND
805671-003 Chromium, Hexavalent	ug/L	01/15/2013 15:06	1.00	0.00920	0.20	ND
805671-004 Chromium, Hexavalent	ug/L	01/15/2013 15:16	1.00	0.00920	0.20	ND
805671-005 Chromium, Hexavalent	ug/L	01/15/2013 15:27	1.00	0.00920	0.20	ND
805671-006 Chromium, Hexavalent	ug/L	01/15/2013 15:37	1.00	0.00920	0.20	ND
805671-007 Chromium, Hexavalent	ug/L	01/15/2013 15:47	1.00	0.00920	0.20	ND
805671-008 Chromium, Hexavalent	ug/L	01/15/2013 16:29	1.00	0.00920	0.20	ND
805671-009 Chromium, Hexavalent	ug/L	01/15/2013 17:11	1.00	0.00920	0.20	ND
805671-010 Chromium, Hexavalent	ug/L	01/15/2013 16:50	1.00	0.00920	0.20	ND
805671-011 Chromium, Hexavalent	ug/L	01/15/2013 17:00	1.00	0.00920	0.20	ND
805671-012 Chromium, Hexavalent	ug/L	01/15/2013 17:21	1.00	0.00920	0.20	ND
805671-013 Chromium, Hexavalent	ug/L	01/15/2013 17:31	1.00	0.00920	0.20	ND
805671-014 Chromium, Hexavalent	ug/L	01/15/2013 17:42	1.00	0.00920	0.20	ND
805671-015 Chromium, Hexavalent	ug/L	01/15/2013 17:52	1.00	0.00920	0.20	ND
805671-016 Chromium, Hexavalent	ug/L	01/15/2013 18:03	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate

Lab ID = 805671-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0138	0.0153	10.3	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.188	0.200	94.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.67	5.00	93.4	90 - 110

Matrix Spike

Lab ID = 805671-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.946	1.01(1.00)	93.3	90 - 110

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Matrix Spike						Lab ID = 805671-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.936	1.02(1.00)	91.6	90 - 110
Matrix Spike						Lab ID = 805671-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.910	1.00(1.00)	91.0	90 - 110
Matrix Spike						Lab ID = 805671-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.925	1.00(1.00)	92.5	90 - 110
Matrix Spike						Lab ID = 805671-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.960	1.02(1.00)	94.1	90 - 110
Matrix Spike						Lab ID = 805671-006
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.966	1.02(1.00)	95.1	90 - 110
Matrix Spike						Lab ID = 805671-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.967	1.01(1.00)	95.3	90 - 110
Matrix Spike						Lab ID = 805671-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.962	1.02(1.00)	94.6	90 - 110
Matrix Spike						Lab ID = 805671-009
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.953	1.02(1.00)	93.5	90 - 110
Matrix Spike						Lab ID = 805671-010
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.969	1.02(1.00)	95.4	90 - 110
Matrix Spike						Lab ID = 805671-011
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.967	1.02(1.00)	94.9	90 - 110
Matrix Spike						Lab ID = 805671-012
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.981	1.02(1.00)	96.2	90 - 110
Matrix Spike						Lab ID = 805671-013
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.936	1.00(1.00)	93.6	90 - 110

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Lab ID = 805671-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.954	1.02(1.00)	93.5	90 - 110

Matrix Spike

Lab ID = 805671-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.964	1.00(1.00)	96.4	90 - 110

Matrix Spike

Lab ID = 805671-016

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.953	1.00(1.00)	95.3	90 - 110

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.68	5.00	93.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.80	10.0	98.0	95 - 105

MRCVS - Primary

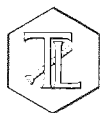
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.93	10.0	99.3	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	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

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Metals by EPA 6020A, Dissolved		Batch 011813C				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805671-001 Arsenic	ug/L	01/18/2013 18:44	2.00	0.200	0.50	2.4
Chromium	ug/L	01/18/2013 18:44	2.00	0.184	1.0	ND
Manganese	ug/L	01/18/2013 18:44	2.00	0.172	0.50	0.89
Molybdenum	ug/L	01/18/2013 18:44	2.00	0.414	2.0	4.2
Selenium	ug/L	01/18/2013 18:44	2.00	0.160	5.0	ND
805671-002 Arsenic	ug/L	01/18/2013 19:07	2.00	0.200	0.50	2.4
Chromium	ug/L	01/18/2013 19:07	2.00	0.184	1.0	ND
Manganese	ug/L	01/18/2013 19:07	2.00	0.172	0.50	0.78
Molybdenum	ug/L	01/18/2013 19:07	2.00	0.414	2.0	4.6
Selenium	ug/L	01/18/2013 19:07	2.00	0.160	5.0	ND
805671-005 Arsenic	ug/L	01/18/2013 19:13	2.00	0.200	0.50	2.6
Chromium	ug/L	01/18/2013 19:13	2.00	0.184	1.0	ND
Manganese	ug/L	01/18/2013 19:13	2.00	0.172	0.50	0.86
Molybdenum	ug/L	01/18/2013 19:13	2.00	0.414	2.0	4.6
Selenium	ug/L	01/18/2013 19:13	2.00	0.160	5.0	ND
805671-006 Arsenic	ug/L	01/18/2013 19:19	2.00	0.200	0.50	2.4
Chromium	ug/L	01/18/2013 19:19	2.00	0.184	1.0	ND
Manganese	ug/L	01/18/2013 19:19	2.00	0.172	0.50	0.83
Molybdenum	ug/L	01/18/2013 19:19	2.00	0.414	2.0	4.2
Selenium	ug/L	01/18/2013 19:19	2.00	0.160	5.0	ND
805671-007 Arsenic	ug/L	01/18/2013 19:25	2.00	0.200	0.50	2.3
Chromium	ug/L	01/18/2013 19:25	2.00	0.184	1.0	ND
Manganese	ug/L	01/18/2013 19:25	2.00	0.172	0.50	0.90
Selenium	ug/L	01/18/2013 19:25	2.00	0.160	5.0	ND
805671-008 Arsenic	ug/L	01/18/2013 19:49	2.00	0.200	0.50	2.4
Chromium	ug/L	01/18/2013 19:49	2.00	0.184	1.0	ND
Manganese	ug/L	01/18/2013 19:49	2.00	0.172	0.50	0.79
Molybdenum	ug/L	01/18/2013 19:49	2.00	0.414	2.0	4.4
Selenium	ug/L	01/18/2013 19:49	2.00	0.160	5.0	ND
805671-009 Arsenic	ug/L	01/18/2013 19:55	2.00	0.200	0.50	2.3
Chromium	ug/L	01/18/2013 19:55	2.00	0.184	1.0	ND
Manganese	ug/L	01/18/2013 19:55	2.00	0.172	0.50	0.82
Molybdenum	ug/L	01/18/2013 19:55	2.00	0.414	2.0	3.9
Selenium	ug/L	01/18/2013 19:55	2.00	0.160	5.0	ND



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805671-010 Arsenic	ug/L	01/18/2013 20:01	2.00	0.200	0.50	2.3
Chromium	ug/L	01/18/2013 20:01	2.00	0.184	1.0	ND
Manganese	ug/L	01/18/2013 20:01	2.00	0.172	0.50	0.66
Molybdenum	ug/L	01/18/2013 20:01	2.00	0.414	2.0	4.0
Selenium	ug/L	01/18/2013 20:01	2.00	0.160	5.0	ND
805671-011 Arsenic	ug/L	01/18/2013 20:07	2.00	0.200	0.50	2.4
Chromium	ug/L	01/18/2013 20:07	2.00	0.184	1.0	ND
Manganese	ug/L	01/18/2013 20:07	2.00	0.172	0.50	1.2
Molybdenum	ug/L	01/18/2013 20:07	2.00	0.414	2.0	3.9
Selenium	ug/L	01/18/2013 20:07	2.00	0.160	5.0	ND
805671-012 Arsenic	ug/L	01/18/2013 20:13	2.00	0.200	0.50	2.3
Chromium	ug/L	01/18/2013 20:13	2.00	0.184	1.0	ND
Manganese	ug/L	01/18/2013 20:13	2.00	0.172	0.50	1.2
Molybdenum	ug/L	01/18/2013 20:13	2.00	0.414	2.0	3.9
Selenium	ug/L	01/18/2013 20:13	2.00	0.160	5.0	ND
805671-014 Arsenic	ug/L	01/18/2013 20:19	2.00	0.200	0.50	2.4
Chromium	ug/L	01/18/2013 20:19	2.00	0.184	1.0	ND
Manganese	ug/L	01/18/2013 20:19	2.00	0.172	0.50	7.2
Molybdenum	ug/L	01/18/2013 20:19	2.00	0.414	2.0	3.9
Selenium	ug/L	01/18/2013 20:19	2.00	0.160	5.0	ND
805671-015 Chromium	ug/L	01/18/2013 20:24	2.00	0.184	1.0	ND
805671-016 Chromium	ug/L	01/18/2013 20:30	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 = 805671-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	2.46	2.45	0.407	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	0.840	0.888	5.56	0 - 20
Molybdenum	ug/L	2.00	4.35	4.22	2.99	0 - 20

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Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.226	0.200	113	70 - 130
Chromium	ug/L	1.00	0.206	0.200	103	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	0.590	0.500	118	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	0.216	0.200	108	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	0.486	0.500	97.2	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.00	48.4	50.0	96.8	85 - 115
Chromium	ug/L	2.00	50.0	50.0	100	85 - 115
Selenium	ug/L	2.00	46.9	50.0	93.8	85 - 115
Manganese	ug/L	2.00	49.5	50.0	99.0	85 - 115
Molybdenum	ug/L	2.00	49.3	50.0	98.6	85 - 115

Matrix Spike**Lab ID = 805671-001**

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	50.2	52.4(50.0)	95.5	75 - 125
Chromium	ug/L	2.00	47.6	50.0(50.0)	95.2	75 - 125
Selenium	ug/L	2.00	46.8	50.0(50.0)	93.7	75 - 125
Manganese	ug/L	2.00	47.9	50.9(50.0)	94.1	75 - 125
Molybdenum	ug/L	2.00	51.8	54.2(50.0)	95.3	75 - 125

Matrix Spike Duplicate**Lab ID = 805671-001**

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	52.5	52.4(50.0)	100	75 - 125
Chromium	ug/L	2.00	49.6	50.0(50.0)	99.2	75 - 125
Selenium	ug/L	2.00	49.0	50.0(50.0)	98.0	75 - 125
Manganese	ug/L	2.00	49.5	50.9(50.0)	97.2	75 - 125
Molybdenum	ug/L	2.00	55.5	54.2(50.0)	103	75 - 125



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Metals by EPA 6020A, Dissolved

Batch 012113A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805671-007 Molybdenum	ug/L	01/21/2013 14:13	2.00	0.414	2.0	4.3

Method Blank

Parameter	Unit	DF	Result
Molybdenum	ug/L	1.00	ND

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	0.539	0.500	108	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	2.00	48.2	50.0	96.3	85 - 115

Matrix Spike

Lab ID = 805671-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Molybdenum	ug/L	2.00	58.6	54.3(50.0)	108	75 - 125

Matrix Spike Duplicate

Lab ID = 805671-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Molybdenum	ug/L	2.00	54.3	54.3(50.0)	99.9	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	22.0	20.0	110	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	21.1	20.0	105	90 - 110

MRCVS - Primary

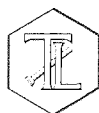
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	20.3	20.0	101	90 - 110

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		



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.RM

Printed 1/25/2013

Metals by EPA 6010B, Dissolved		Batch 012213A				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805671-001 Iron	ug/L	01/22/2013 15:21	1.00	9.50	20.0	ND
805671-002 Iron	ug/L	01/22/2013 16:04	1.00	9.50	20.0	ND
805671-005 Iron	ug/L	01/22/2013 16:09	1.00	9.50	20.0	ND
805671-006 Iron	ug/L	01/22/2013 16:15	1.00	9.50	20.0	ND
805671-007 Iron	ug/L	01/22/2013 16:21	1.00	9.50	20.0	ND
805671-008 Iron	ug/L	01/22/2013 16:27	1.00	9.50	20.0	ND
805671-009 Iron	ug/L	01/22/2013 16:33	1.00	9.50	20.0	ND
805671-010 Iron	ug/L	01/22/2013 16:38	1.00	9.50	20.0	ND
805671-011 Iron	ug/L	01/22/2013 16:44	1.00	9.50	20.0	ND
805671-012 Iron	ug/L	01/22/2013 16:50	1.00	9.50	20.0	ND
805671-014 Iron	ug/L	01/22/2013 16:56	1.00	9.50	20.0	34.5

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 805671-001

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	56.6	50.0	113	85 - 115

Matrix Spike

Lab ID = 805671-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	57.4	50.0(50.0)	115	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5380	5000	108	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5310	5000	106	90 - 110

MRCVS - Primary

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



Client: E2 Consulting Engineers, Inc.

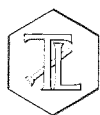
Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.RM

Printed 1/25/2013

pH by SM 4500-H B		Batch 01PH13I				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805671-001 pH	pH	01/10/2013 10:25	1.00	0.0784	4.00	8.43
805671-002 pH	pH	01/10/2013 10:27	1.00	0.0784	4.00	8.37
805671-005 pH	pH	01/10/2013 10:30	1.00	0.0784	4.00	8.37
805671-006 pH	pH	01/10/2013 10:33	1.00	0.0784	4.00	8.34
805671-007 pH	pH	01/10/2013 10:35	1.00	0.0784	4.00	8.35
805671-008 pH	pH	01/10/2013 10:37	1.00	0.0784	4.00	8.33
805671-009 pH	pH	01/10/2013 10:40	1.00	0.0784	4.00	8.32
805671-010 pH	pH	01/10/2013 10:42	1.00	0.0784	4.00	8.29
805671-011 pH	pH	01/10/2013 10:44	1.00	0.0784	4.00	8.42 J
805671-012 pH	pH	01/10/2013 10:50	1.00	0.0784	4.00	8.40 J
805671-014 pH	pH	01/10/2013 10:52	1.00	0.0784	4.00	8.16 J
805671-015 pH	pH	01/10/2013 10:55	1.00	0.0784	4.00	7.72
805671-016 pH	pH	01/10/2013 10:57	1.00	0.0784	4.00	7.52
Duplicate					Lab ID = 805671-011	
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.42	8.42	0	0 - 20
Duplicate					Lab ID = 805671-016	
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.53	7.52	0.133	0 - 20
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.03	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****Page 23 of 23****Project Number: 423575.MP.02.RM****Printed 1/25/2013**

Total Suspended Solids by SM 2540 D		Batch 01TSS13F				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805671-001 Total Suspended Solids	mg/L	01/14/2013	1.00	0.349	10.0	ND
805671-002 Total Suspended Solids	mg/L	01/14/2013	1.00	0.349	10.0	ND
805671-005 Total Suspended Solids	mg/L	01/14/2013	1.00	0.349	10.0	ND
805671-006 Total Suspended Solids	mg/L	01/14/2013	1.00	0.349	10.0	ND
805671-007 Total Suspended Solids	mg/L	01/14/2013	1.00	0.349	10.0	ND
805671-008 Total Suspended Solids	mg/L	01/14/2013	1.00	0.349	10.0	ND
805671-009 Total Suspended Solids	mg/L	01/14/2013	1.00	0.349	10.0	ND
805671-010 Total Suspended Solids	mg/L	01/14/2013	1.00	0.349	10.0	ND
805671-011 Total Suspended Solids	mg/L	01/14/2013	1.00	0.349	10.0	ND
805671-012 Total Suspended Solids	mg/L	01/14/2013	1.00	0.349	10.0	ND
805671-014 Total Suspended Solids	mg/L	01/14/2013	1.00	0.349	10.0	ND

Method Blank

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

Duplicate

Lab ID = 805671-014

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	95.0	100	95.0	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: 01TSS13F
Date Analyzed: 01/14/13

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
E47	BLANK	1000	1.4465	1.4465	1.4465	0.0000	No	0.0000	0.0	2.5	ND
E50	805628	1000	1.4298	1.4382	1.4382	0.0000	No	0.0084	8.4	2.5	8.4
E51	805631	1000	1.4578	1.4590	1.459	0.0000	No	0.0012	1.2	2.5	ND
E52	805632	1000	1.4458	1.4465	1.4465	0.0000	No	0.0007	0.7	2.5	ND
E53	805634-13	1000	1.4474	1.4500	1.45	0.0000	No	0.0026	2.6	2.5	2.6
E54	805635-1	500	1.4354	1.4464	1.4464	0.0000	No	0.0110	22.0	5.0	22.0
E55	805635-1D	500	1.4386	1.4498	1.4498	0.0000	No	0.0112	22.4	5.0	22.4
E56	805671-1	250	1.4475	1.4475	1.4475	0.0000	No	0.0000	0.0	10.0	ND
E57	805671-2	250	1.4320	1.4320	1.432	0.0000	No	0.0000	0.0	10.0	ND
E58	805671-5	250	1.4510	1.4518	1.4518	0.0000	No	0.0008	3.2	10.0	ND
E59	805671-6	250	1.4468	1.4469	1.4469	0.0000	No	0.0001	0.4	10.0	ND
E60	805671-7	250	1.4480	1.4480	1.448	0.0000	No	0.0000	0.0	10.0	ND
E61	805671-8	250	1.4491	1.4491	1.4491	0.0000	No	0.0000	0.0	10.0	ND
E62	805671-9	250	1.4286	1.4286	1.4286	0.0000	No	0.0000	0.0	10.0	ND
E63	805671-10	250	1.4427	1.4429	1.4429	0.0000	No	0.0002	0.8	10.0	ND
E64	805671-11	250	1.4345	1.4345	1.4345	0.0000	No	0.0000	0.0	10.0	ND
E65	805671-12	250	1.4375	1.4375	1.4375	0.0000	No	0.0000	0.0	10.0	ND
E66	805671-14	250	1.4340	1.4346	1.4346	0.0000	No	0.0006	2.4	10.0	ND
E67	805671-14D	250	1.4317	1.4323	1.4323	0.0000	No	0.0006	2.4	10.0	ND
E68	805661	500	1.4567	1.4902	1.4902	0.0000	No	0.0335	67.0	5.0	67.0
E69	805667	1000	1.4445	1.4567	1.4567	0.0000	No	0.0122	12.2	2.5	12.2
E48	LCS-1	100	1.4470	1.4565	1.4565	0.0000	No	0.0095	95.0	25.0	95.0
E49	LCS-2	100	1.4496	1.4592	1.4592	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	95	100	95.0%	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?
805635-1	0.11	0.112	0.9%	≤5%	Yes
805671-14	0.0006	0.0006	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



Calculations

Analytical Batch:	01ALK13D
Matrix:	WATER
Date of Analysis:	1/11/13

[illegible]

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	99	100	99.0%	90-110	Yes
LCSD	98	100	98.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Acceptance Limit	QC Within Control?
805671-12	130	129	0.8%	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?
805671-14	131	1	100	100	227	231.00	96%	75-125	Yes			
		1	100	100								

Melissa S.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

CH2MHILL

CHAIN OF CUSTODY RECORD

1/9/2013 4:17:41 PM

Page 1 OF 2

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	2x1 Liter	<p>* Where provided w/ multiple bottles for Cr⁶ + diss. metals please analyze 1 + hold 2</p> <p>ALERT !! Level III QC</p>	Number of Containers	COMMENTS
Location Topock			Preservatives:	(NH4)2S 04/NH4O H, 4°C	(NH4)2S 04/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C			
Project Manager Jay Piper			Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA	NA			
Sample Manager Shawn Duffy			Holding Time:	28	28	180	180	180	14	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,Mn	Metals (6020AFF) Field Filtered Chromium	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Alkalinity (SI42320B)	PH (SM4500HB)	TSS (SI42540)			
Task Order			DATE	TIME	Matrix											
C-CON-D-189	1/9/2013	10:47	Water	X		X	X	X	X	X	X	X	X		9	} pH=2 metals
C-CON-S-189	1/9/2013	11:02	Water	X		X		X	X	X	X	X	X		9	
C-MW-82-189	1/9/2013	10:15	Water		X										1	For Sample Conditions See Form Attached
C-MW-83-189	1/9/2013	13:02	Water		X										1	
C-NR1-D-189	1/9/2013	11:29	Water	X		X	X	X	X	X	X	X	X		9	}
C-NR1-S-189	1/9/2013	11:46	Water	X		X	X	X	X	X	X	X	X		9	
C-NR3-D-189	1/9/2013	12:18	Water	X		X	X	X	X	X	X	X	X		9	
C-NR3-S-189	1/9/2013	12:35	Water	X		X	X	X	X	X	X	X	X		9	
C-NR4-D-189	1/9/2013	13:14	Water	X		X	X	X	X	X	X	X	X		9	
C-NR4-S-189	1/9/2013	13:29	Water	X		X	X	X	X	X	X	X	X		9	} pH=2 metals
R-19-189	1/9/2013	9:34	Water	X		X	X	X	X	X	X	X	X		9	
R-28-189	1/9/2013	9:13	Water	X		X	X	X	X	X	X	X	X		9	
RMP-AB2-189	1/9/2013	13:35	Water		X										1	
RRB-189	1/9/2013	10:02	Water	X		X	X	X	X	X	X	X	X		9	pH=2

Signatures

Date/Time

Shipping Details

Special Instructions:

Approved by

Sampled by

Relinquished by

Received by

Relinquished by

Received by

1-9-13
1630

Method of Shipment: courier

On Ice: yes / no

Airbill No:

Lab Name: Truesdall Laboratories, Inc.

Lab Phone: (714) 730-6239

ATTN:

Jan 8-10, 2013

Sample Custody

Report Copy to

Shawn Duffy
(530) 229-3303

805671

CH2MHILL

CHAIN OF CUSTODY RECORD

1/9/2013 4:17:42 PM

Page 2 OF 2

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	2x1 Liter	* Where provided w/multiple bottles for Cr6 & diss. metals please analyze 1 & hold 2	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	4°C									
Project Manager Jay Piper	Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA	NA									
Sample Manager Shawn Duffy	Holding Time:	28	28	180	180	180	14	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, Mn, Fe, Se, Mo	Metals (6020AF) Field Filtered Chromium	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Alkalinity (SM2320B)	PH (SM4500HB)	TSS (SM2540)									
Task Order																				
Project 2013-RMP-189																				
Turnaround Time 10 Days																				
Shipping Date: 1/9/2013																				
COC Number: 2																				
DATE	TIME	MATRIX																		
SW1-189	1/9/2013	15:20	Water	X				X			X		5	PH=2						
SW2-189	1/9/2013	15:42	Water	X				X			X		5	LOW A						
TOTAL NUMBER OF CONTAINERS												112								

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

Special Instructions:

Jan 8-10, 2013

ATTN:

Sample Custody

Report Copy to

Shawn Duffy
(530) 229-3303

Approved by: *[Signature]*
 Sampled by: *[Signature]*
 Relinquished by: *[Signature]*
 Received by: *[Signature]*
 Relinquished by: *[Signature]*
 Received by: *[Signature]*

Date/Time: 1-9-13 16:30
 Date/Time: 1-9-13 22:30
 Date/Time: 1/9/13 22:30

Shipping Details: 1-9-13 16:30
 Shipping Details: 1-9-13 22:30
 Shipping Details: 1/9/13 22:30

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
01/03/13	805561-1	7	2 ml	9.5	10:15 AM	HAV
↓	↓ -2	↓	↓	↓	10:20 AM	HAV
01/03/13	805562-1	7	2 ml	9.5	10:25 AM	HAV
↓	↓ -2	↓	↓	↓	10:30 AM	↓
↓	↓ -3	↓	↓	↓	10:35 AM	↓
01/04/13	805581-5	9	N/A	N/A	N/A	HAV
01/09/13	805650	7	2 ml	9.5	9:30 AM	HAV
01/09/13	805651-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
↓	↓ -9	↓	↓	↓	↓	↓
↓	↓ -10	↓	↓	↓	↓	↓
↓	↓ -11	↓	↓	↓	↓	↓
↓	↓ -12	↓	↓	↓	↓	↓
↓	↓ -13	↓	↓	↓	↓	↓
↓	↓ -14	↓	↓	↓	↓	↓
↓	↓ -15	↓	↓	↓	↓	↓
01/10/13	805671-1	9.5	N/A	N/A	N/A	RB
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
↓	↓ -9	↓	↓	↓	↓	↓

M
1-25-13

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
01/10/13	80567-10	9.5	N/A	N/A	N/A	RB
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
01/16/13	805813	7	2 ml	9.5	9:30 AM	HAV
01/17/13	805831-1	9.5	N/A	N/A	N/A	RB
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
01/17/13	805832-1	9.5	N/A	N/A	N/A	RB
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					

1-21-13



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
805747	<1	<2	11/15/13	ES	yes			
805748(1-4)	↓	↓	↓	↓	↓			
805670(1,2)	<1	72	11/15/13	DC	NO	12:30	11/18/13 15:30	pH <2
805753(1,2,4)	<1	72	↓	DC	NO	12:30	↓	pH <2
805803(1,1,5)	<1	>2	11/16/13	BE	NO	11:30	↓	↓
805806(1-3)	<1	↓	↓	↓	↓	↓	↓	↓
805671(1,2,5,12,14)	<1	<2	11/16/13	ES	yes			Total/DISSOLVED
805813	<1	72	↓	↓	yes	11:00		
805782	<1	<2	11/16/13	ES	yes			
805794	↓	↓	↓	↓	↓			
805795	↓	↓	↓	↓	↓			
805798	↓	↓	↓	↓	↓			
805799	↓	↓	↓	↓	↓			
805800	↓	↓	↓	↓	↓			
805801	↓	↓	↓	↓	↓			
805824	↓	↓	↓	↓	↓			
805827(1,1,2)	<1	>2	11/15/13	DC	NO	16:10	11/18/13 15:30	pH <2
805841	↓	<2	11/18/13	ES	yes			
842	↓	↓	↓	↓	↓			
843	↓	↓	↓	↓	↓			
844	↓	↓	↓	↓	↓			
845	↓	↓	↓	↓	↓			
846	↓	↓	↓	↓	↓			
847	↓	↓	↓	↓	↓			
848	↓	↓	↓	↓	↓			
805831(1-12,14)	<1	<2	11/18/13	ES	yes			
805862(1-7)	↓	↓	↓	↓	↓			
805885	<1	<2	11/21/13	DC	yes			
805832(1-11)	<1	<2	11/21/13	DC	yes			Total/Disc
805864(1,3-7)	<1	<2	↓	↓	↓			
805890(1,2,4)	<1	72	11/22/13	DC	NO	10:25		
805888	<1	<2	↓	DC	yes			
805905	↓	↓	↓	↓	↓			
805906	↓	↓	↓	↓	↓			
805907	↓	↓	↓	↓	↓			
805908	↓	↓	↓	↓	↓			
805909	↓	↓	↓	↓	↓			
805881(1-7)	↓	↓	↓	↓	yes			
805863(1-8)	↓	↓	↓	↓	↓			
805883(1-3)	↓	↓	↓	↓	↓			
805914	<1	72	11/23/13	DC	No	14:30	11/24/13 15:20	pH <2
805916(1-3)	↓	↓	↓	↓	↓		↓	↓
805937	<1	<2	↓	↓	yes			
805938-1	<1	72	↓	↓	No	14:50		

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.



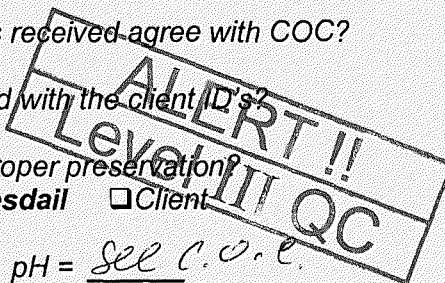
Sample Integrity & Analysis Discrepancy Form

Client: E2

Lab # 805671

Date Delivered: 01/09/13 Time: 12:30 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)? 3.3 °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? ☒ Yes ☐ No ☐ N/A
Turn Around Time (TAT): ☐ RUSH ☒ Std
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. Shabunina



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 1, 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-190, SURFACEWATER MONITORING
PROJECT, TLI NO.: 806635

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-RMP-190 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 March 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 pH analysis by SM 4500-H B were received past the method specified holding time. Mr. Duffy approved the analysis of the samples.

Total Dissolved Chromium, for sample C-I-3-S-190, was re-digested and re-analyzed for each of the three sample containers (bottles A, B, C) provided due to the discrepancy between the Total Dissolved Chromium (2.0 ug/L) and Hexavalent Chromium (ND<0.20 ug/L) results. The results for all re-digested samples were ND<1.0 ug/L. At the same time, sample from the Hexavalent Chromium sample container was digested and analyzed for Total Dissolved Chromium, which also yielded a result of ND<1.0 ug/L. The original Total Dissolved Chromium digestate was also re-analyzed for confirmation and yielded a result of 2.2 ug/L. After discussing the results with Mr. Shawn Duffy, the result from the re-digested sample was reported. The detected result in the original digestate was most likely due to contamination during sample digestion.

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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Event 2012-RMP-190 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-190	2.00	No			
C-I-3-D-190	2.00	No			
C-I-3-S-190	2.00	No			
C-MAR-D-190	2.00	No			
C-MAR-S-190	2.00	No			
C-R22A-D-190	2.00	No			
C-R22A-S-190	2.00	No			
C-R27-D-190	2.00	No			
C-R27-S-190	2.00	No			
C-TAZ-D-190	2.00	No			
C-TAZ-S-190	2.00	No			
R63-190	2.00	No			

**Event 2012-RMP-190 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-190	9.50	No			
C-I-3-D-190	9.50	No			
C-I-3-S-190	9.50	No			
C-MAR-D-190	9.50	No			
C-MAR-S-190	9.50	No			
C-MW-80-190	9.50	No			
C-MW-81-190	9.50	No			
C-R22A-D-190	9.50	No			
C-R22A-S-190	9.50	No			
C-R27-D-190	9.50	No			
C-R27-S-190	9.50	No			
C-TAZ-D-190	9.50	No			
C-TAZ-S-190	9.50	No			
R63-190	9.50	No			
RMP-AB1-190	9.50	No			

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

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

Laboratory No.: 806635

Date Received: March 4, 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
806635-001	C-BNS-D-190	E120.1	NONE	3/4/2013	12:35	EC	874	umhos/cm	2.00
806635-001	C-BNS-D-190	E218.6	FLDFLT	3/4/2013	12:35	Chromium, Hexavalent	ND	ug/L	0.20
806635-001	C-BNS-D-190	E300	NONE	3/4/2013	12:35	Nitrate as N	ND	mg/L	0.500
806635-001	C-BNS-D-190	SM2320B	NONE	3/4/2013	12:35	Alkalinity	125	mg/L	5.00
806635-001	C-BNS-D-190	SM2320B	NONE	3/4/2013	12:35	Alkalinity, Bicarbonate (As CaCO ₃)	125	mg/L	5.00
806635-001	C-BNS-D-190	SM2320B	NONE	3/4/2013	12:35	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
806635-001	C-BNS-D-190	SM2540D	NONE	3/4/2013	12:35	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806635-001	C-BNS-D-190	SM4500HB	NONE	3/4/2013	12:35	PH	8.16	pH	4.00
806635-001	C-BNS-D-190	SW6010B	FLDFLT	3/4/2013	12:35	Iron	ND	ug/L	20.0
806635-001	C-BNS-D-190	SW6010B	NONE	3/4/2013	12:35	Iron	24.0	ug/L	20.0
806635-001	C-BNS-D-190	SW6020	FLDFLT	3/4/2013	12:35	Arsenic	2.2	ug/L	0.50
806635-001	C-BNS-D-190	SW6020	FLDFLT	3/4/2013	12:35	Chromium	ND	ug/L	1.0
806635-001	C-BNS-D-190	SW6020	FLDFLT	3/4/2013	12:35	Manganese	0.68	ug/L	0.50
806635-001	C-BNS-D-190	SW6020	FLDFLT	3/4/2013	12:35	Molybdenum	4.2	ug/L	2.0
806635-001	C-BNS-D-190	SW6020	FLDFLT	3/4/2013	12:35	Selenium	ND	ug/L	5.0
806635-002	C-I-3-D-190	E120.1	NONE	3/4/2013	10:42	EC	874	umhos/cm	2.00
806635-002	C-I-3-D-190	E218.6	FLDFLT	3/4/2013	10:42	Chromium, Hexavalent	ND	ug/L	0.20
806635-002	C-I-3-D-190	E300	NONE	3/4/2013	10:42	Nitrate as N	ND	mg/L	0.500
806635-002	C-I-3-D-190	SM2320B	NONE	3/4/2013	10:42	Alkalinity	119	mg/L	5.00
806635-002	C-I-3-D-190	SM2320B	NONE	3/4/2013	10:42	Alkalinity, Bicarbonate (As CaCO ₃)	119	mg/L	5.00
806635-002	C-I-3-D-190	SM2320B	NONE	3/4/2013	10:42	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
806635-002	C-I-3-D-190	SM2540D	NONE	3/4/2013	10:42	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806635-002	C-I-3-D-190	SM4500HB	NONE	3/4/2013	10:42	PH	8.22	pH	4.00
806635-002	C-I-3-D-190	SW6010B	FLDFLT	3/4/2013	10:42	Iron	ND	ug/L	20.0
806635-002	C-I-3-D-190	SW6010B	NONE	3/4/2013	10:42	Iron	29.1	ug/L	20.0
806635-002	C-I-3-D-190	SW6020	FLDFLT	3/4/2013	10:42	Arsenic	2.3	ug/L	0.50
806635-002	C-I-3-D-190	SW6020	FLDFLT	3/4/2013	10:42	Chromium	ND	ug/L	1.0
806635-002	C-I-3-D-190	SW6020	FLDFLT	3/4/2013	10:42	Manganese	0.91	ug/L	0.50
806635-002	C-I-3-D-190	SW6020	FLDFLT	3/4/2013	10:42	Molybdenum	4.1	ug/L	2.0
806635-002	C-I-3-D-190	SW6020	FLDFLT	3/4/2013	10:42	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
806635-003	C-I-3-S-190	E120.1	NONE	3/4/2013	11:00	EC	876	umhos/cm	2.00
806635-003	C-I-3-S-190	E218.6	FLDFLT	3/4/2013	11:00	Chromium, Hexavalent	ND	ug/L	0.20
806635-003	C-I-3-S-190	E300	NONE	3/4/2013	11:00	Nitrate as N	ND	mg/L	0.500
806635-003	C-I-3-S-190	SM2320B	NONE	3/4/2013	11:00	Alkalinity	125	mg/L	5.00
806635-003	C-I-3-S-190	SM2320B	NONE	3/4/2013	11:00	Alkalinity, Bicarbonate (As CaCO3)	125	mg/L	5.00
806635-003	C-I-3-S-190	SM2320B	NONE	3/4/2013	11:00	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806635-003	C-I-3-S-190	SM2540D	NONE	3/4/2013	11:00	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806635-003	C-I-3-S-190	SM4500HB	NONE	3/4/2013	11:00	PH	8.22	pH	4.00
806635-003	C-I-3-S-190	SW6010B	FLDFLT	3/4/2013	11:00	Iron	ND	ug/L	20.0
806635-003	C-I-3-S-190	SW6010B	NONE	3/4/2013	11:00	Iron	21.0	ug/L	20.0
806635-003	C-I-3-S-190	SW6020	FLDFLT	3/4/2013	11:00	Arsenic	2.3	ug/L	0.50
806635-003	C-I-3-S-190	SW6020	FLDFLT	3/4/2013	11:00	Chromium	ND	ug/L	1.0
806635-003	C-I-3-S-190	SW6020	FLDFLT	3/4/2013	11:00	Manganese	3.0	ug/L	0.50
806635-003	C-I-3-S-190	SW6020	FLDFLT	3/4/2013	11:00	Molybdenum	4.2	ug/L	2.0
806635-003	C-I-3-S-190	SW6020	FLDFLT	3/4/2013	11:00	Selenium	ND	ug/L	5.0
806635-004	C-MAR-D-190	E120.1	NONE	3/4/2013	13:12	EC	853	umhos/cm	2.00
806635-004	C-MAR-D-190	E218.6	FLDFLT	3/4/2013	13:12	Chromium, Hexavalent	ND	ug/L	0.20
806635-004	C-MAR-D-190	E300	NONE	3/4/2013	13:12	Nitrate as N	ND	mg/L	0.500
806635-004	C-MAR-D-190	SM2320B	NONE	3/4/2013	13:12	Alkalinity	130	mg/L	5.00
806635-004	C-MAR-D-190	SM2320B	NONE	3/4/2013	13:12	Alkalinity, Bicarbonate (As CaCO3)	130	mg/L	5.00
806635-004	C-MAR-D-190	SM2320B	NONE	3/4/2013	13:12	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806635-004	C-MAR-D-190	SM2540D	NONE	3/4/2013	13:12	Suspended Solids (Residue, Non-Filterable)	28.4	mg/L	10.0
806635-004	C-MAR-D-190	SM4500HB	NONE	3/4/2013	13:12	PH	8.11	pH	4.00
806635-004	C-MAR-D-190	SW6010B	FLDFLT	3/4/2013	13:12	Iron	28.1	ug/L	20.0
806635-004	C-MAR-D-190	SW6010B	NONE	3/4/2013	13:12	Iron	1220	ug/L	20.0
806635-004	C-MAR-D-190	SW6020	FLDFLT	3/4/2013	13:12	Arsenic	2.1	ug/L	0.50
806635-004	C-MAR-D-190	SW6020	FLDFLT	3/4/2013	13:12	Chromium	ND	ug/L	1.0
806635-004	C-MAR-D-190	SW6020	FLDFLT	3/4/2013	13:12	Manganese	14.3	ug/L	0.50
806635-004	C-MAR-D-190	SW6020	FLDFLT	3/4/2013	13:12	Molybdenum	4.7	ug/L	2.0
806635-004	C-MAR-D-190	SW6020	FLDFLT	3/4/2013	13:12	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806635-005	C-MAR-S-190	E120.1	NONE	3/4/2013	13:27	EC	876	umhos/cm	2.00
806635-005	C-MAR-S-190	E218.6	FLDFLT	3/4/2013	13:27	Chromium, Hexavalent	ND	ug/L	0.20
806635-005	C-MAR-S-190	E300	NONE	3/4/2013	13:27	Nitrate as N	ND	mg/L	0.500
806635-005	C-MAR-S-190	SM2320B	NONE	3/4/2013	13:27	Alkalinity	121	mg/L	5.00
806635-005	C-MAR-S-190	SM2320B	NONE	3/4/2013	13:27	Alkalinity, Bicarbonate (As CaCO ₃)	121	mg/L	5.00
806635-005	C-MAR-S-190	SM2320B	NONE	3/4/2013	13:27	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
806635-005	C-MAR-S-190	SM2540D	NONE	3/4/2013	13:27	Suspended Solids (Residue, Non-Filterable)	11.6	mg/L	10.0
806635-005	C-MAR-S-190	SM4500HB	NONE	3/4/2013	13:27	PH	8.18	pH	4.00
806635-005	C-MAR-S-190	SW6010B	FLDFLT	3/4/2013	13:27	Iron	ND	ug/L	20.0
806635-005	C-MAR-S-190	SW6010B	NONE	3/4/2013	13:27	Iron	474	ug/L	20.0
806635-005	C-MAR-S-190	SW6020	FLDFLT	3/4/2013	13:27	Arsenic	2.1	ug/L	0.50
806635-005	C-MAR-S-190	SW6020	FLDFLT	3/4/2013	13:27	Chromium	ND	ug/L	1.0
806635-005	C-MAR-S-190	SW6020	FLDFLT	3/4/2013	13:27	Manganese	8.6	ug/L	0.50
806635-005	C-MAR-S-190	SW6020	FLDFLT	3/4/2013	13:27	Molybdenum	4.1	ug/L	2.0
806635-005	C-MAR-S-190	SW6020	FLDFLT	3/4/2013	13:27	Selenium	ND	ug/L	5.0
806635-006	C-MW-80-190	E218.6	LABFLT	3/4/2013	11:37	Chromium, Hexavalent	ND	ug/L	0.20
806635-007	C-MW-81-190	E218.6	LABFLT	3/4/2013	12:22	Chromium, Hexavalent	ND	ug/L	0.20
806635-008	C-R22A-D-190	E120.1	NONE	3/4/2013	11:47	EC	871	umhos/cm	2.00
806635-008	C-R22A-D-190	E218.6	FLDFLT	3/4/2013	11:47	Chromium, Hexavalent	ND	ug/L	0.20
806635-008	C-R22A-D-190	E300	NONE	3/4/2013	11:47	Nitrate as N	ND	mg/L	0.500
806635-008	C-R22A-D-190	SM2320B	NONE	3/4/2013	11:47	Alkalinity	124	mg/L	5.00
806635-008	C-R22A-D-190	SM2320B	NONE	3/4/2013	11:47	Alkalinity, Bicarbonate (As CaCO ₃)	124	mg/L	5.00
806635-008	C-R22A-D-190	SM2320B	NONE	3/4/2013	11:47	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
806635-008	C-R22A-D-190	SM2540D	NONE	3/4/2013	11:47	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806635-008	C-R22A-D-190	SM4500HB	NONE	3/4/2013	11:47	PH	8.21	pH	4.00
806635-008	C-R22A-D-190	SW6010B	FLDFLT	3/4/2013	11:47	Iron	ND	ug/L	20.0
806635-008	C-R22A-D-190	SW6010B	NONE	3/4/2013	11:47	Iron	36.6	ug/L	20.0
806635-008	C-R22A-D-190	SW6020	FLDFLT	3/4/2013	11:47	Arsenic	2.2	ug/L	0.50
806635-008	C-R22A-D-190	SW6020	FLDFLT	3/4/2013	11:47	Chromium	ND	ug/L	1.0
806635-008	C-R22A-D-190	SW6020	FLDFLT	3/4/2013	11:47	Manganese	0.55	ug/L	0.50
806635-008	C-R22A-D-190	SW6020	FLDFLT	3/4/2013	11:47	Molybdenum	4.1	ug/L	2.0
806635-008	C-R22A-D-190	SW6020	FLDFLT	3/4/2013	11:47	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806635-009	C-R22A-S-190	E120.1	NONE	3/4/2013	12:05	EC	875	umhos/cm	2.00
806635-009	C-R22A-S-190	E218.6	FLDFLT	3/4/2013	12:05	Chromium, Hexavalent	ND	ug/L	0.20
806635-009	C-R22A-S-190	E300	NONE	3/4/2013	12:05	Nitrate as N	ND	mg/L	0.500
806635-009	C-R22A-S-190	SM2320B	NONE	3/4/2013	12:05	Alkalinity	126	mg/L	5.00
806635-009	C-R22A-S-190	SM2320B	NONE	3/4/2013	12:05	Alkalinity, Bicarbonate (As CaCO ₃)	126	mg/L	5.00
806635-009	C-R22A-S-190	SM2320B	NONE	3/4/2013	12:05	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
806635-009	C-R22A-S-190	SM2540D	NONE	3/4/2013	12:05	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806635-009	C-R22A-S-190	SM4500HB	NONE	3/4/2013	12:05	PH	8.21	pH	4.00
806635-009	C-R22A-S-190	SW6010B	FLDFLT	3/4/2013	12:05	Iron	ND	ug/L	20.0
806635-009	C-R22A-S-190	SW6010B	NONE	3/4/2013	12:05	Iron	27.7	ug/L	20.0
806635-009	C-R22A-S-190	SW6020	FLDFLT	3/4/2013	12:05	Arsenic	2.3	ug/L	0.50
806635-009	C-R22A-S-190	SW6020	FLDFLT	3/4/2013	12:05	Chromium	ND	ug/L	1.0
806635-009	C-R22A-S-190	SW6020	FLDFLT	3/4/2013	12:05	Manganese	0.72	ug/L	0.50
806635-009	C-R22A-S-190	SW6020	FLDFLT	3/4/2013	12:05	Molybdenum	4.4	ug/L	2.0
806635-009	C-R22A-S-190	SW6020	FLDFLT	3/4/2013	12:05	Selenium	ND	ug/L	5.0
806635-010	C-R27-D-190	E120.1	NONE	3/4/2013	14:01	EC	874	umhos/cm	2.00
806635-010	C-R27-D-190	E218.6	FLDFLT	3/4/2013	14:01	Chromium, Hexavalent	ND	ug/L	0.20
806635-010	C-R27-D-190	E300	NONE	3/4/2013	14:01	Nitrate as N	ND	mg/L	0.500
806635-010	C-R27-D-190	SM2320B	NONE	3/4/2013	14:01	Alkalinity	125	mg/L	5.00
806635-010	C-R27-D-190	SM2320B	NONE	3/4/2013	14:01	Alkalinity, Bicarbonate (As CaCO ₃)	125	mg/L	5.00
806635-010	C-R27-D-190	SM2320B	NONE	3/4/2013	14:01	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
806635-010	C-R27-D-190	SM2540D	NONE	3/4/2013	14:01	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806635-010	C-R27-D-190	SM4500HB	NONE	3/4/2013	14:01	PH	8.19	pH	4.00
806635-010	C-R27-D-190	SW6010B	FLDFLT	3/4/2013	14:01	Iron	ND	ug/L	20.0
806635-010	C-R27-D-190	SW6010B	NONE	3/4/2013	14:01	Iron	23.6	ug/L	20.0
806635-010	C-R27-D-190	SW6020	FLDFLT	3/4/2013	14:01	Arsenic	2.4	ug/L	0.50
806635-010	C-R27-D-190	SW6020	FLDFLT	3/4/2013	14:01	Chromium	ND	ug/L	1.0
806635-010	C-R27-D-190	SW6020	FLDFLT	3/4/2013	14:01	Manganese	0.50	ug/L	0.50
806635-010	C-R27-D-190	SW6020	FLDFLT	3/4/2013	14:01	Molybdenum	4.2	ug/L	2.0
806635-010	C-R27-D-190	SW6020	FLDFLT	3/4/2013	14:01	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806635-011	C-R27-S-190	E120.1	NONE	3/4/2013	14:16	EC	870	umhos/cm	2.00
806635-011	C-R27-S-190	E218.6	FLDFLT	3/4/2013	14:16	Chromium, Hexavalent	ND	ug/L	0.20
806635-011	C-R27-S-190	E300	NONE	3/4/2013	14:16	Nitrate as N	ND	mg/L	0.500
806635-011	C-R27-S-190	SM2320B	NONE	3/4/2013	14:16	Alkalinity	120	mg/L	5.00
806635-011	C-R27-S-190	SM2320B	NONE	3/4/2013	14:16	Alkalinity, Bicarbonate (As CaCO3)	120	mg/L	5.00
806635-011	C-R27-S-190	SM2320B	NONE	3/4/2013	14:16	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806635-011	C-R27-S-190	SM2540D	NONE	3/4/2013	14:16	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806635-011	C-R27-S-190	SM4500HB	NONE	3/4/2013	14:16	PH	8.18	pH	4.00
806635-011	C-R27-S-190	SW6010B	FLDFLT	3/4/2013	14:16	Iron	ND	ug/L	20.0
806635-011	C-R27-S-190	SW6010B	NONE	3/4/2013	14:16	Iron	21.0	ug/L	20.0
806635-011	C-R27-S-190	SW6020	FLDFLT	3/4/2013	14:16	Arsenic	2.3	ug/L	0.50
806635-011	C-R27-S-190	SW6020	FLDFLT	3/4/2013	14:16	Chromium	ND	ug/L	1.0
806635-011	C-R27-S-190	SW6020	FLDFLT	3/4/2013	14:16	Manganese	0.68	ug/L	0.50
806635-011	C-R27-S-190	SW6020	FLDFLT	3/4/2013	14:16	Molybdenum	4.6	ug/L	2.0
806635-011	C-R27-S-190	SW6020	FLDFLT	3/4/2013	14:16	Selenium	ND	ug/L	5.0
806635-012	C-TAZ-D-190	E120.1	NONE	3/4/2013	9:45	EC	875	umhos/cm	2.00
806635-012	C-TAZ-D-190	E218.6	FLDFLT	3/4/2013	9:45	Chromium, Hexavalent	ND	ug/L	0.20
806635-012	C-TAZ-D-190	E300	NONE	3/4/2013	9:45	Nitrate as N	ND	mg/L	0.500
806635-012	C-TAZ-D-190	SM2320B	NONE	3/4/2013	9:45	Alkalinity	121	mg/L	5.00
806635-012	C-TAZ-D-190	SM2320B	NONE	3/4/2013	9:45	Alkalinity, Bicarbonate (As CaCO3)	121	mg/L	5.00
806635-012	C-TAZ-D-190	SM2320B	NONE	3/4/2013	9:45	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806635-012	C-TAZ-D-190	SM2540D	NONE	3/4/2013	9:45	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806635-012	C-TAZ-D-190	SM4500HB	NONE	3/4/2013	9:45	PH	8.21	pH	4.00
806635-012	C-TAZ-D-190	SW6010B	FLDFLT	3/4/2013	9:45	Iron	ND	ug/L	20.0
806635-012	C-TAZ-D-190	SW6010B	NONE	3/4/2013	9:45	Iron	29.0	ug/L	20.0
806635-012	C-TAZ-D-190	SW6020	FLDFLT	3/4/2013	9:45	Arsenic	2.3	ug/L	0.50
806635-012	C-TAZ-D-190	SW6020	FLDFLT	3/4/2013	9:45	Chromium	ND	ug/L	1.0
806635-012	C-TAZ-D-190	SW6020	FLDFLT	3/4/2013	9:45	Manganese	ND	ug/L	0.50
806635-012	C-TAZ-D-190	SW6020	FLDFLT	3/4/2013	9:45	Molybdenum	4.2	ug/L	2.0
806635-012	C-TAZ-D-190	SW6020	FLDFLT	3/4/2013	9:45	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806635-013	C-TAZ-S-190	E120.1	NONE	3/4/2013	10:03	EC	875	umhos/cm	2.00
806635-013	C-TAZ-S-190	E218.6	FLDFLT	3/4/2013	10:03	Chromium, Hexavalent	ND	ug/L	0.20
806635-013	C-TAZ-S-190	E300	NONE	3/4/2013	10:03	Nitrate as N	ND	mg/L	0.500
806635-013	C-TAZ-S-190	SM2320B	NONE	3/4/2013	10:03	Alkalinity	118	mg/L	5.00
806635-013	C-TAZ-S-190	SM2320B	NONE	3/4/2013	10:03	Alkalinity, Bicarbonate (As CaCO3)	118	mg/L	5.00
806635-013	C-TAZ-S-190	SM2320B	NONE	3/4/2013	10:03	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806635-013	C-TAZ-S-190	SM2540D	NONE	3/4/2013	10:03	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806635-013	C-TAZ-S-190	SM4500HB	NONE	3/4/2013	10:03	PH	8.23 J	pH	4.00
806635-013	C-TAZ-S-190	SW6010B	FLDFLT	3/4/2013	10:03	Iron	ND	ug/L	20.0
806635-013	C-TAZ-S-190	SW6010B	NONE	3/4/2013	10:03	Iron	22.3	ug/L	20.0
806635-013	C-TAZ-S-190	SW6020	FLDFLT	3/4/2013	10:03	Arsenic	2.2	ug/L	0.50
806635-013	C-TAZ-S-190	SW6020	FLDFLT	3/4/2013	10:03	Chromium	ND	ug/L	1.0
806635-013	C-TAZ-S-190	SW6020	FLDFLT	3/4/2013	10:03	Manganese	0.51	ug/L	0.50
806635-013	C-TAZ-S-190	SW6020	FLDFLT	3/4/2013	10:03	Molybdenum	4.1	ug/L	2.0
806635-013	C-TAZ-S-190	SW6020	FLDFLT	3/4/2013	10:03	Selenium	ND	ug/L	5.0
806635-014	R63-190	E120.1	NONE	3/4/2013	11:20	EC	874	umhos/cm	2.00
806635-014	R63-190	E218.6	FLDFLT	3/4/2013	11:20	Chromium, Hexavalent	ND	ug/L	0.20
806635-014	R63-190	E300	NONE	3/4/2013	11:20	Nitrate as N	ND	mg/L	0.500
806635-014	R63-190	SM2320B	NONE	3/4/2013	11:20	Alkalinity	119	mg/L	5.00
806635-014	R63-190	SM2320B	NONE	3/4/2013	11:20	Alkalinity, Bicarbonate (As CaCO3)	119	mg/L	5.00
806635-014	R63-190	SM2320B	NONE	3/4/2013	11:20	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806635-014	R63-190	SM2540D	NONE	3/4/2013	11:20	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806635-014	R63-190	SM4500HB	NONE	3/4/2013	11:20	PH	8.25	pH	4.00
806635-014	R63-190	SW6010B	FLDFLT	3/4/2013	11:20	Iron	ND	ug/L	20.0
806635-014	R63-190	SW6010B	NONE	3/4/2013	11:20	Iron	33.0	ug/L	20.0
806635-014	R63-190	SW6020	FLDFLT	3/4/2013	11:20	Arsenic	2.3	ug/L	0.50
806635-014	R63-190	SW6020	FLDFLT	3/4/2013	11:20	Chromium	ND	ug/L	1.0
806635-014	R63-190	SW6020	FLDFLT	3/4/2013	11:20	Manganese	0.83	ug/L	0.50
806635-014	R63-190	SW6020	FLDFLT	3/4/2013	11:20	Molybdenum	4.1	ug/L	2.0
806635-014	R63-190	SW6020	FLDFLT	3/4/2013	11:20	Selenium	ND	ug/L	5.0
806635-015	RMP-AB1-190	E218.6	LABFLT	3/4/2013	14:30	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.

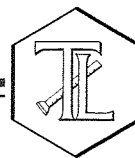
Result above or equal to 0.01ppm will have three (3) significant figures.

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

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.02.RM

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

Release Number:

Laboratory No. 806635

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Printed 3/19/2013

Samples Received on 3/4/2013 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
C-BNS-D-190	806635-001	03/04/2013 12:35	Water
C-I-3-D-190	806635-002	03/04/2013 10:42	Water
C-I-3-S-190	806635-003	03/04/2013 11:00	Water
C-MAR-D-190	806635-004	03/04/2013 13:12	Water
C-MAR-S-190	806635-005	03/04/2013 13:27	Water
C-MW-80-190	806635-006	03/04/2013 11:37	Water
C-MW-81-190	806635-007	03/04/2013 12:22	Water
C-R22A-D-190	806635-008	03/04/2013 11:47	Water
C-R22A-S-190	806635-009	03/04/2013 12:05	Water
C-R27-D-190	806635-010	03/04/2013 14:01	Water
C-R27-S-190	806635-011	03/04/2013 14:16	Water
C-TAZ-D-190	806635-012	03/04/2013 09:45	Water
C-TAZ-S-190	806635-013	03/04/2013 10:03	Water
R63-190	806635-014	03/04/2013 11:20	Water
RMP-AB1-190	806635-015	03/04/2013 14:30	Water

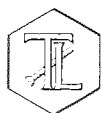
Anions By I.C. - EPA 300.0

Batch 03AN13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806635-001 Nitrate as Nitrogen	mg/L	03/05/2013 11:53	1.00	0.00830	0.500	ND
806635-002 Nitrate as Nitrogen	mg/L	03/05/2013 12:27	1.00	0.00830	0.500	ND
806635-003 Nitrate as Nitrogen	mg/L	03/05/2013 12:38	1.00	0.00830	0.500	ND
806635-004 Nitrate as Nitrogen	mg/L	03/05/2013 12:50	1.00	0.00830	0.500	ND
806635-005 Nitrate as Nitrogen	mg/L	03/05/2013 13:01	1.00	0.00830	0.500	ND
806635-008 Nitrate as Nitrogen	mg/L	03/05/2013 13:13	1.00	0.00830	0.500	ND
806635-009 Nitrate as Nitrogen	mg/L	03/05/2013 13:47	1.00	0.00830	0.500	ND
806635-010 Nitrate as Nitrogen	mg/L	03/05/2013 13:58	1.00	0.00830	0.500	ND
806635-011 Nitrate as Nitrogen	mg/L	03/05/2013 14:10	1.00	0.00830	0.500	ND
806635-012 Nitrate as Nitrogen	mg/L	03/05/2013 14:21	1.00	0.00830	0.500	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.

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.RM

Printed 3/19/2013

806635-013 Nitrate as Nitrogen	mg/L	03/05/2013 14:33	1.00	0.00830	0.500	ND
806635-014 Nitrate as Nitrogen	mg/L	03/05/2013 14:44	1.00	0.00830	0.500	ND

Method Blank

Parameter	Unit	DF	Result
Nitrate as Nitrogen	mg/L	1.00	ND

Duplicate

Lab ID = 806635-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	ND	0.414	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	4.04	4.00	101	90 - 110

Matrix Spike

Lab ID = 806635-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.57	2.41(2.00)	108	85 - 115

MRCCS - Secondary

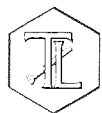
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	4.04	4.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.01	3.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.01	3.00	100	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 3 of 25****Project Number: 423575.MP.02.RM****Printed 3/19/2013****Alkalinity by SM 2320B**

Batch 03ALK13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806635-001 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	125
Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	125
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
806635-002 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	119
Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	119
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
806635-003 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	125
Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	125
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
806635-004 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	130
Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	130
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
806635-005 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	121
Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	121
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
806635-008 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	124
Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	124
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
806635-009 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	126
Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	126
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
806635-010 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	125
Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	125
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
806635-011 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	120
Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	120
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
806635-012 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	121
Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	121
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
806635-013 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	118
Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	118
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
806635-014 Alkalinity as CaCO ₃	mg/L	03/05/2013	1.00	0.555	5.00	119



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806635-014 Bicarbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	119
Carbonate (Calculated)	mg/L	03/05/2013	1.00	0.555	5.00	ND
Method Blank						
Parameter	Unit	DF	Result			
Alkalinity as CaCO ₃	mg/L	1.00	ND			
Duplicate						Lab ID = 806627-016
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	80.0	76.0	5.13	0 - 20
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	98.0	100	98.0	90 - 110
Lab Control Sample Duplicate						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	94.0	100	94.0	90 - 110
Matrix Spike						Lab ID = 806635-014
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	215	219(100)	96.0	75 - 125



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Printed 3/19/2013

Specific Conductivity - EPA 120.1

Batch 03EC13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806635-001 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	874
806635-002 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	874
806635-003 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	876
806635-004 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	853
806635-005 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	876
806635-008 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	871
806635-009 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	875
806635-010 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	874
806635-011 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	870
806635-012 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	875
806635-013 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	875
806635-014 Specific Conductivity	umhos/cm	03/05/2013	1.00	0.116	2.00	874

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 806635-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	875	875	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	683	706	96.7	90 - 110

Lab Control Sample Duplicate

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	689	706	97.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	950	998	95.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	970	998	97.2	90 - 110



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Metals by EPA 6010B, Total

Batch 030813A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806635-001 Iron	ug/L	03/08/2013 12:32	1.00	9.50	20.0	24.0
806635-002 Iron	ug/L	03/08/2013 13:14	1.00	9.50	20.0	29.1
806635-003 Iron	ug/L	03/08/2013 13:20	1.00	9.50	20.0	21.0
806635-004 Iron	ug/L	03/08/2013 13:27	1.00	9.50	20.0	1220
806635-005 Iron	ug/L	03/08/2013 13:33	1.00	9.50	20.0	474
806635-008 Iron	ug/L	03/08/2013 13:39	1.00	9.50	20.0	36.6
806635-009 Iron	ug/L	03/08/2013 13:45	1.00	9.50	20.0	27.7
806635-010 Iron	ug/L	03/08/2013 13:52	1.00	9.50	20.0	23.6
806635-011 Iron	ug/L	03/08/2013 13:58	1.00	9.50	20.0	21.0
806635-012 Iron	ug/L	03/08/2013 14:04	1.00	9.50	20.0	29.0
806635-013 Iron	ug/L	03/08/2013 14:41	1.00	9.50	20.0	22.3
806635-014 Iron	ug/L	03/08/2013 14:47	1.00	9.50	20.0	33.0

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 806635-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	24.6	24.0	2.47	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	52.6	50.0	105	85 - 115

Matrix Spike

Lab ID = 806635-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	70.3	74.0(50.0)	92.6	75 - 125

Matrix Spike Duplicate

Lab ID = 806635-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	76.0	74.0(50.0)	104	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



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Printed 3/19/2013

Chrome VI by EPA 218.6

Batch 03CrH13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806635-001 Chromium, Hexavalent	ug/L	03/06/2013 13:01	1.00	0.00920	0.20	ND
806635-003 Chromium, Hexavalent	ug/L	03/06/2013 13:22	1.00	0.00920	0.20	ND
806635-004 Chromium, Hexavalent	ug/L	03/06/2013 13:32	1.00	0.00920	0.20	ND
806635-005 Chromium, Hexavalent	ug/L	03/06/2013 13:43	1.00	0.00920	0.20	ND
806635-006 Chromium, Hexavalent	ug/L	03/06/2013 14:55	1.00	0.00920	0.20	ND
806635-007 Chromium, Hexavalent	ug/L	03/06/2013 15:06	1.00	0.00920	0.20	ND
806635-008 Chromium, Hexavalent	ug/L	03/06/2013 15:16	1.00	0.00920	0.20	ND
806635-009 Chromium, Hexavalent	ug/L	03/06/2013 15:27	1.00	0.00920	0.20	ND
806635-010 Chromium, Hexavalent	ug/L	03/06/2013 17:31	1.00	0.00920	0.20	ND
806635-011 Chromium, Hexavalent	ug/L	03/06/2013 15:47	1.00	0.00920	0.20	ND
806635-012 Chromium, Hexavalent	ug/L	03/06/2013 16:29	1.00	0.00920	0.20	ND
806635-013 Chromium, Hexavalent	ug/L	03/06/2013 16:39	1.00	0.00920	0.20	ND
806635-014 Chromium, Hexavalent	ug/L	03/06/2013 16:50	1.00	0.00920	0.20	ND
806635-015 Chromium, Hexavalent	ug/L	03/06/2013 21:00	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate

Lab ID = 806330-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	2.56	2.58	0.653	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.210	0.200	105	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.85	5.00	97.0	90 - 110

Matrix Spike

Lab ID = 806330-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	36.3	36.5(25.0)	99.3	90 - 110

Matrix Spike

Lab ID = 806330-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.49	7.58(5.00)	98.2	90 - 110



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Matrix Spike						Lab ID = 806330-015
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	31.9	32.9(25.0)	95.8	90 - 110
Matrix Spike						Lab ID = 806635-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.03(1.00)	97.7	90 - 110
Matrix Spike						Lab ID = 806635-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.04(1.00)	96.2	90 - 110
Matrix Spike						Lab ID = 806635-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.993	1.02(1.00)	96.7	90 - 110
Matrix Spike						Lab ID = 806635-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.03(1.00)	98.1	90 - 110
Matrix Spike						Lab ID = 806635-006
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.976	1.00(1.00)	97.6	90 - 110
Matrix Spike						Lab ID = 806635-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.980	1.00(1.00)	98.0	90 - 110
Matrix Spike						Lab ID = 806635-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.03(1.00)	99.0	90 - 110
Matrix Spike						Lab ID = 806635-009
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.04(1.00)	97.6	90 - 110
Matrix Spike						Lab ID = 806635-010
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.03(1.00)	100	90 - 110
Matrix Spike						Lab ID = 806635-011
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.03(1.00)	99.9	90 - 110
Matrix Spike						Lab ID = 806635-012
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.04(1.00)	97.9	90 - 110



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Matrix Spike

Lab ID = 806635-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.03(1.00)	98.0	90 - 110

Matrix Spike

Lab ID = 806635-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.04(1.00)	97.7	90 - 110

Matrix Spike

Lab ID = 806635-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.974	1.02(1.00)	95.8	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.88	5.00	97.5	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	9.98	10.0	99.8	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.98	10.0	99.8	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.97	10.0	99.7	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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Chrome VI by EPA 218.6
Batch 03CrH13G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806635-002 Chromium, Hexavalent	ug/L	03/12/2013 15:37	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate
Lab ID = 806791-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	17.8	17.9	0.462	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	4.88	5.00	97.7	90 - 110

Matrix Spike
Lab ID = 806635-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.956	1.02(1.00)	93.7	90 - 110

Matrix Spike
Lab ID = 806790-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.01	6.02(5.00)	99.8	90 - 110

Matrix Spike
Lab ID = 806790-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.01	9.19(5.00)	96.4	90 - 110

Matrix Spike
Lab ID = 806790-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.60	7.90(5.00)	94.0	90 - 110

Matrix Spike
Lab ID = 806790-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.70	6.93(5.00)	95.4	90 - 110

Matrix Spike
Lab ID = 806790-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.00(1.00)	106	90 - 110

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Batch 030613A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806635-001 Arsenic	ug/L	03/06/2013 10:13	1.00	0.100	0.50	2.2
Chromium	ug/L	03/06/2013 10:13	1.00	0.0920	1.0	ND
Manganese	ug/L	03/06/2013 10:13	1.00	0.0860	0.50	0.68
Molybdenum	ug/L	03/06/2013 10:13	1.00	0.207	2.0	4.2
Selenium	ug/L	03/06/2013 10:13	1.00	0.0800	5.0	ND
806635-002 Arsenic	ug/L	03/06/2013 13:05	1.00	0.100	0.50	2.3
Chromium	ug/L	03/06/2013 13:05	1.00	0.0920	1.0	ND
Manganese	ug/L	03/06/2013 13:05	1.00	0.0860	0.50	0.91
Molybdenum	ug/L	03/06/2013 13:05	1.00	0.207	2.0	4.1
Selenium	ug/L	03/06/2013 13:05	1.00	0.0800	5.0	ND
806635-003 Arsenic	ug/L	03/06/2013 11:52	1.00	0.100	0.50	2.3
Manganese	ug/L	03/06/2013 11:52	1.00	0.0860	0.50	3.0
Molybdenum	ug/L	03/06/2013 11:52	1.00	0.207	2.0	4.2
Selenium	ug/L	03/06/2013 11:52	1.00	0.0800	5.0	ND
806635-004 Arsenic	ug/L	03/06/2013 11:59	1.00	0.100	0.50	2.1
Chromium	ug/L	03/06/2013 11:59	1.00	0.0920	1.0	ND
Manganese	ug/L	03/06/2013 11:59	1.00	0.0860	0.50	14.3
Molybdenum	ug/L	03/06/2013 11:59	1.00	0.207	2.0	4.7
Selenium	ug/L	03/06/2013 11:59	1.00	0.0800	5.0	ND
806635-005 Arsenic	ug/L	03/06/2013 12:05	1.00	0.100	0.50	2.1
Chromium	ug/L	03/06/2013 12:05	1.00	0.0920	1.0	ND
Manganese	ug/L	03/06/2013 12:05	1.00	0.0860	0.50	8.6
Molybdenum	ug/L	03/06/2013 12:05	1.00	0.207	2.0	4.1
Selenium	ug/L	03/06/2013 12:05	1.00	0.0800	5.0	ND
806635-008 Arsenic	ug/L	03/06/2013 12:11	1.00	0.100	0.50	2.2
Chromium	ug/L	03/06/2013 12:11	1.00	0.0920	1.0	ND
Manganese	ug/L	03/06/2013 12:11	1.00	0.0860	0.50	0.55
Molybdenum	ug/L	03/06/2013 12:11	1.00	0.207	2.0	4.1
Selenium	ug/L	03/06/2013 12:11	1.00	0.0800	5.0	ND
806635-009 Arsenic	ug/L	03/06/2013 12:17	1.00	0.100	0.50	2.3
Chromium	ug/L	03/06/2013 12:17	1.00	0.0920	1.0	ND
Manganese	ug/L	03/06/2013 12:17	1.00	0.0860	0.50	0.72
Molybdenum	ug/L	03/06/2013 12:17	1.00	0.207	2.0	4.4
Selenium	ug/L	03/06/2013 12:17	1.00	0.0800	5.0	ND



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806635-010 Arsenic	ug/L	03/06/2013 12:23	1.00	0.100	0.50	2.4
Chromium	ug/L	03/06/2013 12:23	1.00	0.0920	1.0	ND
Manganese	ug/L	03/06/2013 12:23	1.00	0.0860	0.50	0.50
Molybdenum	ug/L	03/06/2013 12:23	1.00	0.207	2.0	4.2
Selenium	ug/L	03/06/2013 12:23	1.00	0.0800	5.0	ND
806635-011 Arsenic	ug/L	03/06/2013 12:29	1.00	0.100	0.50	2.3
Chromium	ug/L	03/06/2013 12:29	1.00	0.0920	1.0	ND
Manganese	ug/L	03/06/2013 12:29	1.00	0.0860	0.50	0.68
Molybdenum	ug/L	03/06/2013 12:29	1.00	0.207	2.0	4.6
Selenium	ug/L	03/06/2013 12:29	1.00	0.0800	5.0	ND
806635-012 Arsenic	ug/L	03/06/2013 12:35	1.00	0.100	0.50	2.3
Chromium	ug/L	03/06/2013 12:35	1.00	0.0920	1.0	ND
Manganese	ug/L	03/06/2013 12:35	1.00	0.0860	0.50	ND
Molybdenum	ug/L	03/06/2013 12:35	1.00	0.207	2.0	4.2
Selenium	ug/L	03/06/2013 12:35	1.00	0.0800	5.0	ND
806635-013 Arsenic	ug/L	03/06/2013 12:41	1.00	0.100	0.50	2.2
Chromium	ug/L	03/06/2013 12:41	1.00	0.0920	1.0	ND
Manganese	ug/L	03/06/2013 12:41	1.00	0.0860	0.50	0.51
Molybdenum	ug/L	03/06/2013 12:41	1.00	0.207	2.0	4.1
Selenium	ug/L	03/06/2013 12:41	1.00	0.0800	5.0	ND
806635-014 Arsenic	ug/L	03/06/2013 12:59	1.00	0.100	0.50	2.3
Chromium	ug/L	03/06/2013 12:59	1.00	0.0920	1.0	ND
Manganese	ug/L	03/06/2013 12:59	1.00	0.0860	0.50	0.83
Molybdenum	ug/L	03/06/2013 12:59	1.00	0.207	2.0	4.1
Selenium	ug/L	03/06/2013 12:59	1.00	0.0800	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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Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.200	0.200	100	70 - 130
Chromium	ug/L	1.00	0.243	0.200	122	70 - 130
Selenium	ug/L	1.00	4.88	5.00	97.5	70 - 130
Manganese	ug/L	1.00	0.442	0.500	88.4	70 - 130
Molybdenum	ug/L	1.00	0.534	0.500	107	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	45.8	50.0	91.6	85 - 115
Chromium	ug/L	1.00	46.2	50.0	92.4	85 - 115
Selenium	ug/L	1.00	44.8	50.0	89.5	85 - 115
Manganese	ug/L	1.00	46.3	50.0	92.5	85 - 115
Molybdenum	ug/L	1.00	49.6	50.0	99.2	85 - 115

Matrix Spike
Lab ID = 806635-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	45.9	52.2(50.0)	87.4	75 - 125
Chromium	ug/L	1.00	43.1	50.0(50.0)	86.2	75 - 125
Selenium	ug/L	1.00	40.9	50.0(50.0)	81.8	75 - 125
Manganese	ug/L	1.00	43.0	50.7(50.0)	84.6	75 - 125
Molybdenum	ug/L	1.00	52.6	54.2(50.0)	97.0	75 - 125

Matrix Spike Duplicate
Lab ID = 806635-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	44.6	52.2(50.0)	84.8	75 - 125
Chromium	ug/L	1.00	41.9	50.0(50.0)	83.9	75 - 125
Selenium	ug/L	1.00	38.7	50.0(50.0)	77.5	75 - 125
Manganese	ug/L	1.00	41.7	50.7(50.0)	82.1	75 - 125
Molybdenum	ug/L	1.00	50.8	54.2(50.0)	93.4	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.5	20.0	97.6	90 - 110
Chromium	ug/L	1.00	20.1	20.0	101	90 - 110
Selenium	ug/L	1.00	19.2	20.0	96.2	90 - 110
Manganese	ug/L	1.00	20.2	20.0	101	90 - 110
Molybdenum	ug/L	1.00	18.7	20.0	93.4	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.RM

Printed 3/19/2013

Metals by EPA 6020A, Dissolved

Batch 031213A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806635-003 Chromium	ug/L	03/12/2013 20:11	1.00	0.0920	1.0	ND

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	0.204	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	52.6	50.0	105	85 - 115

Matrix Spike

Lab ID = 806635-003

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

Matrix Spike Duplicate

Lab ID = 806635-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	51.0	50.0(50.0)	102	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	19.5	20.0	97.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	97.1	90 - 110

MRCVS - Primary

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

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Project Number: 423575.MP.02.RM

Printed 3/19/2013

Metals by EPA 6010B, Dissolved

Batch 030713A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806635-001 Iron	ug/L	03/07/2013 14:53	1.00	9.50	20.0	ND
806635-002 Iron	ug/L	03/07/2013 15:19	1.00	9.50	20.0	ND
806635-003 Iron	ug/L	03/07/2013 15:25	1.00	9.50	20.0	ND
806635-004 Iron	ug/L	03/07/2013 15:31	1.00	9.50	20.0	28.1
806635-005 Iron	ug/L	03/07/2013 15:37	1.00	9.50	20.0	ND
806635-008 Iron	ug/L	03/07/2013 16:01	1.00	9.50	20.0	ND
806635-009 Iron	ug/L	03/07/2013 16:07	1.00	9.50	20.0	ND
806635-010 Iron	ug/L	03/07/2013 16:13	1.00	9.50	20.0	ND
806635-011 Iron	ug/L	03/07/2013 16:20	1.00	9.50	20.0	ND
806635-012 Iron	ug/L	03/07/2013 16:26	1.00	9.50	20.0	ND
806635-013 Iron	ug/L	03/07/2013 16:32	1.00	9.50	20.0	ND
806635-014 Iron	ug/L	03/07/2013 16:38	1.00	9.50	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 806635-001

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	54.7	50.0	109	85 - 115

Matrix Spike

Lab ID = 806635-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	52.2	50.0(50.0)	104	75 - 125

Matrix Spike Duplicate

Lab ID = 806635-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	51.2	50.0(50.0)	102	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5280	5000	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5190	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 3/19/2013
pH by SM 4500-H B
Batch 03PH13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806635-001 pH	pH	03/05/2013 09:46	1.00	0.0784	4.00	8.16
806635-002 pH	pH	03/05/2013 09:50	1.00	0.0784	4.00	8.22
806635-003 pH	pH	03/05/2013 09:55	1.00	0.0784	4.00	8.22
806635-004 pH	pH	03/05/2013 09:58	1.00	0.0784	4.00	8.11
806635-005 pH	pH	03/05/2013 10:00	1.00	0.0784	4.00	8.18
806635-008 pH	pH	03/05/2013 10:03	1.00	0.0784	4.00	8.21
806635-009 pH	pH	03/05/2013 10:05	1.00	0.0784	4.00	8.21
806635-010 pH	pH	03/05/2013 10:07	1.00	0.0784	4.00	8.19
806635-011 pH	pH	03/05/2013 10:10	1.00	0.0784	4.00	8.18
806635-012 pH	pH	03/05/2013 09:43	1.00	0.0784	4.00	8.21
806635-013 pH	pH	03/05/2013 10:17	1.00	0.0784	4.00	8.23
806635-014 pH	pH	03/05/2013 10:19	1.00	0.0784	4.00	8.25

Duplicate
Lab ID = 806635-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.19	8.18	0.122	0 - 20

Lab Control Sample

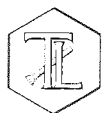
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.00	7.00	100	90 - 110

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	7.02	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 3/19/2013

Total Suspended Solids by SM 2540 D

Batch 03TSS13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806635-001 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	ND
806635-002 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	ND
806635-003 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	ND
806635-004 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	28.4
806635-005 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	11.6
806635-008 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	ND
806635-009 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	ND
806635-010 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	ND
806635-011 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	ND
806635-012 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	ND
806635-013 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	ND
806635-014 Total Suspended Solids	mg/L	03/06/2013	1.00	0.349	10.0	ND

Method Blank

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

Duplicate

Lab ID = 806635-014

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

Lab Control Sample

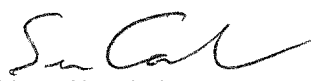
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	101	100	101	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	97.0	100	97.0	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: 03TSS13B

Date Analyzed: 03/06/13

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
J20	BLANK	1000	1.3898	1.3898	1.3898	0.0000	No	0.0000	0.0	2.5	ND
J23	806635-1	250	1.3980	1.3980	1.398	0.0000	No	0.0000	0.0	10.0	ND
J24	806635-2	250	1.3868	1.3868	1.3868	0.0000	No	0.0000	0.0	10.0	ND
J25	806635-3	250	1.3909	1.3910	1.391	0.0000	No	0.0001	0.4	10.0	ND
J26	806635-4	250	1.4008	1.4079	1.4079	0.0000	No	0.0071	28.4	10.0	28.4
J27	806635-5	250	1.4047	1.4076	1.4076	0.0000	No	0.0029	11.6	10.0	11.6
J28	806635-8	250	1.3890	1.3890	1.389	0.0000	No	0.0000	0.0	10.0	ND
J29	806635-9	250	1.3937	1.3937	1.3937	0.0000	No	0.0000	0.0	10.0	ND
J30	806635-10	250	1.4071	1.4071	1.4071	0.0000	No	0.0000	0.0	10.0	ND
J31	806635-11	250	1.3960	1.3960	1.396	0.0000	No	0.0000	0.0	10.0	ND
J32	806635-12	250	1.3883	1.3883	1.3883	0.0000	No	0.0000	0.0	10.0	ND
J33	806635-13	250	1.3987	1.3987	1.3987	0.0000	No	0.0000	0.0	10.0	ND
J34	806635-14	250	1.3947	1.3947	1.3947	0.0000	No	0.0000	0.0	10.0	ND
J35	806635-14D	250	1.3950	1.3950	1.395	0.0000	No	0.0000	0.0	10.0	ND
J36	806581	500	1.3947	1.4292	1.4292	0.0000	No	0.0345	69.0	5.0	69.0
J37	806584	1000	1.4078	1.4154	1.4154	0.0000	No	0.0076	7.6	2.5	7.6
J38	806585	1000	1.3992	1.4115	1.4115	0.0000	No	0.0123	12.3	2.5	12.3
J39	806687	500	1.4012	1.4215	1.4215	0.0000	No	0.0203	40.6	5.0	40.6
J40	806587D	500	1.4015	1.4220	1.422	0.0000	No	0.0205	41.0	5.0	41.0
J41	806594	1000	1.3902	1.4088	1.4088	0.0000	No	0.0166	16.6	2.5	16.6
J21	LCS-1	100	1.3951	1.4052	1.4052	0.0000	No	0.0101	101.0	25.0	101.0
J22	LCS-2	100	1.3986	1.4083	1.4083	0.0000	No	0.0097	97.0	25.0	97.0

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	101	100	101.0%	90-110%	Yes
LCSD	97	100	97.0%	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?
806635-14	0	0	#DIV/0!	≤5%	#DIV/0!
806587	0.0203	0.0205	0.5%	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

Reviewer Printed Name

Reviewer Signature



Analytical Batch:	03ALK13A
Matrix:	WATER
Date of Analysis:	3/5/13

Calculations as follows:

T or P =

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

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: $B = \text{mL titrant to first recorded pH}$

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	98	100	98.0%	90-110	Yes
LCSD	94	100	94.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Acceptance Limit	QC Within Control?
806627-16	76	80	5.1%	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?
806635-14	119	1	100	100	215	219.00	96%	75-125	Yes			
		1	100	100								

Melissa S.

Analyst Printed Name

030513a

Analyst Signature

Maksim G.

Reviewer Printed Name _____

Reviewer Signature _____

CH2MHILL

CHAIN OF CUSTODY RECORD

3/4/2013 3:52:47 PM

Page 1 OF 2

806635

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	2x1 Liter	For Sample Conditions See Form Attached	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	4°C				
Project Manager Jay Piper		Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA	NA				
Sample Manager Shawn Duffy		Holding Time:	28	28	180	180	180	14	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, Mn, Fe, Se, Mo	Metals (6020AFF) Field Filtered Chromium /	Specific Conductance (E120, 1)	Anions (E300, 0) Nitrate	Alkalinity (SM2320B)	PH (SM4500HB)	TSS (SM2540)				
Task Order																
Project 2013-RMP-190																
Turnaround Time 10 Days																
Shipping Date: 3/4/2013																
COC Number: 1																
DATE	TIME	Matrix														
1 C-BNS-D-190	3/4/2013	12:35	Water	X		X	X	X	X	X	X	X			9	
2 C-I-3-D-190	3/4/2013	10:42	Water	X		X	X	X	X	X	X	X			9	
3 C-I-3-S-190	3/4/2013	11:00	Water	X		X	X	X	X	X	X	X			9	PH=2
4 C-MAR-D-190	3/4/2013	13:12	Water	X		X	X	X	X	X	X	X			9	6020.4
5 C-MAR-S-190	3/4/2013	13:27	Water	X		X	X	X	X	X	X	X			9	6010.8
6 C-MW-80-190	3/4/2013	11:37	Water		X										1	
7 C-MW-81-190	3/4/2013	12:22	Water		X										1	
8 C-R22A-D-190	3/4/2013	11:47	Water	X		X	X	X	X	X	X	X			9	
9 C-R22A-S-190	3/4/2013	12:05	Water	X		X	X	X	X	X	X	X			9	
10 C-R27-D-190	3/4/2013	14:01	Water	X		X	X	X	X	X	X	X			9	
11 C-R27-S-190	3/4/2013	14:16	Water	X		X	X	X	X	X	X	X			9	PH=2
12 C-TAZ-D-190	3/4/2013	9:45	Water	X		X	X	X	X	X	X	X			9	6020.4
13 C-TAZ-S-190	3/4/2013	10:03	Water	X		X	X	X	X	X	X	X			9	6010.8
14 R63-190	3/4/2013	11:20	Water	X		X	X	X	X	X	X	X			9	

Signatures

Date/Time

Shipping Details

Approved by

Sampled by

Relinquished by

Received by

Relinquished by

Received by

3-4-13
1630

Method of Shipment: courier

On Ice: yes / no

Airbill No:

Lab Name: Truesdail Laboratories, Inc.

Lab Phone: (714) 730-6239

ATTN:

Special Instructions:

March 4-5, 2013

Sample Custody

Report Copy to

Shawn Duffy
(530) 229-3303

806635

3/4/2013 3:52:47 PM

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	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	4°C			
Project Manager Jay Piper	Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA	NA			
Sample Manager Shawn Duffy	Holding Time:	28	28	180	180	180	14	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) Field Filtered As, Mn, Fe, Se, Mo	Metals (6020A) Field Filtered Chromium	Specific Conductance (E120,1)	Anions (E300,0) Nitrate	Alkalinity (S12320B)	PH (S14500HB)	TSS (S12540)			
Task Order														
Project 2013-RMP-190														
Turnaround Time 10 Days														
Shipping Date: 3/4/2013														
COC Number: 1														
DATE TIME Matrix														
RMP-AB1-190	3/4/2013 14:30 Water		X										1	
TOTAL NUMBER OF CONTAINERS												111		

Approved by	Signatures	Date/Time	Shipping Details
Sampled by	<i>[Signature]</i>	3-4-13	Method of Shipment: courier
Relinquished by	<i>[Signature]</i>	1630	On Ice: yes / no
Received by	<i>Rafael Davila</i>	3/4/13 16:30	Airbill No:
Relinquished by	<i>Rafael Davila</i>	3-4-13 22:30	Lab Name: Truesdail Laboratories, Inc.
Received by	<i>Linda, TLI</i>	3/4/13 22:30	Lab Phone: (714) 730-6239

ATTN:

Sample Custody

Special Instructions:

March 4-5, 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
3/5/13	806633-3	9.5	N/A	N/A	N/A	RB
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
3/5/13	806634-1	9.5	N/A	N/A	N/A	RB
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
3/5/13	806635-1	9.5	N/A	N/A	N/A	RB
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					

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
3/5/13	806635-9	9.5	N/A	N/A	N/A	RM
↓	-10	↓	↓	↓	↓	↓
↓	-11	↓	↓	↓	↓	↓
↓	-12	↓	↓	↓	↓	↓
↓	-13	↓	↓	↓	↓	↓
↓	-14	↓	↓	↓	↓	↓
↓	-15	↓	↓	↓	↓	↓
3/6/13	803668-1	9.5	N/A	N/A	N/A	TM
↓	-2	↓	↓	↓	↓	↓
↓	-3	↓	↓	↓	↓	↓
↓	-4	↓	↓	↓	↓	↓
↓	-5	↓	↓	↓	↓	↓
↓	-6	↓	↓	↓	↓	↓
↓	-7	↓	↓	↓	↓	↓
↓	-8	↓	↓	↓	↓	↓
↓	-9	↓	↓	↓	↓	↓
↓	-10	↓	↓	↓	↓	↓
↓	-11	↓	↓	↓	↓	↓
↓	-12	↓	↓	↓	↓	↓
↓	-13	↓	↓	↓	↓	↓
↓	-14	↓	↓	↓	↓	↓
↓	-15	↓	↓	↓	↓	↓
↓	-16	↓	↓	↓	↓	↓
3/6/13	806669-1	7.0	2mL/100mL	9.5	10:20	TM
↓	-2	↓	↓	↓	↓	↓
3/6/13	806670-1	7.0	2mL/100mL	9.5	10:20	TM
↓	-2	↓	↓	↓	↓	↓
3/6/13	806673	9.5	N/A	N/A	N/A	TM
3/6/13	806696-1	7.0	2mL/100mL	9.5	15:45	TM
↓	↓ -2	↓	2mL/100mL	↓	↓	TM



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806497(1,2)	<1	<2	2/25/13	DC	yes			
806520	>1	<2						
806493(1-5)	>1	<2						
806494(1-5)	>1	<2						
806552	<1	>2	2-27-13	BE	yes	11:00		
806553(1-4)		<2						
806554(1-4)								
806555(1,4-7)								
806542(1-3)		>2			no	12:00	2/28/13 2:15:35	
806545								
806537	<1	<2		DC	yes			
806565	<1	>2			yes	14:00	2/28/13 2:15:30	
806562(1-14)	<1	>2	2/28/13	ES	no	9:30	3/1/13 2:16:00	pH < 2
806567(10-12)								
806570(1-2)	>1	<2			yes			
806572(1-2)	>1	<2			yes			
806586(1,2)	<1	>2		DC	yes	15:30		
806617	>1	<2	3/4/13	DC	yes			
806632(1-12)	<1		3-5-13	BE				
806633(1-12)								
806634(1,3-6)								
806635(1-5,8-14)								
806620(1-2,4)	<1	>2	3/5/13	ES	no	12:00		
806627(16,23)								
806625		<2			yes			
806626								
806688(1-2,5,14-16)	<1	<2	3-6-13	BE	yes			
806669(1-2)		>2						Lab Filter Acidified
806670(1-2)								
806679(1-5)		<2						
806643	>1	<2		DC	yes			
806651	<1							
806688	>1	>2				12:30		
806667	<1	>2		BE	no	14:00		
806663(1-3)						15:00		
806694(10-12)								
806682(4-6)								
806650	<1	<2	3/6/13	DC	yes			
806649								
806648								
806647								
806646								
806652								
806671								

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: E2Lab # 806635Date Delivered: 03/04/13 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)? 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 = secc. v. 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. Shabunsky



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 1, 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-190, SURFACEWATER MONITORING
PROJECT, TLI No.: 806668

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-RMP-190 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 March 5, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

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

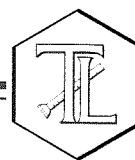
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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Event 2012-RMP-190 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-CON-D-190	2.00	No			
C-CON-S-190	2.00	No			
C-NR1-D-190	2.00	No			
C-NR1-S-190	2.00	No			
C-NR3-D-190	2.00	No			
C-NR3-S-190	2.00	No			
C-NR4-D-190	2.00	No			
C-NR4-S-190	2.00	No			
R-19-190	2.00	No			
R-28-190	2.00	No			
RRB-190	2.00	No			
SW1-190	2.00	No			
SW2-190	2.00	No			



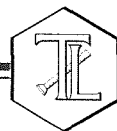
Event 2012-RMP-190 Cr (VI) by EPA 218.6, Surfacewater Samples

Samples field filtered unless otherwise noted

Sample ID	Initial pH	pH adjustment needed?	Amount of additional buffer needed	Final pH	Comments
C-CON-D-190	9.50	No			
C-CON-S-190	9.50	No			
C-MW-82-190	9.50	No			
C-MW-83-190	9.50	No			
C-NR1-D-190	9.50	No			
C-NR1-S-190	9.50	No			
C-NR3-D-190	9.50	No			
C-NR3-S-190	9.50	No			
C-NR4-D-190	9.50	No			
C-NR4-S-190	9.50	No			
R-19-190	9.50	No			
R-28-190	9.50	No			
RMP-AB2-190	9.50	No			
RRB-190	9.50	No			
SW1-190	9.50	No			
SW2-190	9.50	No			

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

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

Laboratory No.: 806668
Date Received: March 5, 2013

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

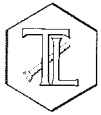
Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806668-001	C-CON-D-190	E120.1	NONE	3/5/2013	9:49	EC	866	umhos/cm	2.00
806668-001	C-CON-D-190	E218.6	FLDFLT	3/5/2013	9:49	Chromium, Hexavalent	ND	ug/L	0.20
806668-001	C-CON-D-190	E300	NONE	3/5/2013	9:49	Nitrate as N	ND	mg/L	0.500
806668-001	C-CON-D-190	SM2320B	NONE	3/5/2013	9:49	Alkalinity	130	mg/L	5.00
806668-001	C-CON-D-190	SM2320B	NONE	3/5/2013	9:49	Alkalinity, Bicarbonate (As CaCO ₃)	130	mg/L	5.00
806668-001	C-CON-D-190	SM2320B	NONE	3/5/2013	9:49	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
806668-001	C-CON-D-190	SM2540D	NONE	3/5/2013	9:49	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806668-001	C-CON-D-190	SM4500HB	NONE	3/5/2013	9:49	PH	8.28 J	pH	4.00
806668-001	C-CON-D-190	SW6010B	FLDFLT	3/5/2013	9:49	Iron	ND	ug/L	20.0
806668-001	C-CON-D-190	SW6010B	NONE	3/5/2013	9:49	Iron	24.5	ug/L	20.0
806668-001	C-CON-D-190	SW6020	FLDFLT	3/5/2013	9:49	Arsenic	2.2	ug/L	0.50
806668-001	C-CON-D-190	SW6020	FLDFLT	3/5/2013	9:49	Chromium	ND	ug/L	1.0
806668-001	C-CON-D-190	SW6020	FLDFLT	3/5/2013	9:49	Manganese	0.74	ug/L	0.50
806668-001	C-CON-D-190	SW6020	FLDFLT	3/5/2013	9:49	Molybdenum	4.1	ug/L	2.0
806668-001	C-CON-D-190	SW6020	FLDFLT	3/5/2013	9:49	Selenium	ND	ug/L	5.0
806668-002	C-CON-S-190	E120.1	NONE	3/5/2013	10:06	EC	865	umhos/cm	2.00
806668-002	C-CON-S-190	E218.6	FLDFLT	3/5/2013	10:06	Chromium, Hexavalent	ND	ug/L	0.20
806668-002	C-CON-S-190	E300	NONE	3/5/2013	10:06	Nitrate as N	ND	mg/L	0.500
806668-002	C-CON-S-190	SM2320B	NONE	3/5/2013	10:06	Alkalinity	124	mg/L	5.00
806668-002	C-CON-S-190	SM2320B	NONE	3/5/2013	10:06	Alkalinity, Bicarbonate (As CaCO ₃)	124	mg/L	5.00
806668-002	C-CON-S-190	SM2320B	NONE	3/5/2013	10:06	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
806668-002	C-CON-S-190	SM2540D	NONE	3/5/2013	10:06	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806668-002	C-CON-S-190	SM4500HB	NONE	3/5/2013	10:06	PH	8.29 J	pH	4.00
806668-002	C-CON-S-190	SW6010B	FLDFLT	3/5/2013	10:06	Iron	ND	ug/L	20.0
806668-002	C-CON-S-190	SW6010B	NONE	3/5/2013	10:06	Iron	ND	ug/L	20.0
806668-002	C-CON-S-190	SW6020	FLDFLT	3/5/2013	10:06	Arsenic	2.1	ug/L	0.50
806668-002	C-CON-S-190	SW6020	FLDFLT	3/5/2013	10:06	Chromium	ND	ug/L	1.0
806668-002	C-CON-S-190	SW6020	FLDFLT	3/5/2013	10:06	Manganese	0.58	ug/L	0.50
806668-002	C-CON-S-190	SW6020	FLDFLT	3/5/2013	10:06	Molybdenum	4.2	ug/L	2.0
806668-002	C-CON-S-190	SW6020	FLDFLT	3/5/2013	10:06	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
806668-003	C-MW-82-190	E218.6	LABFLT	3/5/2013	8:30	Chromium, Hexavalent	ND	ug/L	0.20
806668-004	C-MW-83-190	E218.6	LABFLT	3/5/2013	9:17	Chromium, Hexavalent	ND	ug/L	0.20
806668-005	C-NR1-D-190	E120.1	NONE	3/5/2013	10:47	EC	867	umhos/cm	2.00
806668-005	C-NR1-D-190	E218.6	FLDFLT	3/5/2013	10:47	Chromium, Hexavalent	ND	ug/L	0.20
806668-005	C-NR1-D-190	E300	NONE	3/5/2013	10:47	Nitrate as N	ND	mg/L	0.500
806668-005	C-NR1-D-190	SM2320B	NONE	3/5/2013	10:47	Alkalinity	127	mg/L	5.00
806668-005	C-NR1-D-190	SM2320B	NONE	3/5/2013	10:47	Alkalinity, Bicarbonate (As CaCO3)	127	mg/L	5.00
806668-005	C-NR1-D-190	SM2320B	NONE	3/5/2013	10:47	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806668-005	C-NR1-D-190	SM2540D	NONE	3/5/2013	10:47	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806668-005	C-NR1-D-190	SM4500HB	NONE	3/5/2013	10:47	PH	8.25	pH	4.00
806668-005	C-NR1-D-190	SW6010B	FLDFLT	3/5/2013	10:47	Iron	ND	ug/L	20.0
806668-005	C-NR1-D-190	SW6010B	NONE	3/5/2013	10:47	Iron	ND	ug/L	20.0
806668-005	C-NR1-D-190	SW6020	FLDFLT	3/5/2013	10:47	Arsenic	2.3	ug/L	0.50
806668-005	C-NR1-D-190	SW6020	FLDFLT	3/5/2013	10:47	Chromium	ND	ug/L	1.0
806668-005	C-NR1-D-190	SW6020	FLDFLT	3/5/2013	10:47	Manganese	0.57	ug/L	0.50
806668-005	C-NR1-D-190	SW6020	FLDFLT	3/5/2013	10:47	Molybdenum	4.2	ug/L	2.0
806668-005	C-NR1-D-190	SW6020	FLDFLT	3/5/2013	10:47	Selenium	ND	ug/L	5.0
806668-006	C-NR1-S-190	E120.1	NONE	3/5/2013	11:01	EC	872	umhos/cm	2.00
806668-006	C-NR1-S-190	E218.6	FLDFLT	3/5/2013	11:01	Chromium, Hexavalent	ND	ug/L	0.20
806668-006	C-NR1-S-190	E300	NONE	3/5/2013	11:01	Nitrate as N	ND	mg/L	0.500
806668-006	C-NR1-S-190	SM2320B	NONE	3/5/2013	11:01	Alkalinity	124	mg/L	5.00
806668-006	C-NR1-S-190	SM2320B	NONE	3/5/2013	11:01	Alkalinity, Bicarbonate (As CaCO3)	124	mg/L	5.00
806668-006	C-NR1-S-190	SM2320B	NONE	3/5/2013	11:01	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806668-006	C-NR1-S-190	SM2540D	NONE	3/5/2013	11:01	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806668-006	C-NR1-S-190	SM4500HB	NONE	3/5/2013	11:01	PH	8.26	pH	4.00
806668-006	C-NR1-S-190	SW6010B	FLDFLT	3/5/2013	11:01	Iron	ND	ug/L	20.0
806668-006	C-NR1-S-190	SW6010B	NONE	3/5/2013	11:01	Iron	ND	ug/L	20.0
806668-006	C-NR1-S-190	SW6020	FLDFLT	3/5/2013	11:01	Arsenic	2.2	ug/L	0.50
806668-006	C-NR1-S-190	SW6020	FLDFLT	3/5/2013	11:01	Chromium	ND	ug/L	1.0
806668-006	C-NR1-S-190	SW6020	FLDFLT	3/5/2013	11:01	Manganese	0.56	ug/L	0.50
806668-006	C-NR1-S-190	SW6020	FLDFLT	3/5/2013	11:01	Molybdenum	4.1	ug/L	2.0
806668-006	C-NR1-S-190	SW6020	FLDFLT	3/5/2013	11:01	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806668-007	C-NR3-D-190	E120.1	NONE	3/5/2013	11:35	EC	875	umhos/cm	2.00
806668-007	C-NR3-D-190	E218.6	FLDFLT	3/5/2013	11:35	Chromium, Hexavalent	ND	ug/L	0.20
806668-007	C-NR3-D-190	E300	NONE	3/5/2013	11:35	Nitrate as N	ND	mg/L	0.500
806668-007	C-NR3-D-190	SM2320B	NONE	3/5/2013	11:35	Alkalinity	126	mg/L	5.00
806668-007	C-NR3-D-190	SM2320B	NONE	3/5/2013	11:35	Alkalinity, Bicarbonate (As CaCO3)	126	mg/L	5.00
806668-007	C-NR3-D-190	SM2320B	NONE	3/5/2013	11:35	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806668-007	C-NR3-D-190	SM2540D	NONE	3/5/2013	11:35	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806668-007	C-NR3-D-190	SM4500HB	NONE	3/5/2013	11:35	PH	8.24	pH	4.00
806668-007	C-NR3-D-190	SW6010B	FLDFLT	3/5/2013	11:35	Iron	ND	ug/L	20.0
806668-007	C-NR3-D-190	SW6010B	NONE	3/5/2013	11:35	Iron	21.7	ug/L	20.0
806668-007	C-NR3-D-190	SW6020	FLDFLT	3/5/2013	11:35	Arsenic	2.1	ug/L	0.50
806668-007	C-NR3-D-190	SW6020	FLDFLT	3/5/2013	11:35	Chromium	ND	ug/L	1.0
806668-007	C-NR3-D-190	SW6020	FLDFLT	3/5/2013	11:35	Manganese	0.53	ug/L	0.50
806668-007	C-NR3-D-190	SW6020	FLDFLT	3/5/2013	11:35	Molybdenum	4.2	ug/L	2.0
806668-007	C-NR3-D-190	SW6020	FLDFLT	3/5/2013	11:35	Selenium	ND	ug/L	5.0
806668-008	C-NR3-S-190	E120.1	NONE	3/5/2013	11:48	EC	875	umhos/cm	2.00
806668-008	C-NR3-S-190	E218.6	FLDFLT	3/5/2013	11:48	Chromium, Hexavalent	ND	ug/L	0.20
806668-008	C-NR3-S-190	E300	NONE	3/5/2013	11:48	Nitrate as N	ND	mg/L	0.500
806668-008	C-NR3-S-190	SM2320B	NONE	3/5/2013	11:48	Alkalinity	123	mg/L	5.00
806668-008	C-NR3-S-190	SM2320B	NONE	3/5/2013	11:48	Alkalinity, Bicarbonate (As CaCO3)	123	mg/L	5.00
806668-008	C-NR3-S-190	SM2320B	NONE	3/5/2013	11:48	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806668-008	C-NR3-S-190	SM2540D	NONE	3/5/2013	11:48	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806668-008	C-NR3-S-190	SM4500HB	NONE	3/5/2013	11:48	PH	8.24	pH	4.00
806668-008	C-NR3-S-190	SW6010B	FLDFLT	3/5/2013	11:48	Iron	ND	ug/L	20.0
806668-008	C-NR3-S-190	SW6010B	NONE	3/5/2013	11:48	Iron	ND	ug/L	20.0
806668-008	C-NR3-S-190	SW6020	FLDFLT	3/5/2013	11:48	Arsenic	2.2	ug/L	0.50
806668-008	C-NR3-S-190	SW6020	FLDFLT	3/5/2013	11:48	Chromium	ND	ug/L	1.0
806668-008	C-NR3-S-190	SW6020	FLDFLT	3/5/2013	11:48	Manganese	0.54	ug/L	0.50
806668-008	C-NR3-S-190	SW6020	FLDFLT	3/5/2013	11:48	Molybdenum	3.9	ug/L	2.0
806668-008	C-NR3-S-190	SW6020	FLDFLT	3/5/2013	11:48	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806668-009	C-NR4-D-190	E120.1	NONE	3/5/2013	12:15	EC	876	umhos/cm	2.00
806668-009	C-NR4-D-190	E218.6	FLDFLT	3/5/2013	12:15	Chromium, Hexavalent	ND	ug/L	0.20
806668-009	C-NR4-D-190	E300	NONE	3/5/2013	12:15	Nitrate as N	ND	mg/L	0.500
806668-009	C-NR4-D-190	SM2320B	NONE	3/5/2013	12:15	Alkalinity	123	mg/L	5.00
806668-009	C-NR4-D-190	SM2320B	NONE	3/5/2013	12:15	Alkalinity, Bicarbonate (As CaCO3)	123	mg/L	5.00
806668-009	C-NR4-D-190	SM2320B	NONE	3/5/2013	12:15	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806668-009	C-NR4-D-190	SM2540D	NONE	3/5/2013	12:15	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806668-009	C-NR4-D-190	SM4500HB	NONE	3/5/2013	12:15	PH	8.24	pH	4.00
806668-009	C-NR4-D-190	SW6010B	FLDFLT	3/5/2013	12:15	Iron	ND	ug/L	20.0
806668-009	C-NR4-D-190	SW6010B	NONE	3/5/2013	12:15	Iron	22.4	ug/L	20.0
806668-009	C-NR4-D-190	SW6020	FLDFLT	3/5/2013	12:15	Arsenic	2.2	ug/L	0.50
806668-009	C-NR4-D-190	SW6020	FLDFLT	3/5/2013	12:15	Chromium	ND	ug/L	1.0
806668-009	C-NR4-D-190	SW6020	FLDFLT	3/5/2013	12:15	Manganese	0.56	ug/L	0.50
806668-009	C-NR4-D-190	SW6020	FLDFLT	3/5/2013	12:15	Molybdenum	4.2	ug/L	2.0
806668-009	C-NR4-D-190	SW6020	FLDFLT	3/5/2013	12:15	Selenium	ND	ug/L	5.0
806668-010	C-NR4-S-190	E120.1	NONE	3/5/2013	12:32	EC	871	umhos/cm	2.00
806668-010	C-NR4-S-190	E218.6	FLDFLT	3/5/2013	12:32	Chromium, Hexavalent	ND	ug/L	0.20
806668-010	C-NR4-S-190	E300	NONE	3/5/2013	12:32	Nitrate as N	ND	mg/L	0.500
806668-010	C-NR4-S-190	SM2320B	NONE	3/5/2013	12:32	Alkalinity	125	mg/L	5.00
806668-010	C-NR4-S-190	SM2320B	NONE	3/5/2013	12:32	Alkalinity, Bicarbonate (As CaCO3)	125	mg/L	5.00
806668-010	C-NR4-S-190	SM2320B	NONE	3/5/2013	12:32	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806668-010	C-NR4-S-190	SM2540D	NONE	3/5/2013	12:32	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806668-010	C-NR4-S-190	SM4500HB	NONE	3/5/2013	12:32	PH	8.2	pH	4.00
806668-010	C-NR4-S-190	SW6010B	FLDFLT	3/5/2013	12:32	Iron	ND	ug/L	20.0
806668-010	C-NR4-S-190	SW6010B	NONE	3/5/2013	12:32	Iron	ND	ug/L	20.0
806668-010	C-NR4-S-190	SW6020	FLDFLT	3/5/2013	12:32	Arsenic	2.2	ug/L	0.50
806668-010	C-NR4-S-190	SW6020	FLDFLT	3/5/2013	12:32	Chromium	ND	ug/L	1.0
806668-010	C-NR4-S-190	SW6020	FLDFLT	3/5/2013	12:32	Manganese	0.52	ug/L	0.50
806668-010	C-NR4-S-190	SW6020	FLDFLT	3/5/2013	12:32	Molybdenum	4.2	ug/L	2.0
806668-010	C-NR4-S-190	SW6020	FLDFLT	3/5/2013	12:32	Selenium	ND	ug/L	5.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806668-011	R-19-190	E120.1	NONE	3/5/2013	8:54	EC	873	umhos/cm	2.00
806668-011	R-19-190	E218.6	FLDFLT	3/5/2013	8:54	Chromium, Hexavalent	ND	ug/L	0.20
806668-011	R-19-190	E300	NONE	3/5/2013	8:54	Nitrate as N	ND	mg/L	0.500
806668-011	R-19-190	SM2320B	NONE	3/5/2013	8:54	Alkalinity	121	mg/L	5.00
806668-011	R-19-190	SM2320B	NONE	3/5/2013	8:54	Alkalinity, Bicarbonate (As CaCO ₃)	121	mg/L	5.00
806668-011	R-19-190	SM2320B	NONE	3/5/2013	8:54	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
806668-011	R-19-190	SM2540D	NONE	3/5/2013	8:54	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806668-011	R-19-190	SM4500HB	NONE	3/5/2013	8:54	PH	8.30 J	pH	4.00
806668-011	R-19-190	SW6010B	FLDFLT	3/5/2013	8:54	Iron	ND	ug/L	20.0
806668-011	R-19-190	SW6010B	NONE	3/5/2013	8:54	Iron	ND	ug/L	20.0
806668-011	R-19-190	SW6020	FLDFLT	3/5/2013	8:54	Arsenic	2.3	ug/L	0.50
806668-011	R-19-190	SW6020	FLDFLT	3/5/2013	8:54	Chromium	ND	ug/L	1.0
806668-011	R-19-190	SW6020	FLDFLT	3/5/2013	8:54	Manganese	0.64	ug/L	0.50
806668-011	R-19-190	SW6020	FLDFLT	3/5/2013	8:54	Molybdenum	4.2	ug/L	2.0
806668-011	R-19-190	SW6020	FLDFLT	3/5/2013	8:54	Selenium	ND	ug/L	5.0
806668-012	R-28-190	E120.1	NONE	3/5/2013	8:41	EC	874	umhos/cm	2.00
806668-012	R-28-190	E218.6	FLDFLT	3/5/2013	8:41	Chromium, Hexavalent	ND	ug/L	0.20
806668-012	R-28-190	E300	NONE	3/5/2013	8:41	Nitrate as N	ND	mg/L	0.500
806668-012	R-28-190	SM2320B	NONE	3/5/2013	8:41	Alkalinity	122	mg/L	5.00
806668-012	R-28-190	SM2320B	NONE	3/5/2013	8:41	Alkalinity, Bicarbonate (As CaCO ₃)	122	mg/L	5.00
806668-012	R-28-190	SM2320B	NONE	3/5/2013	8:41	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
806668-012	R-28-190	SM2540D	NONE	3/5/2013	8:41	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806668-012	R-28-190	SM4500HB	NONE	3/5/2013	8:41	PH	8.33 J	pH	4.00
806668-012	R-28-190	SW6010B	FLDFLT	3/5/2013	8:41	Iron	ND	ug/L	20.0
806668-012	R-28-190	SW6010B	NONE	3/5/2013	8:41	Iron	ND	ug/L	20.0
806668-012	R-28-190	SW6020	FLDFLT	3/5/2013	8:41	Arsenic	2.1	ug/L	0.50
806668-012	R-28-190	SW6020	FLDFLT	3/5/2013	8:41	Chromium	ND	ug/L	1.0
806668-012	R-28-190	SW6020	FLDFLT	3/5/2013	8:41	Manganese	0.62	ug/L	0.50
806668-012	R-28-190	SW6020	FLDFLT	3/5/2013	8:41	Molybdenum	4.2	ug/L	2.0
806668-012	R-28-190	SW6020	FLDFLT	3/5/2013	8:41	Selenium	ND	ug/L	5.0
806668-013	RMP-AB2-190	E218.6	LABFLT	3/5/2013	12:40	Chromium, Hexavalent	ND	ug/L	0.20



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806668-014	RRB-190	E120.1	NONE	3/5/2013	9:13	EC	876	umhos/cm	2.00
806668-014	RRB-190	E218.6	FLDFLT	3/5/2013	9:13	Chromium, Hexavalent	ND	ug/L	0.20
806668-014	RRB-190	E300	NONE	3/5/2013	9:13	Nitrate as N	ND	mg/L	0.500
806668-014	RRB-190	SM2320B	NONE	3/5/2013	9:13	Alkalinity	128	mg/L	5.00
806668-014	RRB-190	SM2320B	NONE	3/5/2013	9:13	Alkalinity, Bicarbonate (As CaCO ₃)	128	mg/L	5.00
806668-014	RRB-190	SM2320B	NONE	3/5/2013	9:13	Alkalinity, Carbonate (As CaCO ₃)	ND	mg/L	5.00
806668-014	RRB-190	SM2540D	NONE	3/5/2013	9:13	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
806668-014	RRB-190	SM4500HB	NONE	3/5/2013	9:13	PH	8.23 J	pH	4.00
806668-014	RRB-190	SW6010B	FLDFLT	3/5/2013	9:13	Iron	ND	ug/L	20.0
806668-014	RRB-190	SW6010B	NONE	3/5/2013	9:13	Iron	76.8	ug/L	20.0
806668-014	RRB-190	SW6020	FLDFLT	3/5/2013	9:13	Arsenic	2.2	ug/L	0.50
806668-014	RRB-190	SW6020	FLDFLT	3/5/2013	9:13	Chromium	ND	ug/L	1.0
806668-014	RRB-190	SW6020	FLDFLT	3/5/2013	9:13	Manganese	4.1	ug/L	0.50
806668-014	RRB-190	SW6020	FLDFLT	3/5/2013	9:13	Molybdenum	4.4	ug/L	2.0
806668-014	RRB-190	SW6020	FLDFLT	3/5/2013	9:13	Selenium	ND	ug/L	5.0
806668-015	SW1-190	E120.1	NONE	3/5/2013	7:15	EC	920	umhos/cm	2.00
806668-015	SW1-190	E218.6	FLDFLT	3/5/2013	7:15	Chromium, Hexavalent	ND	ug/L	0.20
806668-015	SW1-190	SM4500HB	NONE	3/5/2013	7:15	PH	7.50 J	pH	4.00
806668-015	SW1-190	SW6020	FLDFLT	3/5/2013	7:15	Chromium	ND	ug/L	1.0
806668-016	SW2-190	E120.1	NONE	3/5/2013	7:31	EC	891	umhos/cm	2.00
806668-016	SW2-190	E218.6	FLDFLT	3/5/2013	7:31	Chromium, Hexavalent	ND	ug/L	0.20
806668-016	SW2-190	SM4500HB	NONE	3/5/2013	7:31	PH	7.57 J	pH	4.00
806668-016	SW2-190	SW6020	FLDFLT	3/5/2013	7:31	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:

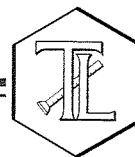
Results below 0.01ppm will have two (2) significant figures.

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.02.RM

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

Release Number:

Laboratory No. 806668

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Printed 3/20/2013

Samples Received on 3/5/2013 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
C-CON-D-190	806668-001	03/05/2013 09:49	Water
C-CON-S-190	806668-002	03/05/2013 10:06	Water
C-MW-82-190	806668-003	03/05/2013 08:30	Water
C-MW-83-190	806668-004	03/05/2013 09:17	Water
C-NR1-D-190	806668-005	03/05/2013 10:47	Water
C-NR1-S-190	806668-006	03/05/2013 11:01	Water
C-NR3-D-190	806668-007	03/05/2013 11:35	Water
C-NR3-S-190	806668-008	03/05/2013 11:48	Water
C-NR4-D-190	806668-009	03/05/2013 12:15	Water
C-NR4-S-190	806668-010	03/05/2013 12:32	Water
R-19-190	806668-011	03/05/2013 08:54	Water
R-28-190	806668-012	03/05/2013 08:41	Water
RMP-AB2-190	806668-013	03/05/2013 12:40	Water
RRB-190	806668-014	03/05/2013 09:13	Water
SW1-190	806668-015	03/05/2013 07:15	Water
SW2-190	806668-016	03/05/2013 07:31	Water

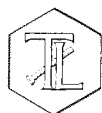
Anions By I.C. - EPA 300.0

Batch 03AN13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-001 Nitrate as Nitrogen	mg/L	03/06/2013 14:01	1.00	0.00830	0.500	ND
806668-002 Nitrate as Nitrogen	mg/L	03/06/2013 14:14	1.00	0.00830	0.500	ND
806668-005 Nitrate as Nitrogen	mg/L	03/06/2013 14:25	1.00	0.00830	0.500	ND
806668-006 Nitrate as Nitrogen	mg/L	03/06/2013 14:37	1.00	0.00830	0.500	ND
806668-007 Nitrate as Nitrogen	mg/L	03/06/2013 14:48	1.00	0.00830	0.500	ND
806668-008 Nitrate as Nitrogen	mg/L	03/06/2013 14:59	1.00	0.00830	0.500	ND
806668-009 Nitrate as Nitrogen	mg/L	03/06/2013 15:11	1.00	0.00830	0.500	ND
806668-010 Nitrate as Nitrogen	mg/L	03/06/2013 15:22	1.00	0.00830	0.500	ND
806668-011 Nitrate as Nitrogen	mg/L	03/06/2013 15:34	1.00	0.00830	0.500	ND
806668-012 Nitrate as Nitrogen	mg/L	03/06/2013 15:45	1.00	0.00830	0.500	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.

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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

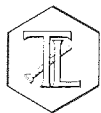
Printed 3/20/2013

806668-014 Nitrate as Nitrogen	mg/L	03/06/2013 16:31	1.00	0.00830	0.500	ND
Method Blank						
Parameter	Unit	DF	Result			
Fluoride	mg/L	1.00	ND			
Sulfate	mg/L	1.00	ND			
Nitrate as Nitrogen	mg/L	1.00	ND			
Duplicate						Lab ID = 806670-001
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sulfate	mg/L	100	546	550	0.689	0 - 20
Duplicate						Lab ID = 806670-002
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.74	2.51	8.65	0 - 20
Nitrate as Nitrogen	mg/L	5.00	3.16	3.34	5.44	0 - 20
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	4.16	4.00	104	90 - 110
Sulfate	mg/L	1.00	20.6	20.0	103	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.07	4.00	102	90 - 110
Matrix Spike						Lab ID = 806670-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sulfate	mg/L	100	1060	1050(500)	102	85 - 115
Matrix Spike						Lab ID = 806670-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	23.6	22.5(20.0)	106	85 - 115
Nitrate as Nitrogen	mg/L	5.00	22.8	23.3(20.0)	97.2	85 - 115
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	4.15	4.00	104	90 - 110
Sulfate	mg/L	1.00	20.6	20.0	103	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.06	4.00	102	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.20	3.00	107	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.19	3.00	106	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 4 of 29****Project Number: 423575.MP.02.RM****Printed 3/20/2013****Alkalinity by SM 2320B**

Batch 03ALK13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-001 Alkalinity as CaCO ₃	mg/L	03/06/2013	1.00	0.555	5.00	130
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	130
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND
806668-002 Alkalinity as CaCO ₃	mg/L	03/06/2013	1.00	0.555	5.00	124
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	124
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND
806668-005 Alkalinity as CaCO ₃	mg/L	03/06/2013	1.00	0.555	5.00	127
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	127
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND
806668-006 Alkalinity as CaCO ₃	mg/L	03/06/2013	1.00	0.555	5.00	124
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	124
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND
806668-007 Alkalinity as CaCO ₃	mg/L	03/06/2013	1.00	0.555	5.00	126
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	126
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND
806668-008 Alkalinity as CaCO ₃	mg/L	03/06/2013	1.00	0.555	5.00	123
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	123
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND
806668-009 Alkalinity as CaCO ₃	mg/L	03/06/2013	1.00	0.555	5.00	123
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	123
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND
806668-010 Alkalinity as CaCO ₃	mg/L	03/06/2013	1.00	0.555	5.00	125
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	125
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND
806668-011 Alkalinity as CaCO ₃	mg/L	03/06/2013	1.00	0.555	5.00	121
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	121
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND
806668-012 Alkalinity as CaCO ₃	mg/L	03/06/2013	1.00	0.555	5.00	122
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	122
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND
806668-014 Alkalinity as CaCO ₃	mg/L	03/06/2013	1.00	0.555	5.00	128
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	128
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND

*Report Continued***Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 5 of 29****Project Number: 423575.MP.02.RM****Printed 3/20/2013****Method Blank**

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

Duplicate

Lab ID = 806668-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	126	126	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	99.0	100	99.0	90 - 110

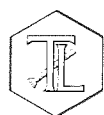
Lab Control Sample Duplicate

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

Matrix Spike

Lab ID = 806670-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO ₃	mg/L	1.00	246	243(100)	103	75 - 125



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.RM

Printed 3/20/2013

Specific Conductivity - EPA 120.1

Batch 03EC13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-001 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	866
806668-002 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	865
806668-005 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	867
806668-006 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	872
806668-007 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	875
806668-008 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	875
806668-009 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	876
806668-010 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	871
806668-011 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	873
806668-012 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	874
806668-014 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	876
806668-015 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	920
806668-016 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	891

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 806668-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	874	874	0	0 - 10

Duplicate

Lab ID = 806670-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7440	7440	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	710	706	100	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	707	706	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 3/20/2013

Metals by EPA 6010B, Total

Batch 031313A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-001 Iron	ug/L	03/13/2013 15:29	1.00	9.50	20.0	24.5
806668-002 Iron	ug/L	03/13/2013 15:54	1.00	9.50	20.0	ND
806668-005 Iron	ug/L	03/13/2013 16:00	1.00	9.50	20.0	ND
806668-006 Iron	ug/L	03/13/2013 16:06	1.00	9.50	20.0	ND
806668-007 Iron	ug/L	03/13/2013 16:13	1.00	9.50	20.0	21.7
806668-008 Iron	ug/L	03/13/2013 16:37	1.00	9.50	20.0	ND
806668-009 Iron	ug/L	03/13/2013 16:44	1.00	9.50	20.0	22.4
806668-010 Iron	ug/L	03/13/2013 16:50	1.00	9.50	20.0	ND
806668-011 Iron	ug/L	03/13/2013 16:56	1.00	9.50	20.0	ND
806668-012 Iron	ug/L	03/13/2013 17:02	1.00	9.50	20.0	ND
806668-014 Iron	ug/L	03/13/2013 17:09	1.00	9.50	20.0	76.8

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	27.0	24.5	9.71	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	53.5	50.0	107	85 - 115

Matrix Spike

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	74.9	74.5(50.0)	101	75 - 125

Matrix Spike Duplicate

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	75.5	74.5(50.0)	102	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5080	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4970	5000	99.4	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.RM

Printed 3/20/2013

Chrome VI by EPA 218.6

Batch 03CrH13K

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-001 Chromium, Hexavalent	ug/L	03/14/2013 08:15	1.00	0.00920	0.20	ND
806668-002 Chromium, Hexavalent	ug/L	03/14/2013 08:26	1.00	0.00920	0.20	ND
806668-003 Chromium, Hexavalent	ug/L	03/14/2013 08:36	1.00	0.00920	0.20	ND
806668-004 Chromium, Hexavalent	ug/L	03/14/2013 08:47	1.00	0.00920	0.20	ND
806668-005 Chromium, Hexavalent	ug/L	03/14/2013 08:57	1.00	0.00920	0.20	ND
806668-006 Chromium, Hexavalent	ug/L	03/14/2013 09:07	1.00	0.00920	0.20	ND
806668-007 Chromium, Hexavalent	ug/L	03/14/2013 09:18	1.00	0.00920	0.20	ND
806668-008 Chromium, Hexavalent	ug/L	03/14/2013 09:59	1.00	0.00920	0.20	ND
806668-009 Chromium, Hexavalent	ug/L	03/14/2013 10:10	1.00	0.00920	0.20	ND
806668-010 Chromium, Hexavalent	ug/L	03/14/2013 10:20	1.00	0.00920	0.20	ND
806668-011 Chromium, Hexavalent	ug/L	03/14/2013 10:31	1.00	0.00920	0.20	ND
806668-012 Chromium, Hexavalent	ug/L	03/14/2013 10:41	1.00	0.00920	0.20	ND
806668-013 Chromium, Hexavalent	ug/L	03/14/2013 10:51	1.00	0.00920	0.20	ND
806668-014 Chromium, Hexavalent	ug/L	03/14/2013 11:02	1.00	0.00920	0.20	ND
806668-015 Chromium, Hexavalent	ug/L	03/14/2013 11:12	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate

Lab ID = 806668-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0336	0.0390	14.9	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.203	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 = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.04(1.00)	99.7	90 - 110

Matrix Spike

Lab ID = 806668-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.998	1.04(1.00)	96.0	90 - 110



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Project Name: PG&E Topock Project

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Matrix Spike						Lab ID = 806668-003
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 = 806668-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.964	1.00(1.00)	96.4	90 - 110
Matrix Spike						Lab ID = 806668-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.986	1.03(1.00)	95.5	90 - 110
Matrix Spike						Lab ID = 806668-006
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.03(1.00)	97.2	90 - 110
Matrix Spike						Lab ID = 806668-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.973	1.03(1.00)	94.0	90 - 110
Matrix Spike						Lab ID = 806668-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.03(1.00)	96.7	90 - 110
Matrix Spike						Lab ID = 806668-009
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.978	1.03(1.00)	94.5	90 - 110
Matrix Spike						Lab ID = 806668-010
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.07	1.03(1.00)	104	90 - 110
Matrix Spike						Lab ID = 806668-011
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.990	1.03(1.00)	95.7	90 - 110
Matrix Spike						Lab ID = 806668-012
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.11	1.03(1.00)	108	90 - 110
Matrix Spike						Lab ID = 806668-013
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.959	1.00(1.00)	95.9	90 - 110
Matrix Spike						Lab ID = 806668-014
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.988	1.03(1.00)	95.9	90 - 110



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Matrix Spike

Lab ID = 806668-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.961	1.01(1.00)	94.7	90 - 110

Matrix Spike

Lab ID = 806826-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.08(1.00)	96.1	90 - 110

Matrix Spike

Lab ID = 806826-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.80	5.11(5.00)	93.8	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.97	5.00	99.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.94	10.0	99.4	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	10.1	10.0	101	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



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Project Name: PG&E Topock Project

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Chrome VI by EPA 218.6

Batch 03CrH13L

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-016 Chromium, Hexavalent	ug/L	03/18/2013 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 = 806909-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	100	1740	1740	0.142	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.02	5.00	100	90 - 110

Matrix Spike

Lab ID = 806668-016

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.02(1.00)	99.2	90 - 110

Matrix Spike

Lab ID = 806909-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	280	282(150)	99.0	90 - 110

Matrix Spike

Lab ID = 806909-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	286	285(150)	100	90 - 110

Matrix Spike

Lab ID = 806909-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	6360	6370(3750)	99.6	90 - 110

Matrix Spike

Lab ID = 806909-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	3710	3740(2000)	98.3	90 - 110

Matrix Spike

Lab ID = 806909-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	3720	3680(2000)	102	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 16 of 29****Project Number: 423575.MP.02.RM****Printed 3/20/2013****Metals by EPA 6020A, Dissolved**

Batch 030813B-ICPMS-1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-001 Arsenic	ug/L	03/08/2013 19:45	2.00	0.200	0.50	2.2
Chromium	ug/L	03/08/2013 19:45	2.00	0.184	1.0	ND
Manganese	ug/L	03/08/2013 19:45	2.00	0.172	0.50	0.74
Molybdenum	ug/L	03/08/2013 19:45	2.00	0.414	2.0	4.1
806668-002 Arsenic	ug/L	03/08/2013 20:57	2.00	0.200	0.50	2.1
Chromium	ug/L	03/08/2013 20:57	2.00	0.184	1.0	ND
Manganese	ug/L	03/08/2013 20:57	2.00	0.172	0.50	0.58
Molybdenum	ug/L	03/08/2013 20:57	2.00	0.414	2.0	4.2
806668-005 Arsenic	ug/L	03/08/2013 21:04	2.00	0.200	0.50	2.3
Chromium	ug/L	03/08/2013 21:04	2.00	0.184	1.0	ND
Manganese	ug/L	03/08/2013 21:04	2.00	0.172	0.50	0.57
Molybdenum	ug/L	03/08/2013 21:04	2.00	0.414	2.0	4.2
806668-006 Arsenic	ug/L	03/08/2013 21:11	2.00	0.200	0.50	2.2
Chromium	ug/L	03/08/2013 21:11	2.00	0.184	1.0	ND
Manganese	ug/L	03/08/2013 21:11	2.00	0.172	0.50	0.56
Molybdenum	ug/L	03/08/2013 21:11	2.00	0.414	2.0	4.1
806668-007 Arsenic	ug/L	03/08/2013 21:18	2.00	0.200	0.50	2.1
Chromium	ug/L	03/08/2013 21:18	2.00	0.184	1.0	ND
Manganese	ug/L	03/08/2013 21:18	2.00	0.172	0.50	0.53
Molybdenum	ug/L	03/08/2013 21:18	2.00	0.414	2.0	4.2
806668-008 Arsenic	ug/L	03/08/2013 21:25	2.00	0.200	0.50	2.2
Chromium	ug/L	03/08/2013 21:25	2.00	0.184	1.0	ND
Manganese	ug/L	03/08/2013 21:25	2.00	0.172	0.50	0.54
Molybdenum	ug/L	03/08/2013 21:25	2.00	0.414	2.0	3.9
806668-009 Arsenic	ug/L	03/08/2013 21:32	2.00	0.200	0.50	2.2
Chromium	ug/L	03/08/2013 21:32	2.00	0.184	1.0	ND
Manganese	ug/L	03/08/2013 21:32	2.00	0.172	0.50	0.56
Molybdenum	ug/L	03/08/2013 21:32	2.00	0.414	2.0	4.2
806668-010 Arsenic	ug/L	03/08/2013 21:39	2.00	0.200	0.50	2.2
Chromium	ug/L	03/08/2013 21:39	2.00	0.184	1.0	ND
806668-011 Arsenic	ug/L	03/08/2013 21:47	2.00	0.200	0.50	2.3
Chromium	ug/L	03/08/2013 21:47	2.00	0.184	1.0	ND
Manganese	ug/L	03/08/2013 21:47	2.00	0.172	0.50	0.64
Molybdenum	ug/L	03/08/2013 21:47	2.00	0.414	2.0	4.2



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Project Name: PG&E Topock Project

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806668-012 Arsenic	ug/L	03/08/2013 21:54	2.00	0.200	0.50	2.1
Chromium	ug/L	03/08/2013 21:54	2.00	0.184	1.0	ND
Manganese	ug/L	03/08/2013 21:54	2.00	0.172	0.50	0.62
Molybdenum	ug/L	03/08/2013 21:54	2.00	0.414	2.0	4.2
806668-014 Arsenic	ug/L	03/08/2013 22:44	2.00	0.200	0.50	2.2
Chromium	ug/L	03/08/2013 22:44	2.00	0.184	1.0	ND
Manganese	ug/L	03/08/2013 22:44	2.00	0.172	0.50	4.1
Molybdenum	ug/L	03/08/2013 22:44	2.00	0.414	2.0	4.4
806668-015 Chromium	ug/L	03/08/2013 22:51	2.00	0.184	1.0	ND
806668-016 Chromium	ug/L	03/08/2013 22:58	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
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Duplicate

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	2.12	2.18	2.65	0 - 20
Chromium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	0.720	0.736	2.14	0 - 20
Molybdenum	ug/L	2.00	4.08	4.13	1.10	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.235	0.200	117	70 - 130
Chromium	ug/L	1.00	0.148	0.200	74.1	70 - 130
Manganese	ug/L	1.00	0.198	0.200	98.9	70 - 130
Molybdenum	ug/L	1.00	0.508	0.500	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.00	45.5	50.0	91.0	85 - 115
Chromium	ug/L	2.00	49.4	50.0	98.9	85 - 115
Manganese	ug/L	2.00	47.7	50.0	95.5	85 - 115
Molybdenum	ug/L	2.00	50.7	50.0	101	85 - 115

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 18 of 29****Project Number: 423575.MP.02.RM****Printed 3/20/2013****Matrix Spike**

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	43.0	52.2(50.0)	81.5	75 - 125
Chromium	ug/L	2.00	44.7	50.0(50.0)	89.5	75 - 125
Manganese	ug/L	2.00	42.7	50.7(50.0)	83.9	75 - 125
Molybdenum	ug/L	2.00	54.2	54.1(50.0)	100	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	18.8	20.0	93.8	90 - 110
Chromium	ug/L	1.00	19.3	20.0	96.4	90 - 110
Manganese	ug/L	1.00	18.3	20.0	91.4	90 - 110
Molybdenum	ug/L	1.00	19.3	20.0	96.6	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.9	20.0	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.9	20.0	94.5	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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	96.9	90 - 110
Manganese	ug/L	1.00	18.7	20.0	93.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	18.6	20.0	92.8	90 - 110


Client: E2 Consulting Engineers, Inc.
Project Name: PG&E Topock Project
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Project Number: 423575.MP.02.RM
Printed 3/20/2013
Metals by EPA 6020A, Dissolved
Batch 031213A-ICPMS-1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-001 Selenium	ug/L	03/12/2013 14:57	2.00	0.160	5.0	ND
806668-002 Selenium	ug/L	03/12/2013 16:01	2.00	0.160	5.0	ND
806668-005 Selenium	ug/L	03/12/2013 16:09	2.00	0.160	5.0	ND
806668-006 Selenium	ug/L	03/12/2013 16:16	2.00	0.160	5.0	ND
806668-007 Selenium	ug/L	03/12/2013 16:23	2.00	0.160	5.0	ND
806668-008 Selenium	ug/L	03/12/2013 16:30	2.00	0.160	5.0	ND
806668-009 Selenium	ug/L	03/12/2013 16:37	2.00	0.160	5.0	ND
806668-010 Selenium	ug/L	03/12/2013 16:44	2.00	0.160	5.0	ND
806668-011 Selenium	ug/L	03/12/2013 16:52	2.00	0.160	5.0	ND
806668-012 Selenium	ug/L	03/12/2013 16:59	2.00	0.160	5.0	ND
806668-014 Selenium	ug/L	03/12/2013 17:06	2.00	0.160	5.0	ND

Method Blank

Parameter	Unit	DF	Result
Selenium	ug/L	1.00	ND

Duplicate
Lab ID = 806668-001

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	0.208	0.200	104	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	2.00	44.2	50.0	88.5	85 - 115

Matrix Spike
Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium	ug/L	2.00	40.9	50.0(50.0)	81.9	75 - 125

Matrix Spike Duplicate
Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium	ug/L	2.00	41.8	50.0(50.0)	83.6	75 - 125

MRCCS - Secondary

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



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Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.RM

Printed 3/20/2013

Metals by EPA 6020A, Dissolved

Batch 031513A-ICPMS-1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-010 Manganese	ug/L	03/15/2013 13:57	2.00	0.172	0.50	0.52
Molybdenum	ug/L	03/15/2013 13:57	2.00	0.414	2.0	4.2

Method Blank

Parameter	Unit	DF	Result
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Duplicate

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	2.00	0.653	0.648	0.738	0 - 20
Molybdenum	ug/L	2.00	4.78	5.44	12.8	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	0.209	0.200	105	70 - 130
Molybdenum	ug/L	1.00	0.525	0.500	105	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	2.00	50.2	50.0	100	85 - 115
Molybdenum	ug/L	2.00	48.0	50.0	95.9	85 - 115

Matrix Spike

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	47.9	50.6(50.0)	94.5	75 - 125
Molybdenum	ug/L	2.00	53.1	55.4(50.0)	95.4	75 - 125

Matrix Spike Duplicate

Lab ID = 806668-001

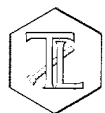
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	46.9	50.6(50.0)	92.5	75 - 125
Molybdenum	ug/L	2.00	53.3	55.4(50.0)	95.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	18.7	20.0	93.4	90 - 110
Molybdenum	ug/L	1.00	21.5	20.0	107	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	18.9	20.0	94.4	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Printed 3/20/2013

Metals by EPA 6010B, Dissolved

Batch 031213A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-001 Iron	ug/L	03/12/2013 16:10	1.00	9.50	20.0	ND
806668-002 Iron	ug/L	03/12/2013 16:52	1.00	9.50	20.0	ND
806668-005 Iron	ug/L	03/12/2013 16:58	1.00	9.50	20.0	ND
806668-006 Iron	ug/L	03/12/2013 17:04	1.00	9.50	20.0	ND
806668-007 Iron	ug/L	03/12/2013 17:10	1.00	9.50	20.0	ND
806668-008 Iron	ug/L	03/12/2013 17:17	1.00	9.50	20.0	ND
806668-009 Iron	ug/L	03/12/2013 17:23	1.00	9.50	20.0	ND
806668-010 Iron	ug/L	03/12/2013 17:29	1.00	9.50	20.0	ND
806668-011 Iron	ug/L	03/12/2013 17:35	1.00	9.50	20.0	ND
806668-012 Iron	ug/L	03/12/2013 17:42	1.00	9.50	20.0	ND
806668-014 Iron	ug/L	03/12/2013 17:48	1.00	9.50	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 806668-001

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	52.3	50.0	105	85 - 115

Matrix Spike

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	53.3	50.0(50.0)	107	75 - 125

Matrix Spike Duplicate

Lab ID = 806668-001

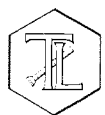
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	50.0	50.0(50.0)	100	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4930	5000	98.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4780	5000	95.5	90 - 110



Client: E2 Consulting Engineers, Inc.

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pH by SM 4500-H B

Batch 03PH13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
806668-001 pH	pH	03/06/2013 10:30	1.00	0.0784	4.00	8.28	J
806668-002 pH	pH	03/06/2013 10:32	1.00	0.0784	4.00	8.29	J
806668-005 pH	pH	03/06/2013 10:35	1.00	0.0784	4.00	8.25	
806668-006 pH	pH	03/06/2013 10:38	1.00	0.0784	4.00	8.26	
806668-007 pH	pH	03/06/2013 10:40	1.00	0.0784	4.00	8.24	
806668-008 pH	pH	03/06/2013 10:42	1.00	0.0784	4.00	8.24	
806668-009 pH	pH	03/06/2013 10:45	1.00	0.0784	4.00	8.24	

Duplicate

Lab ID = 806668-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.24	8.24	0	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	7.03	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

**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 3/20/2013

pH by SM 4500-H B

Batch 03PH13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
806668-010 pH	pH	03/06/2013 10:55	1.00	0.0784	4.00	8.20	
806668-011 pH	pH	03/06/2013 10:57	1.00	0.0784	4.00	8.30	J
806668-012 pH	pH	03/06/2013 11:00	1.00	0.0784	4.00	8.33	J
806668-014 pH	pH	03/06/2013 11:03	1.00	0.0784	4.00	8.23	J
806668-015 pH	pH	03/06/2013 11:05	1.00	0.0784	4.00	7.50	J
806668-016 pH	pH	03/06/2013 11:07	1.00	0.0784	4.00	7.57	J

Duplicate

Lab ID = 806669-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.25	7.25	0	0 - 20

Lab Control Sample

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



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 3/20/2013

Total Suspended Solids by SM 2540 D

Batch 03TSS13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806668-001 Total Suspended Solids	mg/L	03/08/2013	1.00	0.349	10.0	ND
806668-002 Total Suspended Solids	mg/L	03/08/2013	1.00	0.349	10.0	ND
806668-005 Total Suspended Solids	mg/L	03/08/2013	1.00	0.349	10.0	ND
806668-006 Total Suspended Solids	mg/L	03/08/2013	1.00	0.349	10.0	ND
806668-007 Total Suspended Solids	mg/L	03/08/2013	1.00	0.349	10.0	ND
806668-008 Total Suspended Solids	mg/L	03/08/2013	1.00	0.349	10.0	ND
806668-009 Total Suspended Solids	mg/L	03/08/2013	1.00	0.349	10.0	ND
806668-010 Total Suspended Solids	mg/L	03/08/2013	1.00	0.349	10.0	ND
806668-011 Total Suspended Solids	mg/L	03/08/2013	1.00	0.349	10.0	ND
806668-012 Total Suspended Solids	mg/L	03/08/2013	1.00	0.349	10.0	ND
806668-014 Total Suspended Solids	mg/L	03/08/2013	1.00	0.349	10.0	ND

Method Blank

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

Duplicate

Lab ID = 806668-014

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	98.0	100	98.0	90 - 110

Lab Control Sample Duplicate

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

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 

Mona Nassimi

Manager, Analytical Services



Total Suspended Solids by SM 2540 D

Calculations

Batch: 03TSS13D

Date Analyzed: 03/08/13

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
J59	BLK	1000	1.3945	1.3945	1.3945	0.0000	No	0.0000	0.0	2.5	ND
J62	806668-1	250	1.3932	1.3932	1.3932	0.0000	No	0.0000	0.0	10.0	ND
J63	806668-2	250	1.3978	1.3978	1.3978	0.0000	No	0.0000	0.0	10.0	ND
J64	806668-5	250	1.3972	1.3972	1.3972	0.0000	No	0.0000	0.0	10.0	ND
J65	806668-6	250	1.3952	1.3952	1.3952	0.0000	No	0.0000	0.0	10.0	ND
J66	806668-7	250	1.4048	1.4048	1.4048	0.0000	No	0.0000	0.0	10.0	ND
J67	806668-8	250	1.4040	1.4040	1.404	0.0000	No	0.0000	0.0	10.0	ND
J68	806668-9	250	1.3848	1.3848	1.3848	0.0000	No	0.0000	0.0	10.0	ND
J69	806668-10	250	1.3998	1.3998	1.3998	0.0000	No	0.0000	0.0	10.0	ND
J70	806668-11	250	1.3969	1.3969	1.3969	0.0000	No	0.0000	0.0	10.0	ND
J71	806668-12	250	1.4090	1.4090	1.409	0.0000	No	0.0000	0.0	10.0	ND
J72	806668-14	250	1.3909	1.3911	1.3911	0.0000	No	0.0002	0.8	10.0	ND
J73	806668-14D	250	1.3911	1.3913	1.3913	0.0000	No	0.0002	0.8	10.0	ND
J74	806722-1	25	1.3989	1.4533	1.4533	0.0000	No	0.0544	2176.0	100.0	2176.0
J75	806722-2	10	1.3941	1.4365	1.4365	0.0000	No	0.0424	4240.0	250.0	4240.0
J76	806722-3	10	1.3977	1.4426	1.4426	0.0000	No	0.0449	4490.0	250.0	4490.0
J77	806722-3D	10	1.3980	1.4430	1.443	0.0000	No	0.0450	4500.0	250.0	4500.0
J60	LCS-1	100	1.3932	1.4030	1.403	0.0000	No	0.0098	98.0	25.0	98.0
J61	LCS-2	100	1.3889	1.3986	1.3986	0.0000	No	0.0097	97.0	25.0	97.0

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	98	100	98.0%	90-110%	Yes
LCS2	97	100	97.0%	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?
806668-14	0.0002	0.0002	0.0%	≤5%	Yes
806722-3	0.0449	0.045	0.1%	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:	03ALK13B
Matrix:	WATER
Date of Analysis:	3/6/13

[illegible]

T or P =

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

T = Total Alkalinity, mg CaCO₃/L

P = Phenolphthalein Alkalinity, mg CaCO₃/L

A = mL standard acid used

N = normality of standard acid

$$\text{Low Alkalinity: as mg/L CaCO}_3 = \frac{(2 \times B - C) \times N \times 50000}{\text{mL sample}}$$

Where: B = mL titrant to first recorded pH
C = Total mL titrant to reach pH 0.3 unit lower
N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate

MS/MSD = Matrix Spike/Duplicate

ND = Not Detected (below the reporting limit)

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	99	100	99.0%	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?
806668-7	126	126	0.0%	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?
806670-2	143	1	100	100	246	243.00	103%	75-125	Yes			
		1	100	100								

Melissa S.

Analyst Printed Name

Analyst(Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

806668

CH2MHILL

CHAIN OF CUSTODY RECORD

3/5/2013 2:14:57 PM

Page 1 OF 2

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Shawn Duffy				Container:	3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	<div style="border: 2px solid black; padding: 5px; transform: rotate(-5deg); display: inline-block;"> ALERT !! Level III QC </div>	Number of Containers	COMMENTS
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	4°C				
Filtered:				Field	NA	NA	Field	Field	NA	NA	NA	NA	NA				
Holding Time:				28	28	180	180	180	14	14	14	14	14				
Project Number 423575.MP.02.RM Task Order Project 2013-RMP-190 Turnaround Time 10 Days Shipping Date: 3/5/2013 COC Number: 2					Cr6 (E218.6 - river) Field Filtered	Field QC Cr6 (E218.6 - river)	Metals (6010B) Total Fe	Metals (6020AFF) Field Filtered Chromium	Metals (SW6010B/SW6020A)dis) Field Filtered As, Mn, Fe, Se, Hg	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Alkalinity (Si42320B)	PH (SM4500-HB)	TSS (SM2540)			
DATE	TIME	Matrix															
1	C-CON-D-190	3/5/2013	9:49	Water	X		X	X	X	X	X	X	X		9	7	
2	C-CON-S-190	3/5/2013	10:06	Water	X		X	X	X	X	X	X	X		9	PH=2	
3	C-MW-82-190	3/5/2013	8:30	Water		X									1	6020A/	6010B
4	C-MW-83-190	3/5/2013	9:17	Water		X									1		
5	C-NR1-D-190	3/5/2013	10:47	Water	X		X	X	X	X	X	X	X		9		
6	C-NR1-S-190	3/5/2013	11:01	Water	X		X	X	X	X	X	X	X		9		
7	C-NR3-D-190	3/5/2013	11:35	Water	X		X	X	X	X	X	X	X		9		
8	C-NR3-S-190	3/5/2013	11:48	Water	X		X	X	X	X	X	X	X		9	PH=2	
9	C-NR4-D-190	3/5/2013	12:15	Water	X		X	X	X	X	X	X	X		9	6020A/	6010B
10	C-NR4-S-190	3/5/2013	12:32	Water	X		X	X	X	X	X	X	X		9		
11	R-19-190	3/5/2013	8:54	Water	X		X	X	X	X	X	X	X		9		
12	R-28-190	3/5/2013	8:41	Water	X		X	X	X	X	X	X	X		9		
13	RMP-AB2-190	3/5/2013	12:40	Water		X									1		
14	RRB-190	3/5/2013	9:13	Water	X		X	X	X	X	X	X	X		9	PH=2	6020A/ 6010B

For Sample Conditions
See Form Attached

Approved by *[Signature]* Signatures
 Sampled by *[Signature]* Date/Time 3-5-13 1625
 Relinquished by *[Signature]* Relinquished by Rafael Davila 3/5/13 16:25
 Received by *[Signature]* Received by Rafael Davila 3-5-13 22:30
 Relinquished by *[Signature]* Relinquished by Rafael Davila 3-5-13 22:30
 Received by *[Signature]* Received by Luda Inaburnova 3/5/13 22:30

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:

March 4-5, 2013

Report Copy to

 Shawn Duffy
 (530) 229-3303

CH2MHILL

CHAIN OF CUSTODY RECORD

3/5/2013 2:14:58 PM

Page 2 OF 2

806668

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	2x1 Liter		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	4°C			
Project Manager Jay Piper		Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA	NA			
Sample Manager Shawn Duffy		Holding Time:	28	28	180	180	180	14	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/SW6020ADis) Field Filtered As,Mn,Fe,Se,Mo	Metals (6020AFF) Field Filtered Chromium	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Alkalinity (SM2320B)	PH (SM4500HB)	TSS (SM2540)			
Task Order															
Project 2013-RMP-190															
Turnaround Time 10 Days															
Shipping Date: 3/5/2013															
COC Number: 2															
DATE	TIME	Matrix													
SW1-190	3/5/2013	7:15	Water	X			X	X			X			5	} pH = 2 GC = A
SW2-190	3/5/2013	7:31	Water	X			X	X			X			5	
TOTAL NUMBER OF CONTAINERS													112		

ALERT !!
Level III QC

Approved by	Signatures	Date/Time	Shipping Details
Sampled by	<i>[Signature]</i>	3-5-13	Method of Shipment: courier
Relinquished by	<i>[Signature]</i>	1625	On Ice: yes / no
Received by	<i>Rafael Davila</i>	3/5/13 16:25	Airbill No:
Relinquished by	<i>Rafael Davila</i>	3-5-13 22:30	Lab Name: Truesdail Laboratories, Inc.
Received by	<i>L. Shalmon</i>	3/5/13 22:30	Lab Phone: (714) 730-6239

ATTN:

Special Instructions:

March 4-5, 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
3/5/13	806635-9	9.5	N/A	N/A	N/A	RM
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
3/6/13	803668-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
3/6/13	806669-1	7.0	2mL/100mL	9.5	10:20	TM
	-2					
3/6/13	806670-1	7.0	2mL/100mL	9.5	10:20	TM
	-2					
3/6/13	806673	9.5	N/A	N/A	N/A	TM
3/6/13	806696-1	7.0	2mL/100mL	9.5	15:45	TM
	-2		2mL/100mL			TM



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806497(1,2)	<1	<2	2/25/13	DC	yes			
806520	>1	<2						
806493(1-5)	>1	<2						
806494(1-5)	>1	<2						
806552	<1	>2	2-27-13	BE	yes	11:00		
806553(1-4)		<2						
806554(1-4)								
806555(1-4-7)								
806542(1-3)		>2			no	12:00	2/28/13 @ 15:35	
806545								
806537	<1	<2		DC	yes			
806565	<1	>2			yes	14:00	2/28/13 @ 15:30	
806562(1-14)	<1	>2	2/28/13	ES	no	9:30	3/1/13 @ 16:00	pH < 2
806567(10-12)								
806570(1-2)	>1	<2			yes			
806572(1-2)	>1	<2			yes			
806586(1,2)	<1	>2		DC	yes	15:30		
806617	>1	<2	3/4/13	DC	yes			
806632(1-12)	<1		3-5-13	BE				
806633(1-12)								
806634(1-3-6)								
806635(1-5-8-14)								
806620(1-2,4)	<1	>2	3/5/13	ES	no	12:00		
806621(16,23)								
806625		<2			yes			
806626								
806688(1-2,5-12)	<1	<2	3-6-13	BE	yes			
806689(1-2)		>2						Lab filter Acidified
806670(1-2)								
806679(1-5)		<2						
806643	>1	<2		DC	yes			
806651	<1							
806688	>1	>2				12:30		
806667	<1	>2		BE	no	14:00		
806663(1-3)						15:00		
806694(10-12)								
806682(4-6)								
806650	<1	<2	3/6/13	DC	yes			
806649								
806648								
806647								
806646								
806652								
806671								

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 # 806668

Date Delivered: 03/05/13 Time: 12:30 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)? 3.2 °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

Appendix B
Other Groundwater Monitoring Results

Table B-1

Arsenic Results in Monitoring Wells, March 2012 through March 2013
 First 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	07-May-12	47.0
		02-Oct-12	42.4
		27-Nov-12	38.5
		26-Feb-13	46.5
		26-Feb-13 FD	45.9
MW-13	SA	11-Dec-12	2.0
MW-16	SA	24-Apr-12	11.0
		08-Nov-12	11.0
MW-17	SA	25-Apr-12	1.4
		03-Dec-12	1.4
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	10-May-12	5.8
		09-Oct-12	5.6
		29-Nov-12	5.3 J
		29-Nov-12 FD	1.3 J
		14-Mar-13	5.2
MW-22	SA	11-Apr-12	12.0
		10-Dec-12	16.0
MW-23-060	BR	30-Apr-12	2.6
		30-Apr-12 FD	2.2
		12-Sep-12	5.9
		08-Nov-12	5.3
		18-Feb-13	5.5
MW-23-080	BR	30-Apr-12	4.1
		12-Sep-12	3.3
		12-Sep-12 FD	3.0
		08-Nov-12	2.7

Table B-1

Arsenic Results in Monitoring Wells, March 2012 through March 2013
*First 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-23-080	BR	18-Feb-13	3.1
MW-25	SA	11-Dec-12	1.3
MW-26	SA	07-May-12	1.7
		04-Oct-12	1.7
		27-Nov-12	1.7
		12-Mar-13	1.7
MW-27-20	SA	03-Dec-12	2.4
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
MW-27-85	DA	09-Apr-12	1.4
		01-Oct-12	1.5
		03-Dec-12	1.8
		04-Feb-13	1.4
MW-28-25	SA	10-Apr-12	2.3
		05-Dec-12	1.5
MW-28-90	DA	10-Apr-12	2.0 J
		10-Apr-12 FD	2.4 J
		10-Sep-12	2.0
		05-Dec-12	2.0
		05-Feb-13	1.6
MW-29	SA	10-Apr-12	7.9
		05-Dec-12	19.0 J
		05-Dec-12 FD	14.0 J
MW-30-30	SA	03-Dec-12	2.0
MW-30-50	MA	03-Dec-12	3.8
MW-31-60	SA	16-May-12	1.2
		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	09-Apr-12	30.0
		05-Dec-12	28.0
MW-33-40	SA	23-Apr-12	17.0
		10-Sep-12	13.0
		05-Dec-12	14.0

Table B-1

Arsenic Results in Monitoring Wells, March 2012 through March 2013
*First Quarter 2013 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California*

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (µg/L)
MW-33-40	SA	05-Dec-12	FD	14.0
		25-Feb-13		14.0
MW-33-90	MA	24-Sep-12		1.6
		08-Nov-12		1.1
		14-Feb-13		1.4
		14-Feb-13	FD	1.6
MW-33-150	DA	11-Sep-12		2.2
		06-Dec-12		2.0
		05-Feb-13		1.8
MW-33-210	DA	11-Sep-12		1.3
		06-Dec-12		1.4
		05-Feb-13		1.1
MW-34-55	MA	12-Dec-12		3.0
MW-34-80	DA	09-Apr-12		1.4
		01-Oct-12		1.7
		12-Dec-12		1.4
		12-Dec-12	FD	1.5
		05-Feb-13		1.3
MW-34-100	DA	09-Apr-12		1.6
		09-Apr-12	FD	1.1
		01-Oct-12		1.5
		01-Oct-12	FD	1.6
		26-Nov-12		1.8
		26-Nov-12	FD	1.9
		12-Dec-12		1.5
		24-Jan-13		1.7
		26-Feb-13		1.6
		26-Feb-13	FD	1.5
MW-35-60	SA	26-Apr-12		1.1
		10-Sep-12		1.1
		04-Dec-12		1.1
		19-Feb-13		1.0
MW-35-135	DA	04-Dec-12		1.0
MW-36-20	SA	04-Dec-12		1.9
		04-Dec-12	FD	1.8
MW-36-40	SA	04-Dec-12		4.8

Table B-1

Arsenic Results in Monitoring Wells, March 2012 through March 2013
*First Quarter 2013 Interim Measures Performance Monitoring and Site-wide
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 PG&E Topock Compressor Station, Needles, California*

Well ID	Aquifer Zone	Sample Date	Dissolved Arsenic (µg/L)
MW-36-50	MA	04-Dec-12	4.2
MW-36-70	MA	04-Dec-12	5.1
MW-36-90	DA	10-Apr-12	19.0
		04-Dec-12	22.0
MW-36-100	DA	10-Apr-12	7.4
		10-Oct-12	7.7
		08-Nov-12	6.2
		11-Mar-13	7.3
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
MW-40S	SA	03-Dec-12	1.4
MW-41D	DA	26-Apr-12	2.7
		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	09-Apr-12	12.0
		11-Sep-12	12.0
		11-Sep-12 FD	12.0
		06-Dec-12	13.0
		04-Feb-13	12.0
MW-42-65	MA	09-Apr-12	2.8
		11-Sep-12	2.8
		06-Dec-12	2.6
		04-Feb-13	2.3
		04-Feb-13 FD	2.4
MW-43-25	SA	10-Dec-12	23.0
MW-43-75	DA	10-Dec-12	13.0
MW-43-90	DA	10-Dec-12	3.4
MW-44-70	MA	12-Apr-12	3.9
		06-Dec-12	4.5
MW-44-115	DA	12-Apr-12	5.8
		12-Apr-12 FD	6.1

Table B-1

Arsenic Results in Monitoring Wells, March 2012 through March 2013
*First 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-44-115	DA	27-Sep-12	3.6
		26-Nov-12	5.4
		26-Feb-13	5.9
MW-44-125	DA	12-Apr-12	3.7
		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
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	25-Apr-12	1.1
		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	08-May-12	4.1
		09-Oct-12	4.3
		28-Nov-12	4.9
		14-Mar-13	4.1
MW-52D	DA	11-Apr-12	3.5
		05-Dec-12	3.7
MW-52M	DA	11-Apr-12	1.3

Table B-1

Arsenic Results in Monitoring Wells, March 2012 through March 2013
*First 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-52M	DA	05-Dec-12	1.7
MW-52S	MA	11-Apr-12	ND (1.0)
		05-Dec-12	0.25
MW-53D	DA	11-Apr-12	3.5
		06-Dec-12	3.0
MW-53M	DA	11-Apr-12	1.1
		05-Dec-12	1.0
		05-Dec-12 FD	1.1
MW-54-85	DA	24-Apr-12	4.9
		12-Dec-12	3.3
MW-54-140	DA	24-Apr-12	ND (5.0)
		12-Dec-12	2.9
MW-54-195	DA	24-Apr-12	ND (5.0)
		24-Apr-12 FD	ND (5.0)
		12-Dec-12	ND (5.0)
MW-55-45	MA	03-Apr-12	4.7
MW-55-120	DA	03-Apr-12	5.2
MW-57-070	BR	03-May-12	1.6
		13-Dec-12	1.4
		13-Dec-12 FD	1.4
MW-57-185	BR	30-Apr-12	14.0
		11-Sep-12	14.0
		08-Nov-12	13.0
		06-Feb-13	13.0
MW-58BR	BR	28-Feb-13	1.1
MW-58BR-LWR-160	BR	04-Oct-12	0.71
MW-58BR-UPR-160	BR	03-Oct-12	0.49
MW-59-100	SA	08-May-12	2.1
		02-Oct-12	2.9
		28-Nov-12	4.4
		27-Feb-13	2.6
MW-60-125	BR	03-May-12	1.7
		20-Sep-12	1.7
		06-Dec-12	1.8
		20-Feb-13	1.6
MW-60BR-245	BR	17-May-12	8.8

Table B-1

Arsenic Results in Monitoring Wells, March 2012 through March 2013
 First 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-60BR-245	BR	19-Sep-12	8.1
		05-Dec-12	8.1
		14-Mar-13	7.5
		14-Mar-13 FD	7.1
MW-61-110	BR	03-May-12	3.2
		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
MW-62-065	BR	02-May-12	1.8
		10-Dec-12	1.4
MW-62-110	BR	10-May-12	8.8
		13-Sep-12	8.5
		11-Dec-12	12.0
		26-Feb-13	10.0
MW-62-190	BR	10-May-12	5.4
		13-Sep-12	5.9
		11-Dec-12	5.8
		26-Feb-13	5.9
MW-63-065	BR	26-Apr-12	1.2
		10-Sep-12	1.7
		07-Nov-12	1.5
		06-Feb-13	1.6
MW-64BR	BR	01-Mar-13	2.9
MW-64BR-LWR-150	BR	10-Oct-12	1.7
MW-64BR-UPR-150	BR	08-Oct-12	7.4
MW-65-160	SA	01-May-12	0.96
		18-Sep-12	0.9
		04-Dec-12	0.88
		19-Feb-13	0.83
MW-65-225	DA	02-May-12	2.2
		18-Sep-12	2.3
		05-Dec-12	2.3
		19-Feb-13	2.4
MW-66-165	SA	02-May-12	1.3

Table B-1

Arsenic Results in Monitoring Wells, March 2012 through March 2013
*First 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-66-165	SA	17-Sep-12	1.8
		06-Dec-12	1.3
		20-Feb-13	1.3
MW-66-230	DA	10-May-12	4.8
		10-May-12 FD	5.4
		17-Sep-12	6.9
		10-Dec-12	6.3
		21-Feb-13	6.6
MW-66BR-270	BR	07-Mar-12	ND (0.5)
		24-May-12	ND (0.5)
		02-Oct-12	0.32
		20-Dec-12	0.24
		12-Mar-13	0.32
MW-67-185	SA	03-May-12	1.7
		20-Sep-12	1.7
		06-Dec-12	1.8
		21-Feb-13	1.7
		21-Feb-13 FD	1.6
MW-67-225	MA	07-May-12	2.8
		20-Sep-12	2.8
		10-Dec-12	3.2
		21-Feb-13	3.2
MW-67-260	DA	07-May-12	12.0
		20-Sep-12	11.0
		06-Dec-12	12.0
		21-Feb-13	11.0
MW-68-180	SA	10-May-12	2.9
		20-Sep-12	2.2
		11-Dec-12	2.7
		11-Dec-12 FD	2.8
		21-Feb-13	2.5
MW-68-240	DA	03-May-12	1.9
		20-Sep-12	1.7
		06-Dec-12	2.0
		20-Feb-13	1.9
MW-68BR-280	BR	09-May-12	2.4
		03-Oct-12	2.5

Table B-1

Arsenic Results in Monitoring Wells, March 2012 through March 2013
*First 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	12-Nov-12	2.1
		18-Feb-13	2.3
MW-69-195	BR	02-May-12	2.1
		19-Sep-12	2.1
		05-Dec-12	2.1
		20-Feb-13	2.2
MW-70-105	BR	01-May-12	5.4
		12-Sep-12	6.2
		04-Dec-12	5.2
		19-Feb-13	5.8
MW-70BR-225	BR	17-May-12	2.0
		17-May-12 FD	2.1
		18-Sep-12	2.1
		13-Dec-12	1.9
		26-Feb-13	1.9
MW-71-035	SA	03-May-12	1.7
		19-Sep-12	1.7
		08-Nov-12	1.4
		07-Feb-13	1.5
MW-72-080	BR	01-May-12	9.7
		19-Sep-12	11.0
		05-Dec-12	11.0
		19-Feb-13	11.0
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
MW-73-080	BR	02-May-12	1.4
		13-Sep-12	1.6
		05-Dec-12	1.5
		19-Feb-13	2.1
MW-74-240	BR	10-May-12	15.0
		27-Sep-12	9.3
		20-Dec-12	15.0
		20-Dec-12 FD	16.0
		01-Mar-13	8.8
OW-3D	DA	13-Nov-12	2.6

Table B-1

Arsenic Results in Monitoring Wells, March 2012 through March 2013
*First Quarter 2013 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

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.

Appendix C
Groundwater Monitoring Data for GMP and
Interim Measures Monitoring Wells

Table C-1

Chemical Performance Monitoring Analytical Results, First Quarter 2013
 First 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	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										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	---	---	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, First Quarter 2013
 First 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	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										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	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals					
										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	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals					
										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	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals					
										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	---	---	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	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										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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Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										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	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										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	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals					
										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	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										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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										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)

Table C-1

Chemical Performance Monitoring Analytical Results, First Quarter 2013
 First 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	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										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, First Quarter 2013
 First 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	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										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.

FD = field duplicate sample.

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

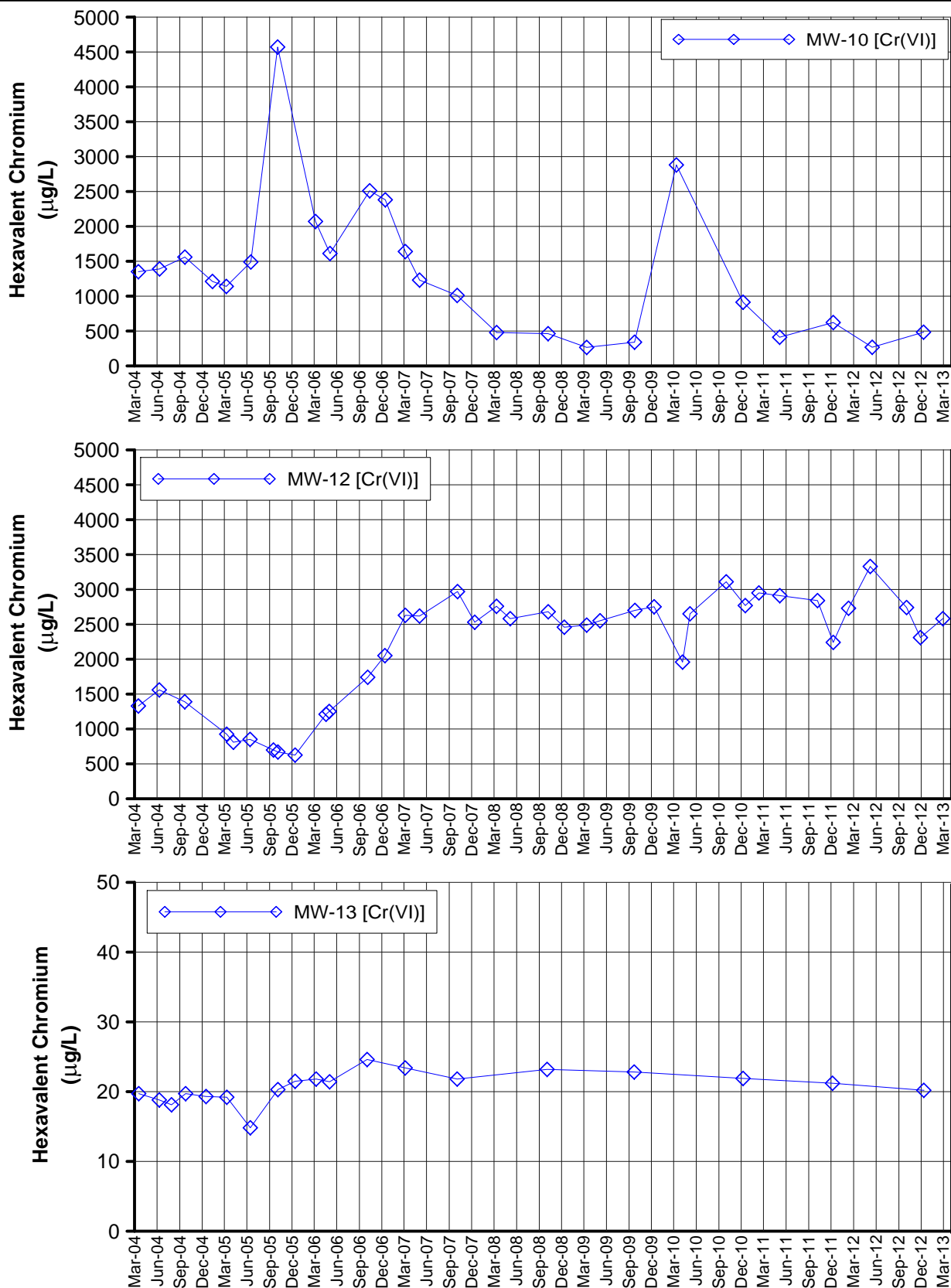
ND =parameter not detected at the listed reporting limit.

General chemistry results in milligrams per liter (mg/L), except Oxygen-18 and Deuterium, which are expressed as differences from global standards in parts per thousand.

Alkalinity (total) reported as calcium carbonate. Nitrate reported as nitrogen (N).

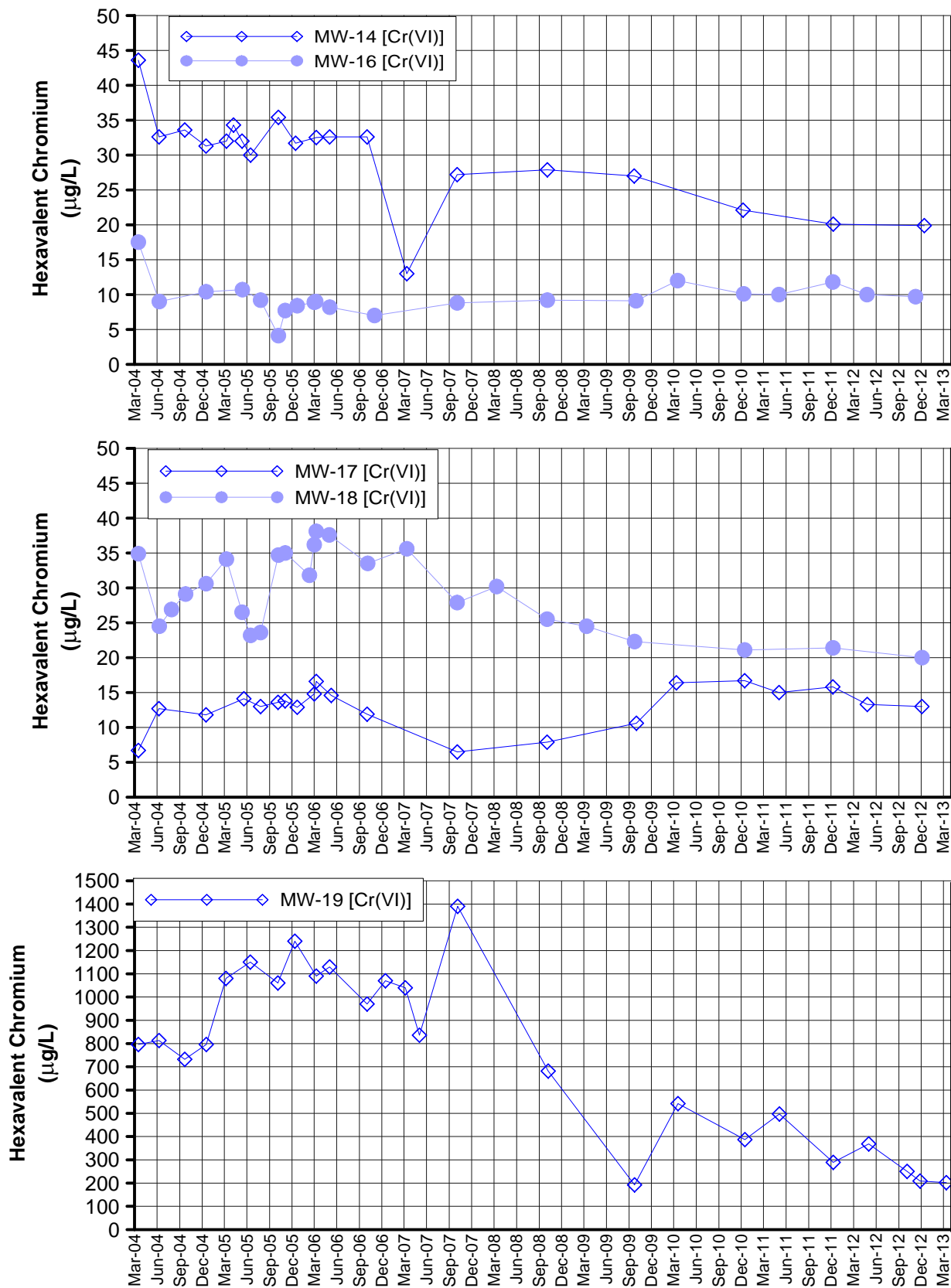
* Nitrate as nitrogen was not requested. Nitrate/nitrite as nitrogen is shown.

^a Data collected February 2011 due to field logistical issues.

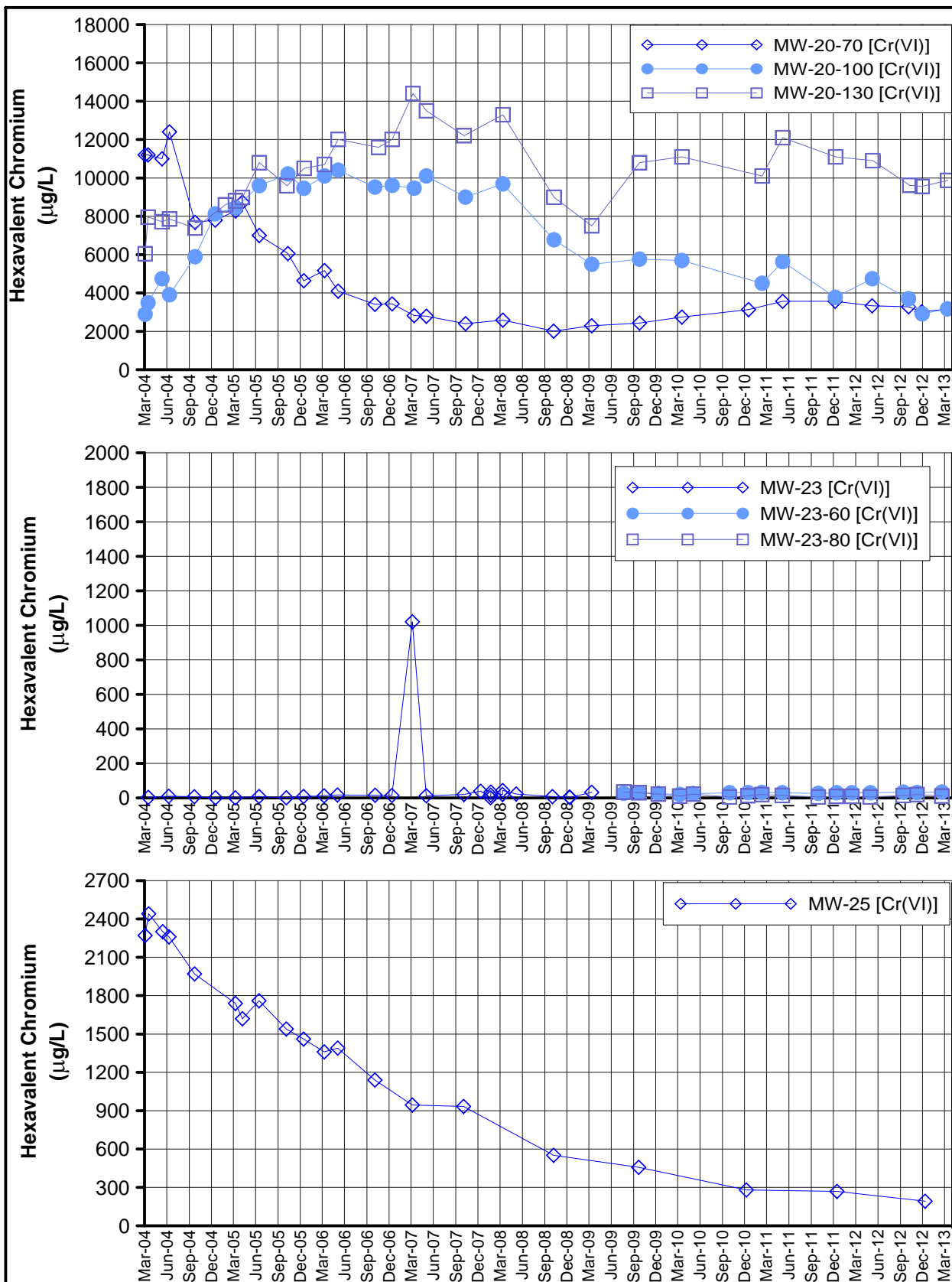


**FIGURE C-1
HEXAVALENT CHROMIUM
IN MW-10, MW-12 AND MW-13**

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



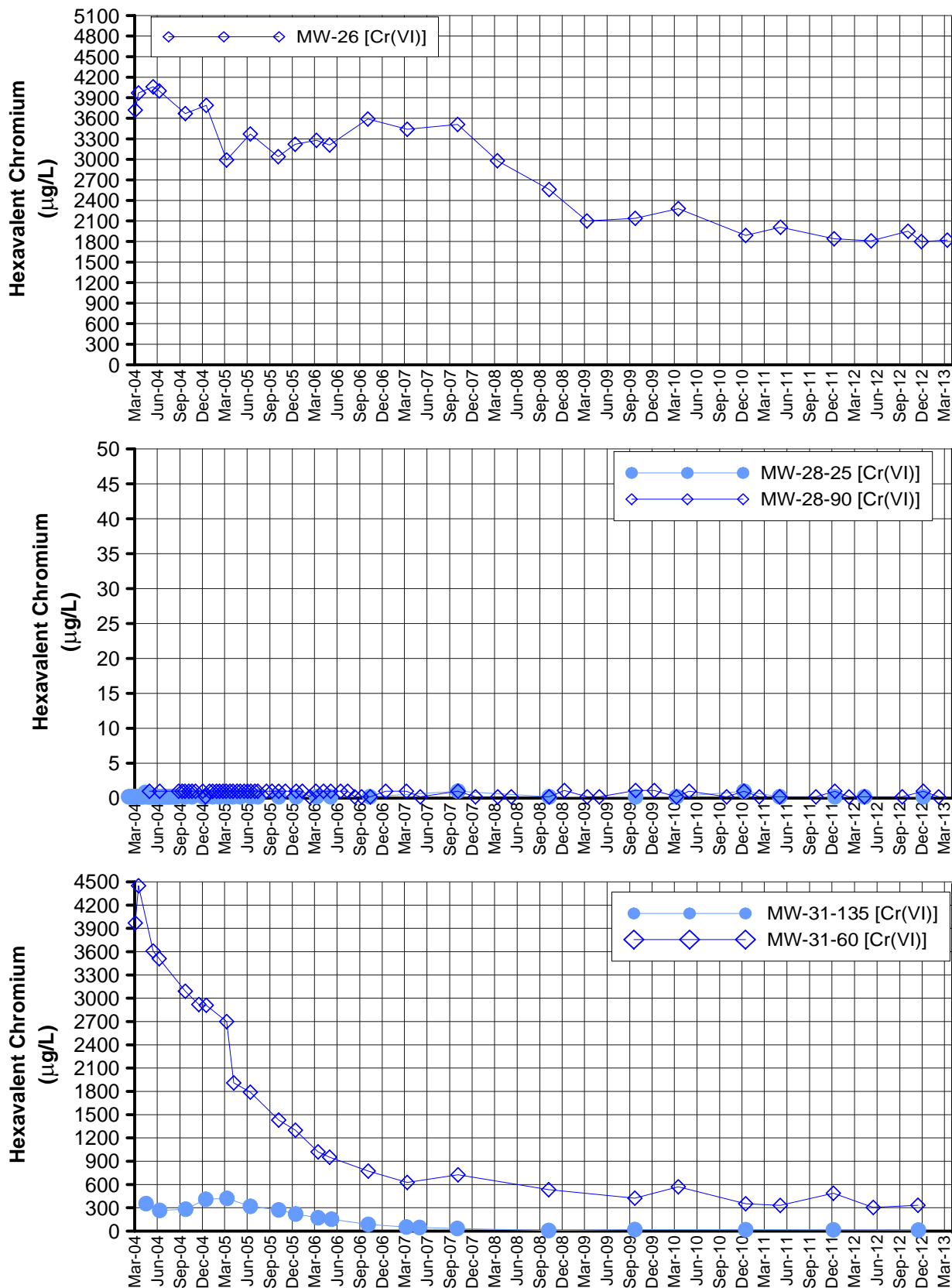
**FIGURE C-2
HEXAVALENT CHROMIUM
IN MW-14, MW-16, MW-17, MW-18 AND MW-19
FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA**



Notes:

1) Fourth Quarter 2010 data for MW-20-100 and MW-20-130 collected in February 2011 due to logistical issues.

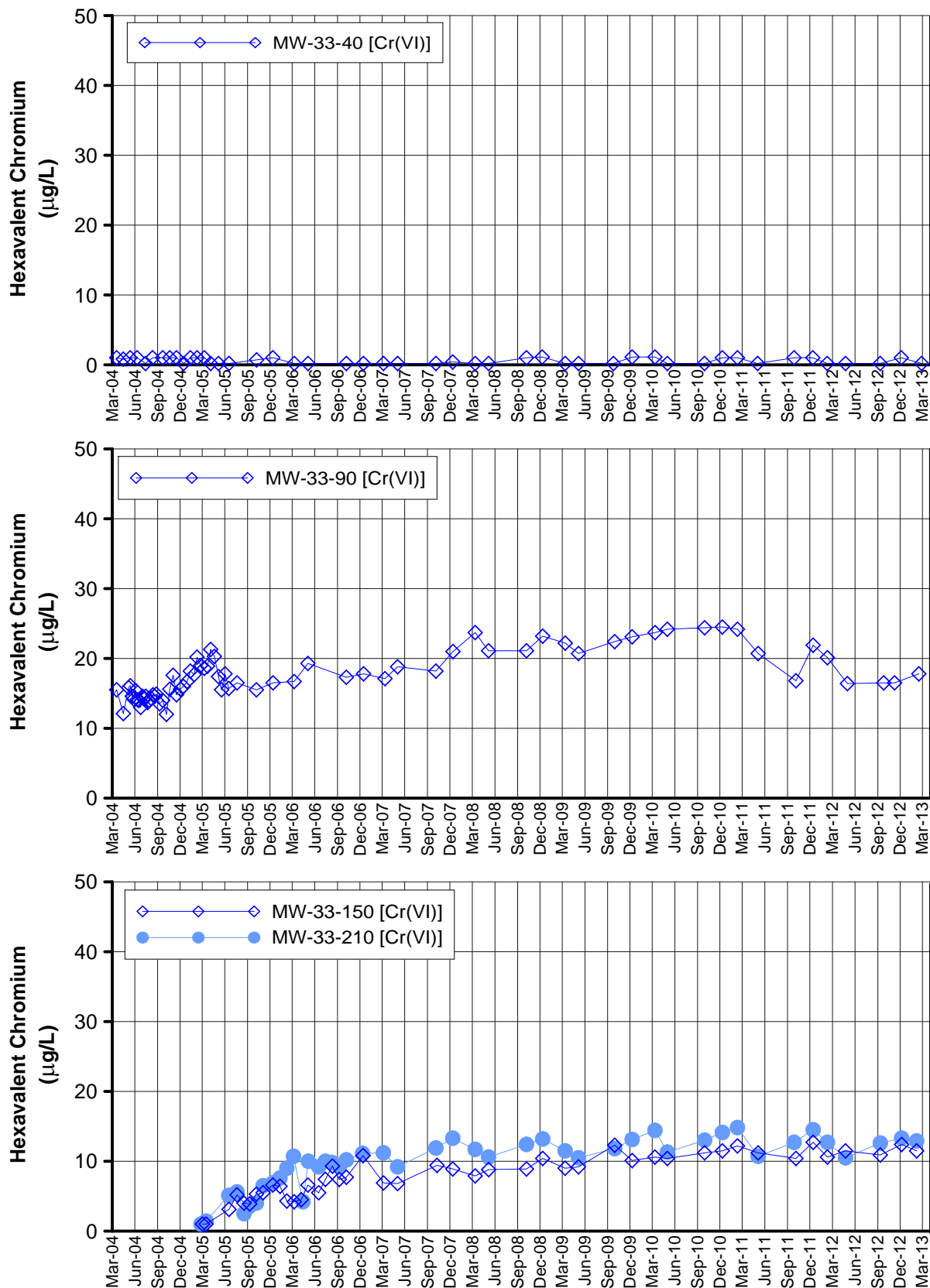
**FIGURE C-3
HEXAVALENT CHROMIUM
IN MW-20 CLUSTER, MW-23 CLUSTER AND MW-25
FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
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Notes:

- 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
 FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE
 MONITORING AND SITE-WIDE GROUNDWATER
 AND SURFACE WATER MONITORING REPORT,
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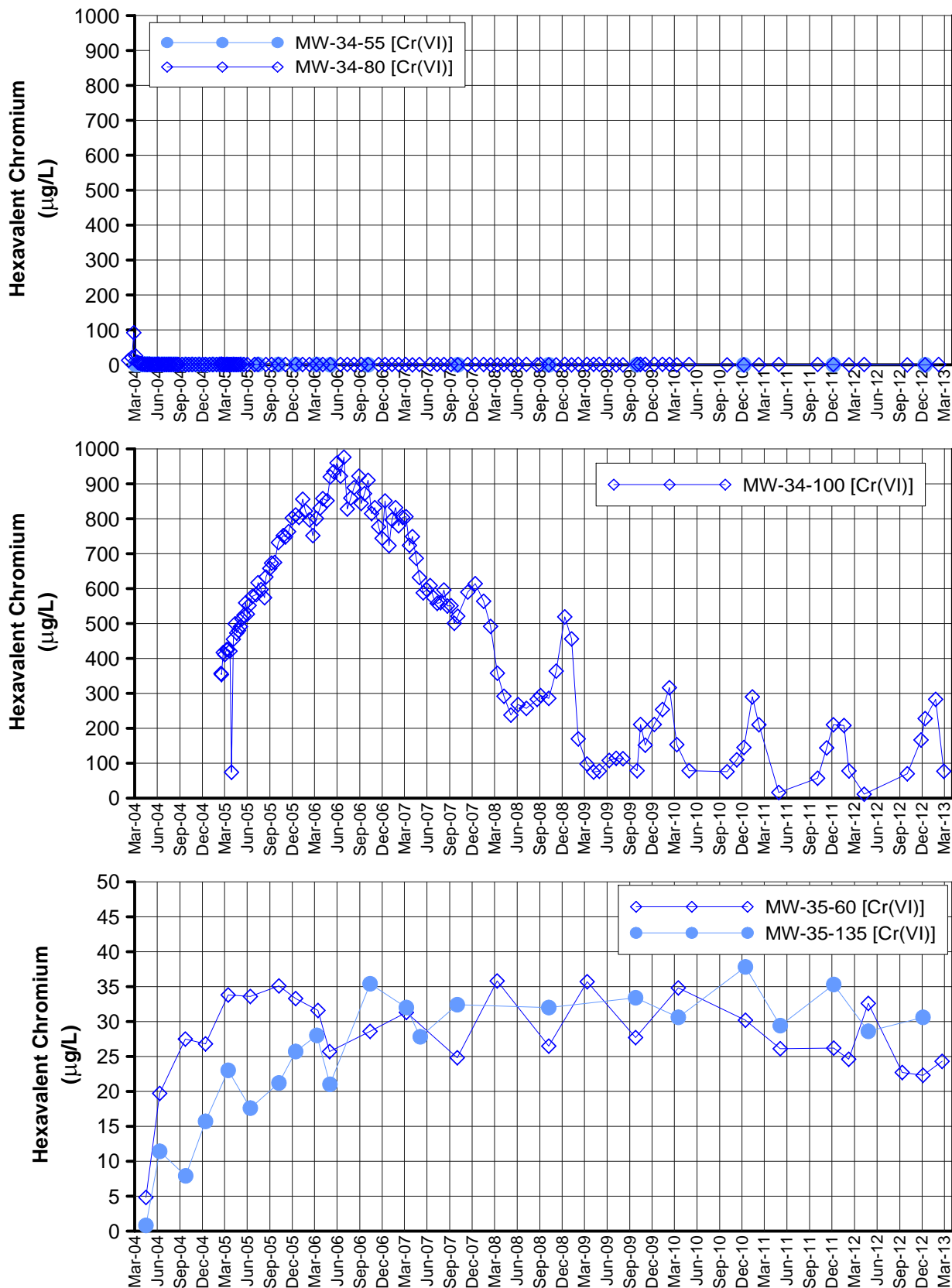


Notes:

- 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**

FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
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NEEDLES, CALIFORNIA

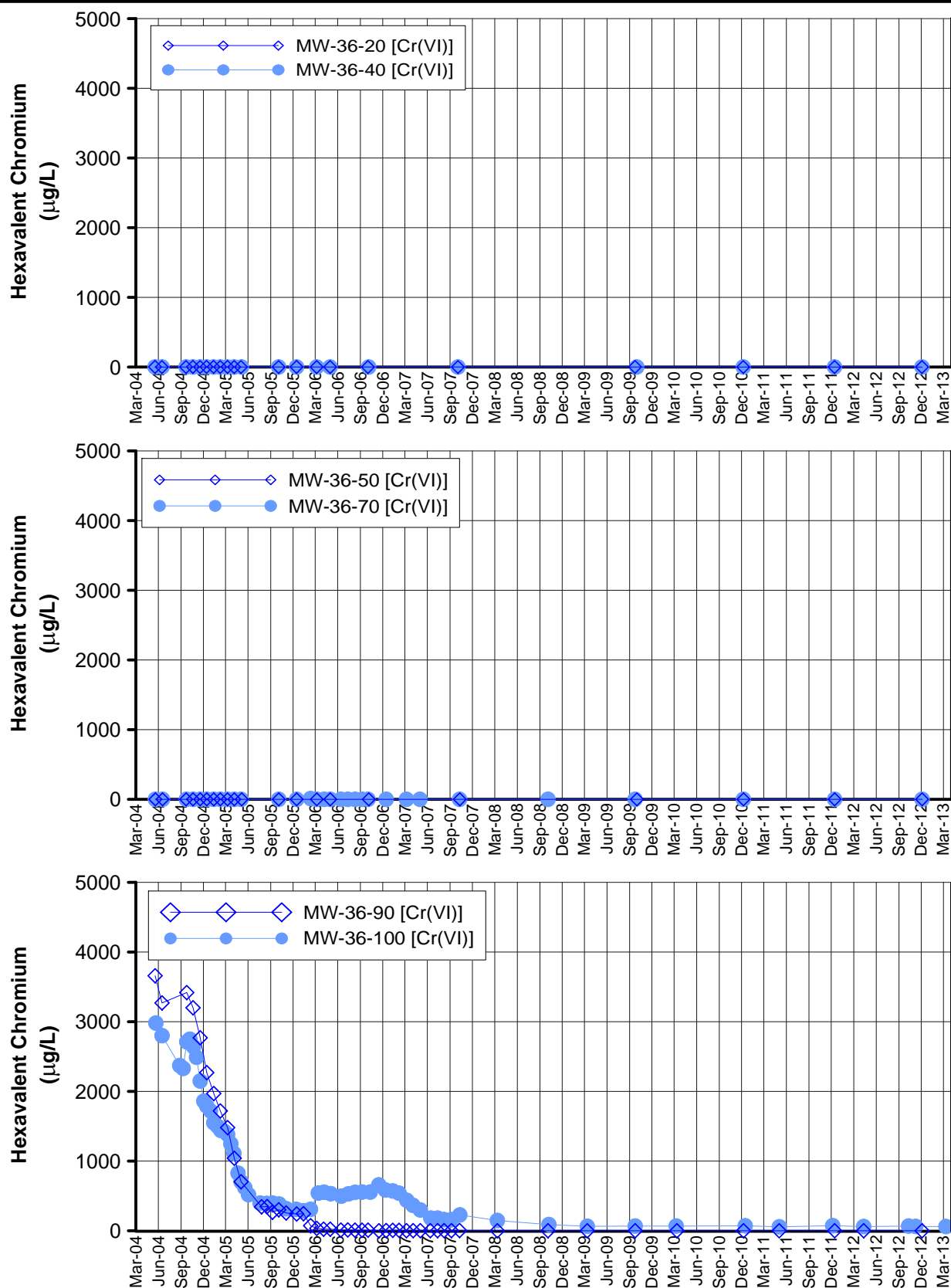


Notes:

- 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-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**

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



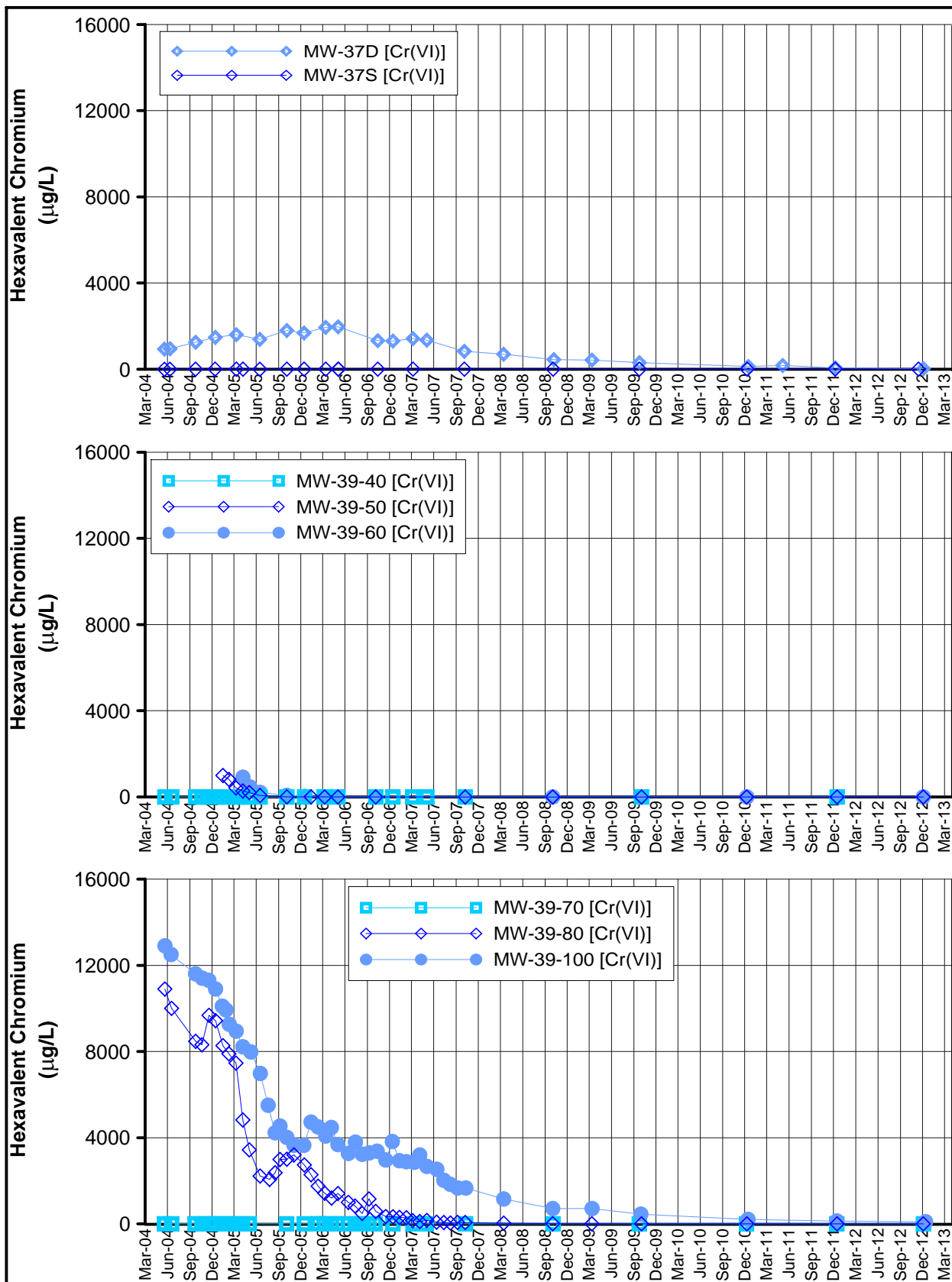
Notes:

- 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**

FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
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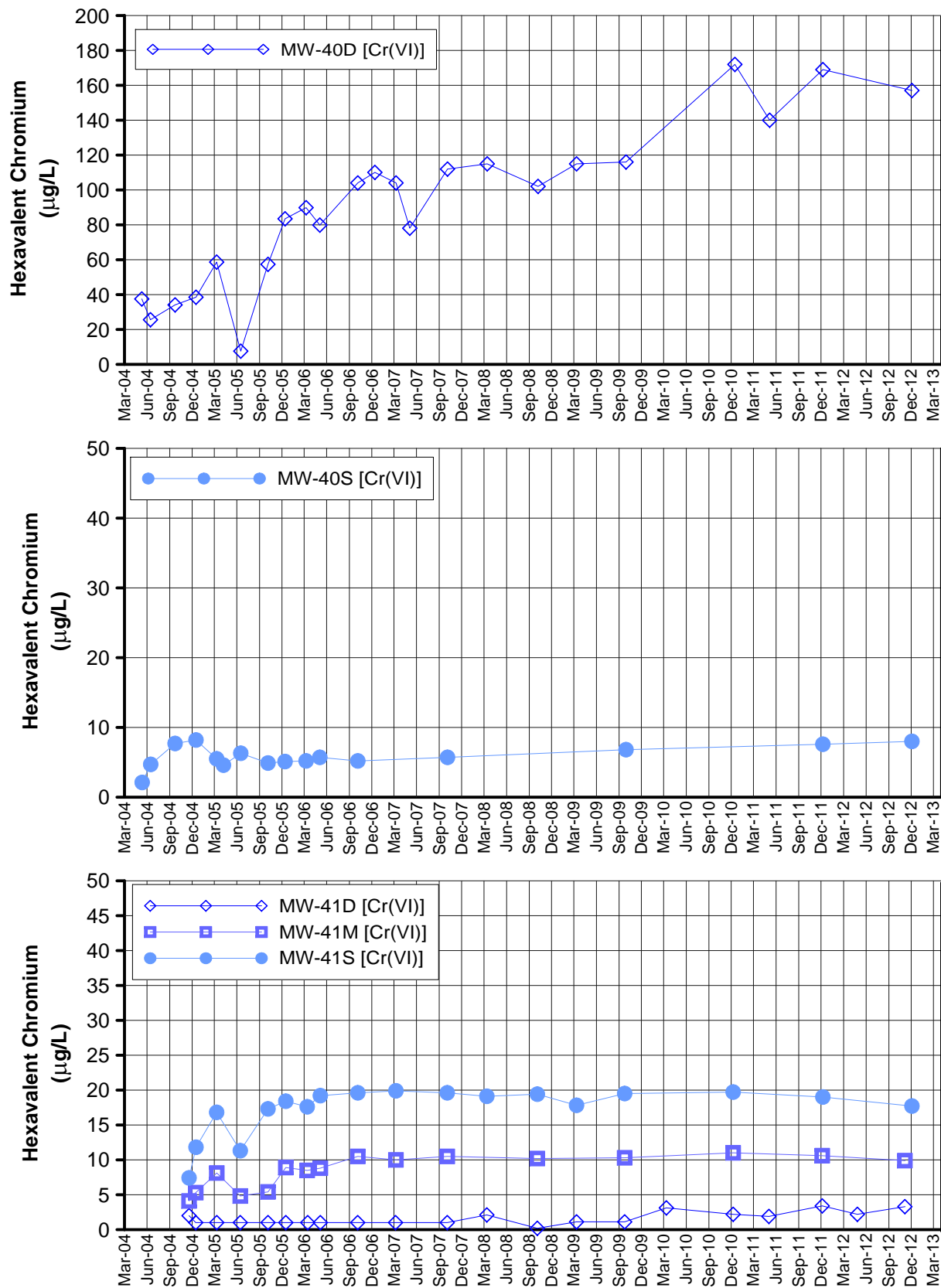


Notes:

- 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.

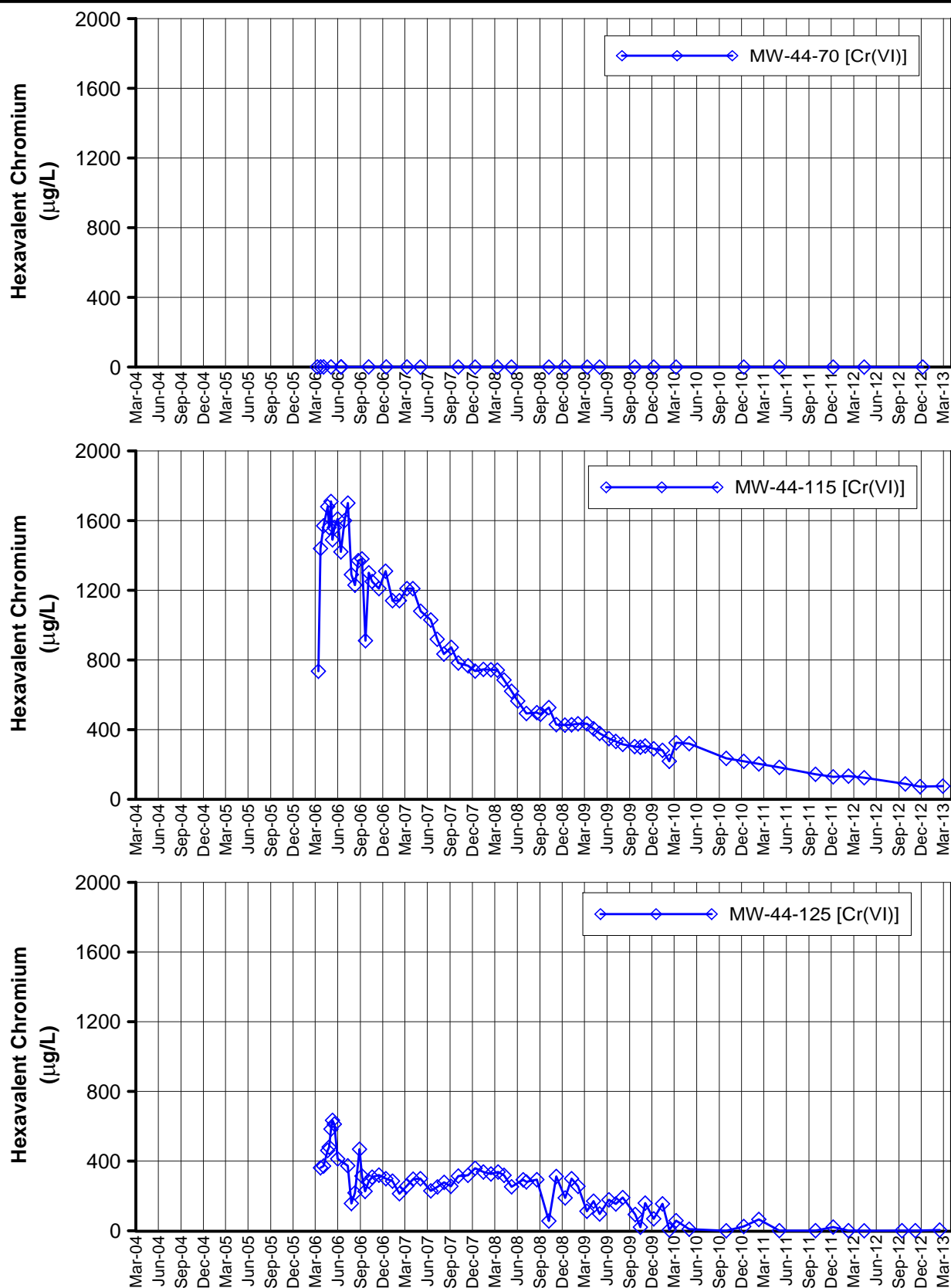
**FIGURE C-8
HEXAVALENT CHROMIUM
IN MW-37 AND MW-39 CLUSTERS**

FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
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**FIGURE C-9
 HEXAVALENT CHROMIUM
 IN MW-40 AND MW-41 CLUSTERS**

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



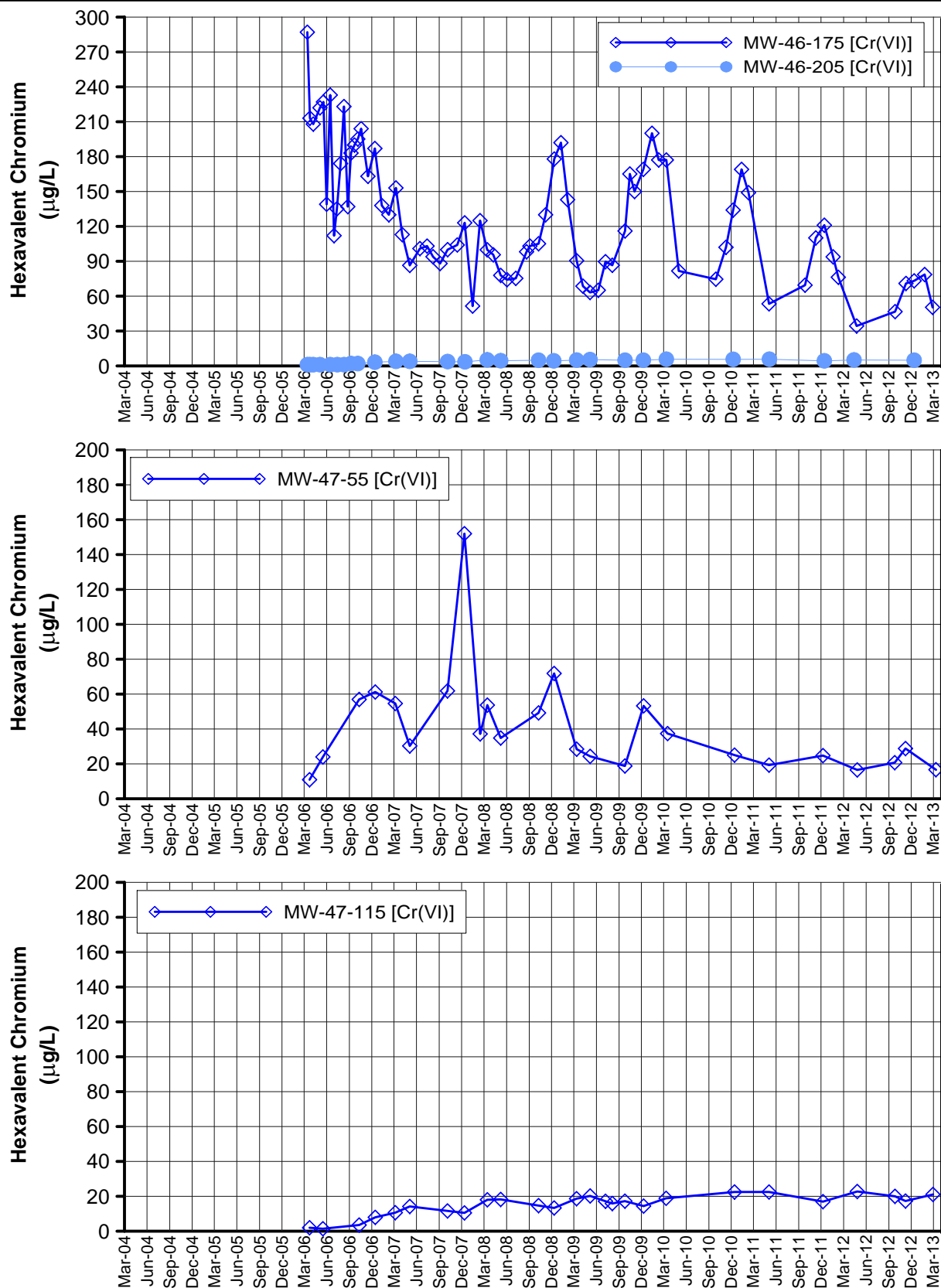
Notes:

- 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**

FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
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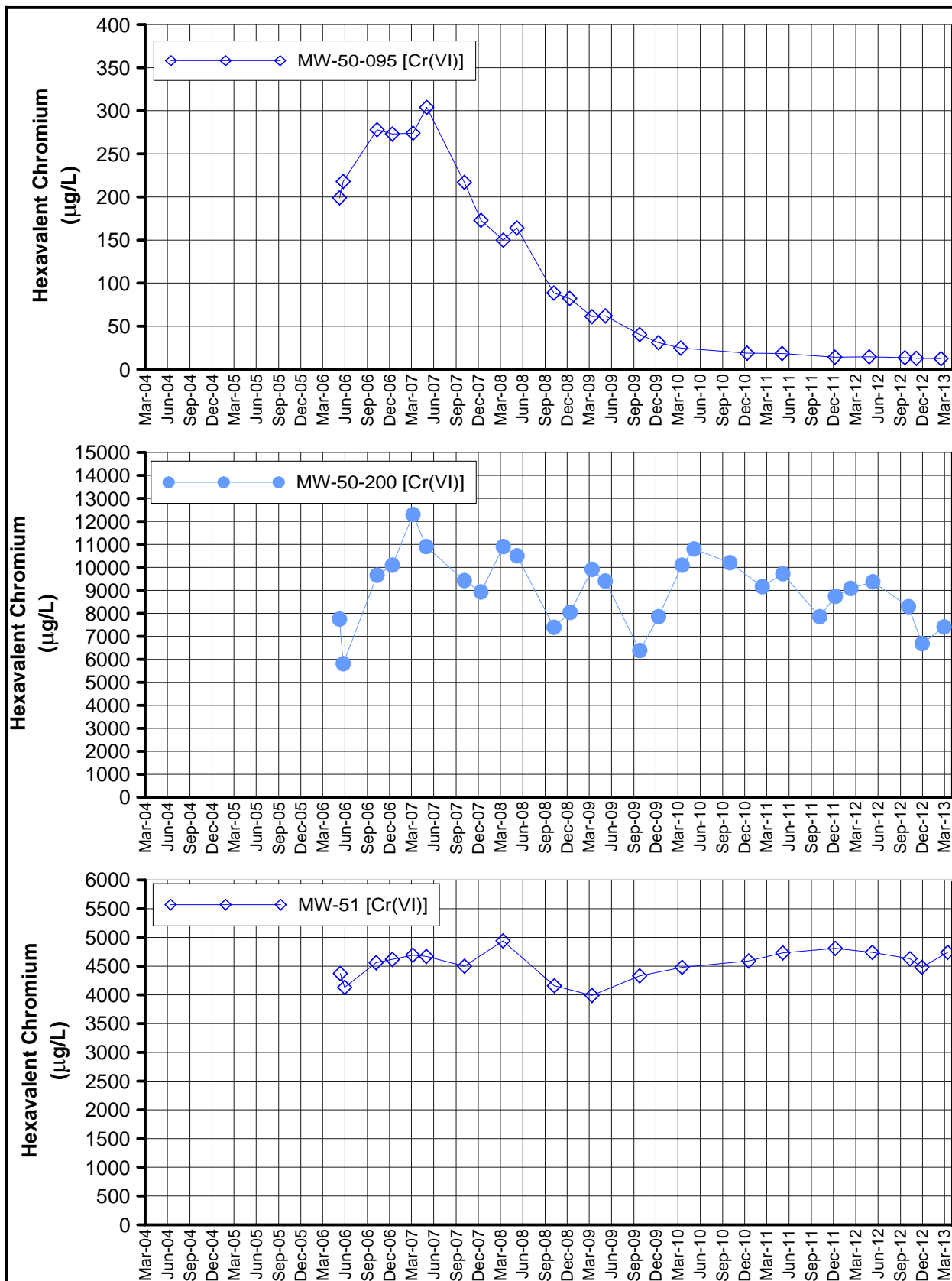
Notes:

- 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**

FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
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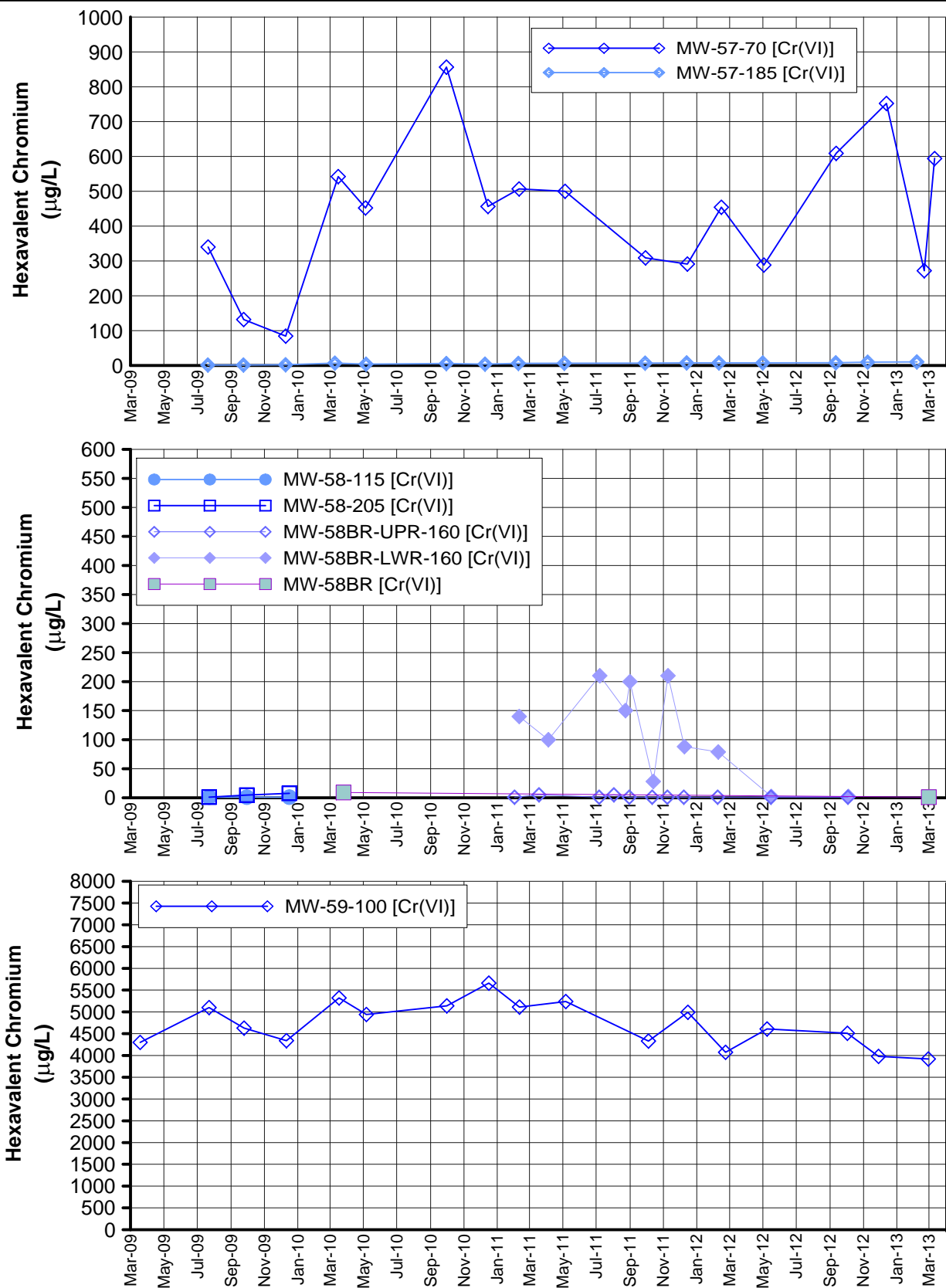


Notes:

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**

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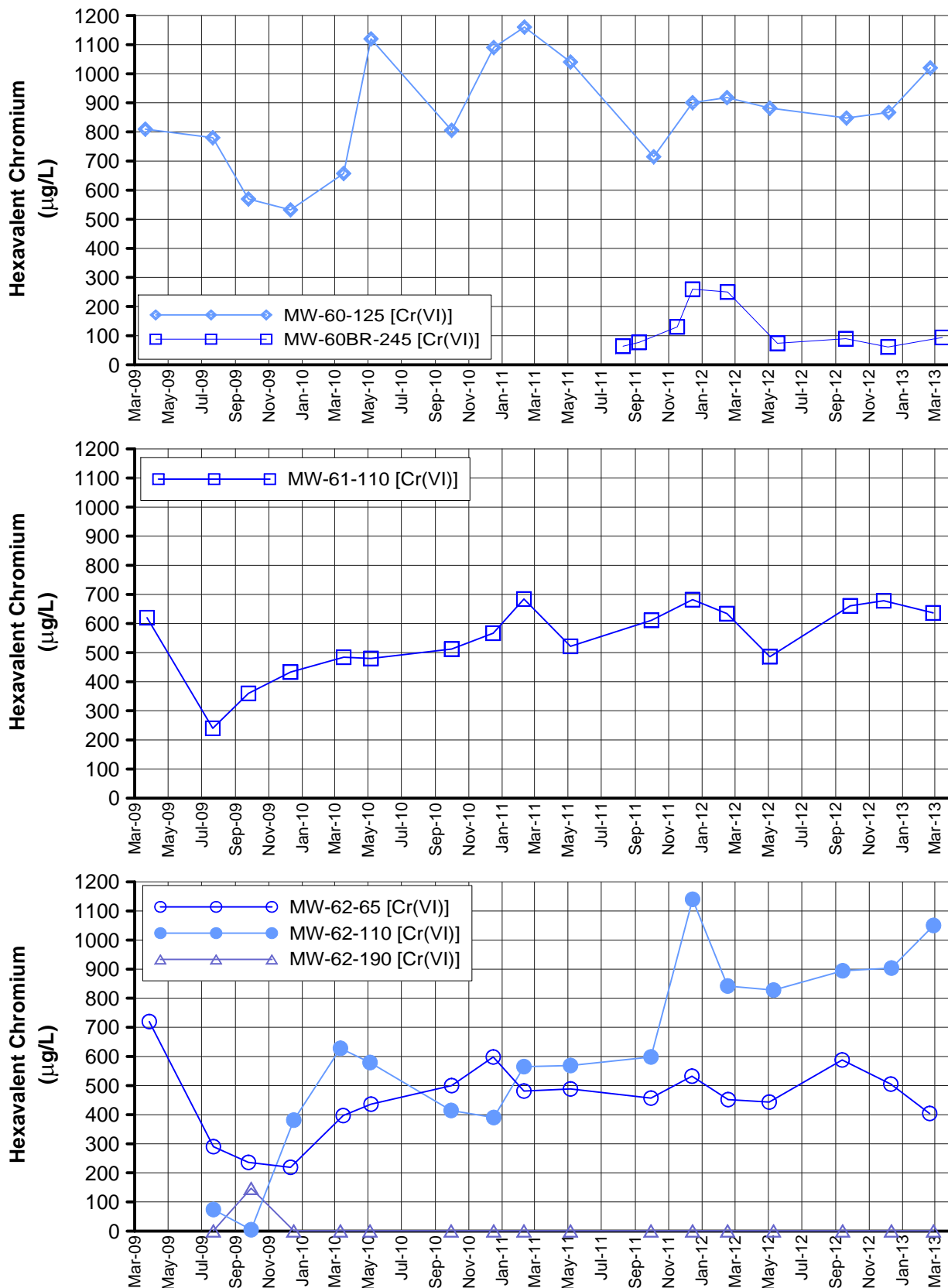


Notes:

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 Report, PG&E Company, Topock Compressor Station, Needles, California. November 15.

**FIGURE C-13
HEXAVALENT CHROMIUM
IN MW-57 CLUSTER, MW-58 CLUSTER AND MW-59-100
FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA**

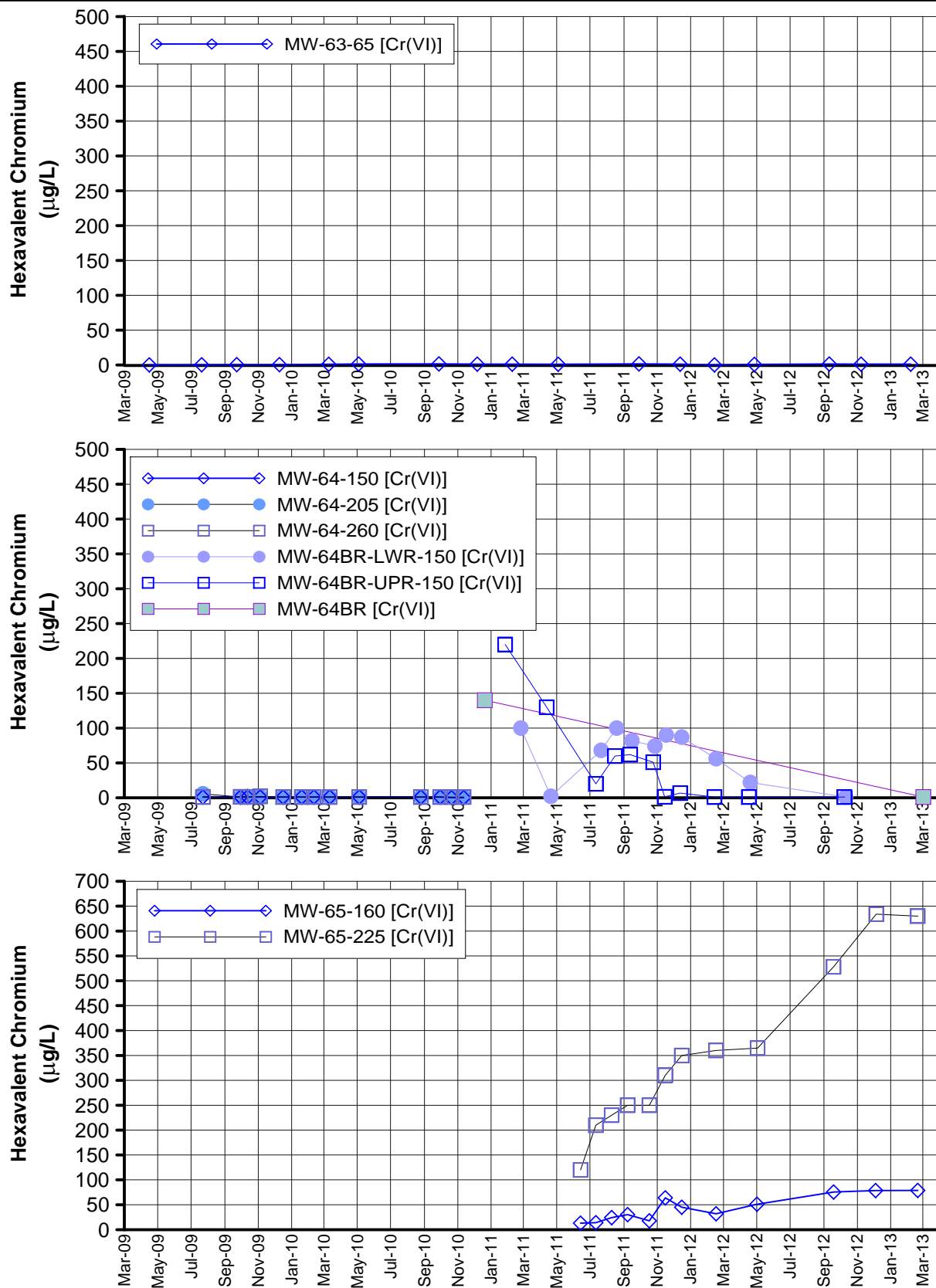


Notes:

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 Report, PG&E Company, Topock Compressor Station, Needles, California. November 15.

**FIGURE C-14
HEXAVALENT CHROMIUM
IN MW-60 CLUSTER, MW-61-110 AND MW-62 CLUSTER**
FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



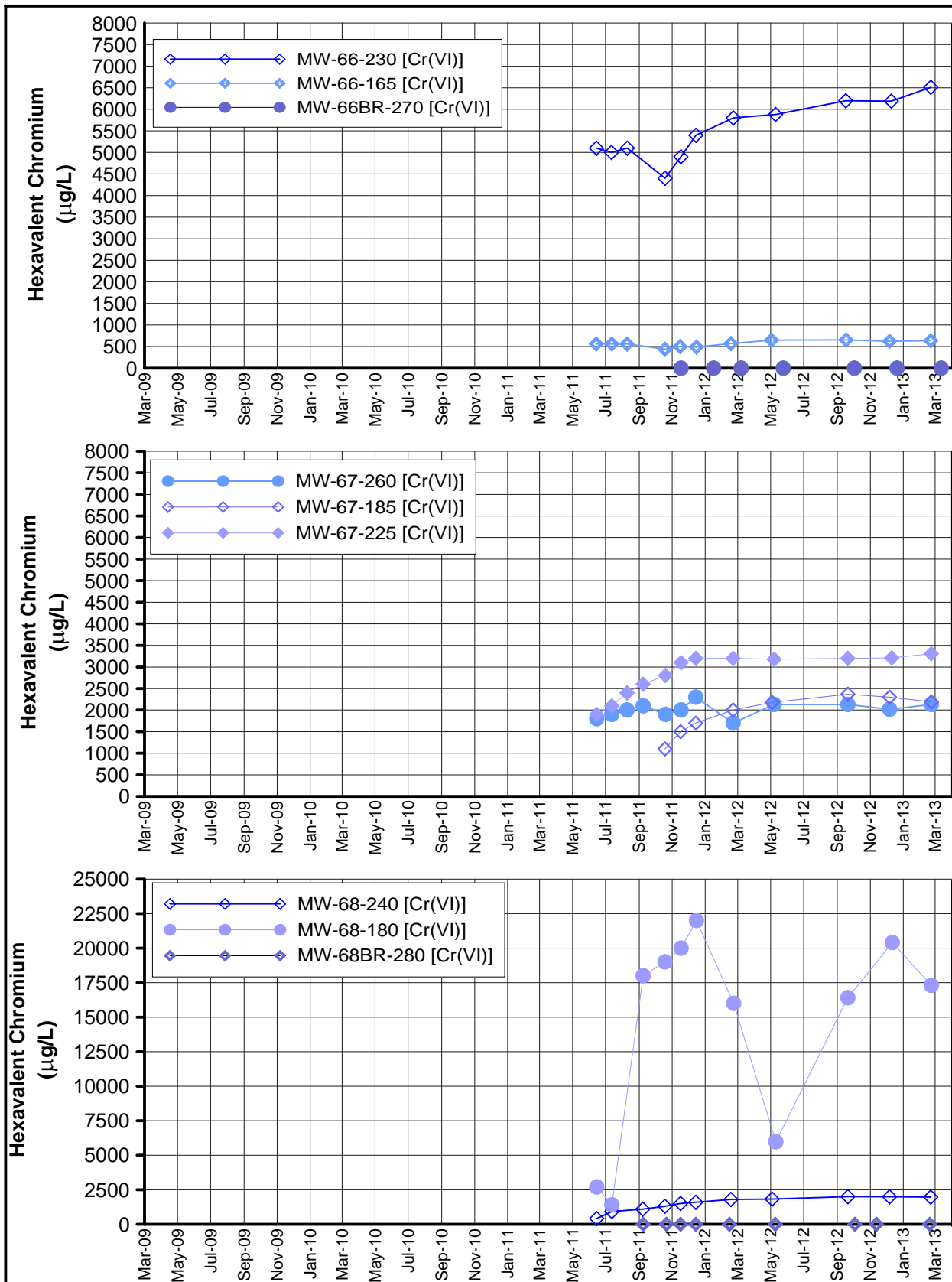
Notes:

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 Report, PG&E Company, Topock Compressor Station, Needles, California. November 15.

**FIGURE C-15
HEXAVALENT CHROMIUM
IN MW-63-65, MW-64 CLUSTER AND MW-65 CLUSTER
FIRST 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:

Data prior to May 2012 is reported in:

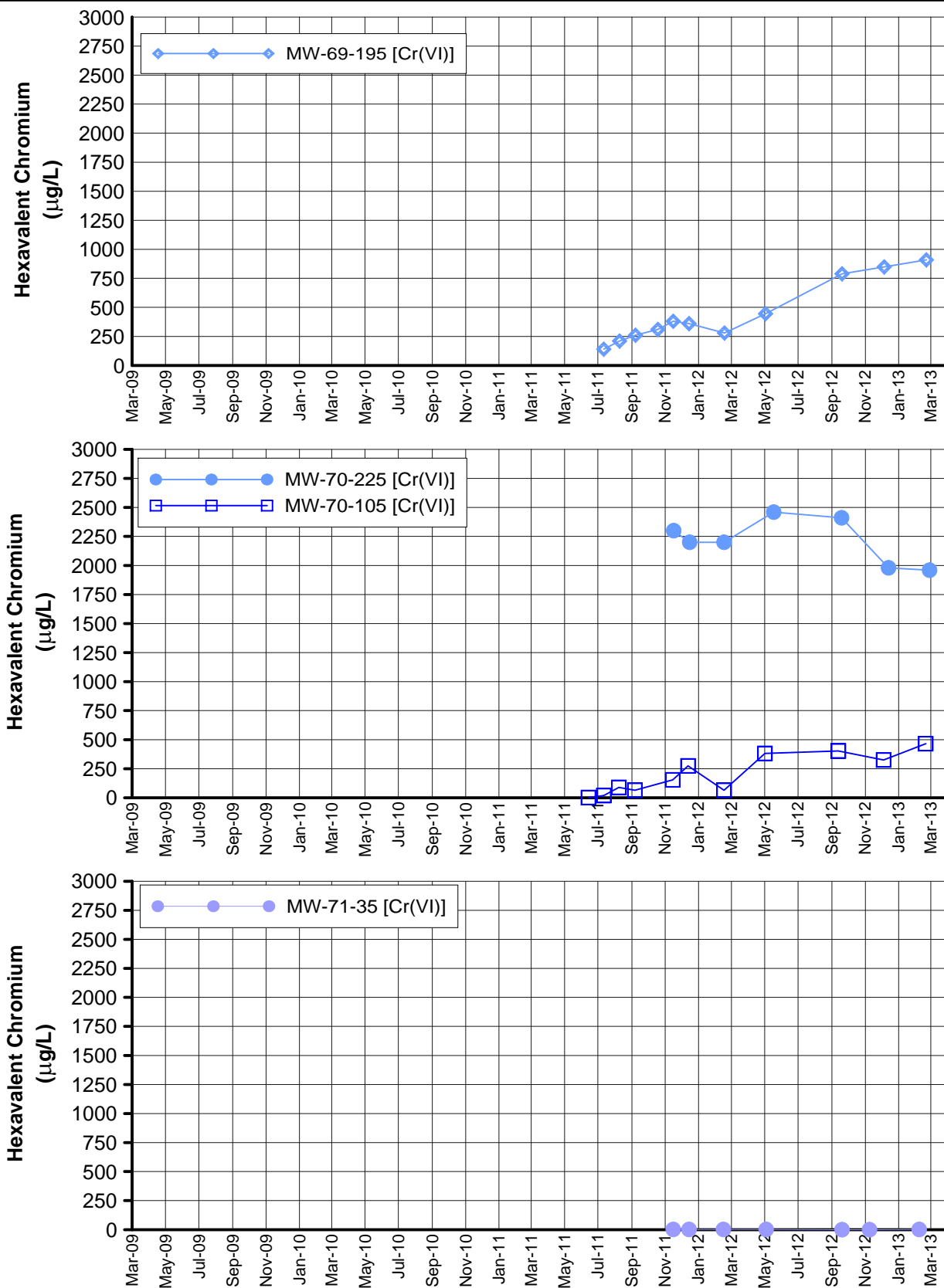
CH2M HILL. 2012d. Technical Memorandum. *Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation Report, PG&E Company, Topock Compressor Station, Needles, California.* November 15.

FIGURE C-16

HEXAVALENT CHROMIUM

IN MW-66, MW-67 AND MW-68 CLUSTERS

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

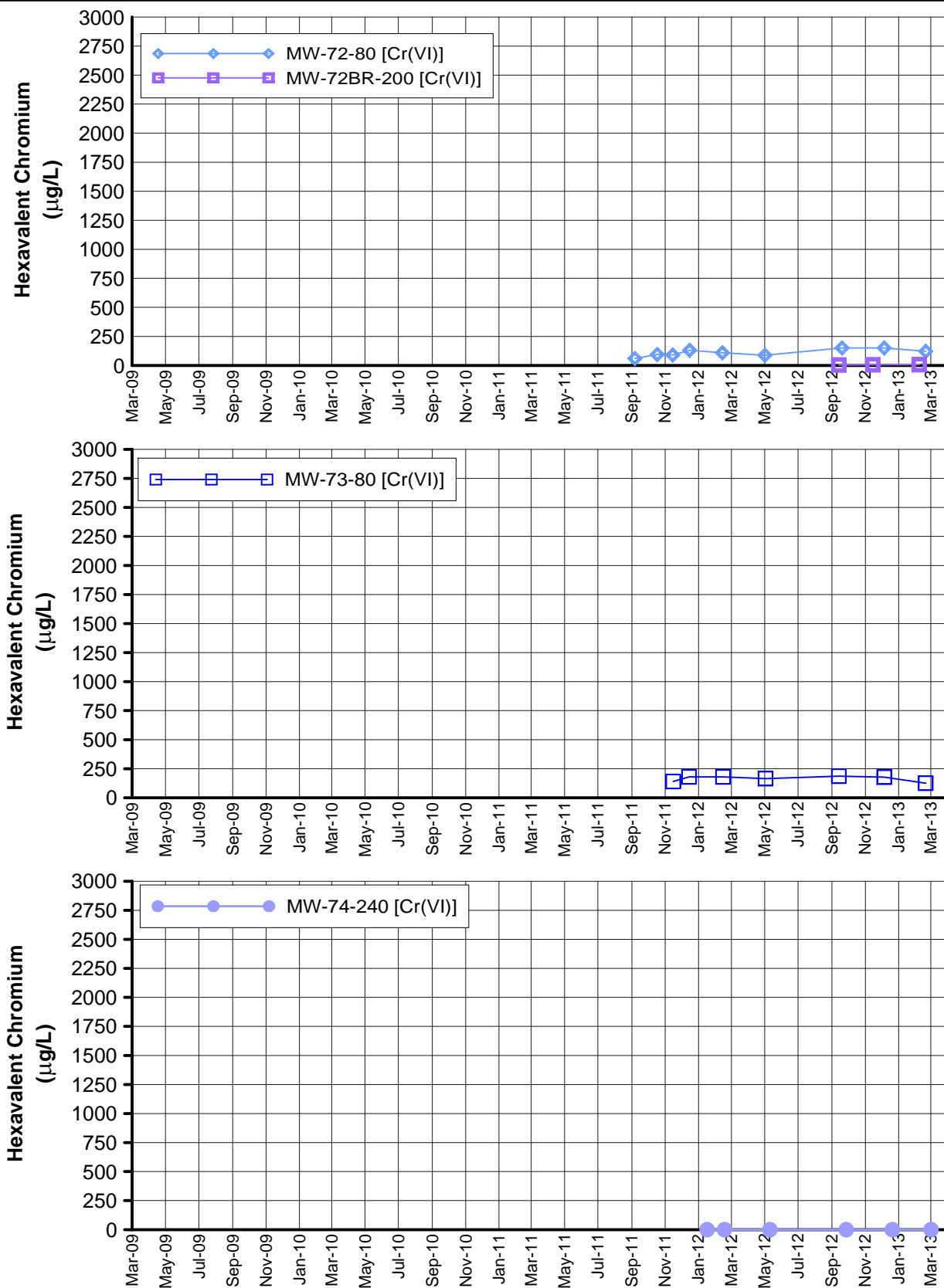


Notes:

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 Report, PG&E Company, Topock Compressor Station, Needles, California.* November 15.

FIGURE C-17
HEXAVALENT CHROMIUM
IN MW-69-195, MW-70 CLUSTER AND MW-71-35
 FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE
 MONITORING AND SITE-WIDE GROUNDWATER
 AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION,
 NEEDLES, CALIFORNIA

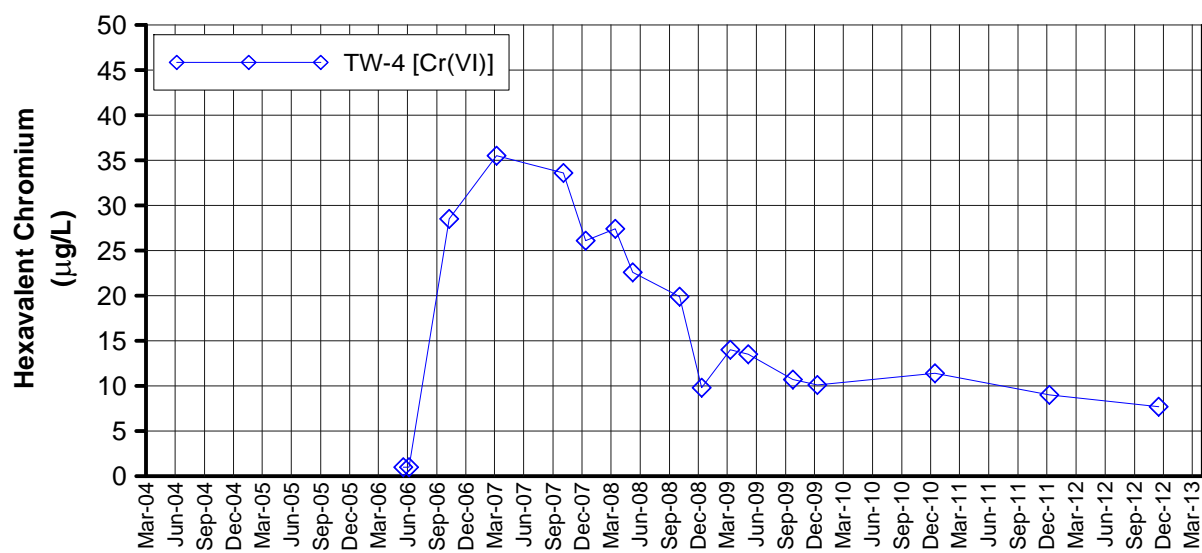


Notes:

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 Report, PG&E Company, Topock Compressor Station, Needles, California.* November 15.

**FIGURE C-18
HEXAVALENT CHROMIUM
IN MW-72 CLUSTER, MW-73-80 AND MW-74-240**
FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA



**FIGURE C-19
HEXAVALENT CHROMIUM
IN TW-4**

FIRST 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,
First Quarter 2013

Interim Measures Extraction System Operations Log, First Quarter 2013, PG&E Topock Performance Monitoring Program

During first quarter 2013 (January through March), 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 wells TW-2S and TW-2D were not operated during first quarter 2013. The operational run time for the Interim Measure groundwater extraction system (combined or individual pumping) was approximately 97.7 percent during first quarter 2013.

The Interim Measure Number 3 (IM-3) facility treated approximately 17,196,399 gallons of extracted groundwater during first quarter 2013. The IM-3 facility also treated approximately 3,110 gallons of water generated from the groundwater monitoring program and 14,500 gallons of water from IM-3 well backwashing. The IM-3 facility treated 350 gallons of rainwater that accumulated in the secondary containment around the MW-20 Bench Facility. Eight 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 2.3 percent of downtime during first 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 January 2013

- **January 2, 2013 (planned):** The extraction well system was offline from 10:54 a.m. to 10:56 a.m., from 11:34 a.m. to 11:36 a.m., from 11:40 a.m. to 11:42 a.m., and from 11:46 a.m. to 11:48 a.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 8 minutes.
- **January 2, 2013 (unplanned):** The extraction well system was offline from 1:16 p.m. to 1:46 p.m. for clarifier feed pump, P-400, maintenance. Extraction system downtime was 30 minutes.
- **January 3, 2013 (unplanned):** The extraction well system was offline from 10:54 a.m. to 12:28 p.m. for clarifier feed pump, P-400, replacement. Extraction system downtime was 1 hour, 34 minutes.
- **January 23, 2013 (planned):** The extraction well system was offline from 7:26 a.m. to 6:46 p.m. for cleaning of the Iron Oxidation Tanks T-301A, T-301B, and T-301C. Extraction system downtime was 11 hours, 20 minutes.
- **January 24, 2013 (unplanned):** The extraction well system was offline from 9:16 a.m. to 10:30 a.m. due to a high-level alarm in the raw water tank, T-100. Extraction system downtime was 1 hour, 14 minutes.

D.2 February 2013

- **February 2, 2013 (unplanned):** The extraction well system was offline from 10:06 p.m. to 10:08 p.m. due to loss of power from Needles Power. Extraction system downtime was 2 minutes.
- **February 6, 2013 (planned):** The extraction well system was offline from 10:38 a.m. to 1:52 p.m. to replace the primary reverse osmosis membranes. Extraction system downtime was 3 hours, 14 minutes.
- **February 6, 2013 (planned):** The extraction well system was offline from 2:56 p.m. to 3:02 p.m. and from 3:08 p.m. to 3:36 p.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 34 minutes.
- **February 10, 2013 (unplanned):** The extraction well system was offline from 6:08 a.m. to 7:26 a.m. due to reduced microfilter performance. Extraction system downtime was 1 hour, 18 minutes.

- **February 11 to 12, 2013 (unplanned):** The extraction well system was offline from 10:18 p.m. to 9:40 a.m. due to microfilter maintenance. Extraction system downtime was 13 hours, 22 minutes.
- **February 12, 2013 (unplanned):** The extraction well system was offline from 1:04 p.m. to 5:22 p.m. due to microfilter maintenance. Extraction system downtime was 4 hours, 18 minutes.

D.3 March 2013

- **March 6, 2013 (planned):** The extraction well system was offline from 10:12 a.m. to 10:22 a.m., from 10:54 a.m. to 10:56 a.m., from 11:02 a.m. to 11:04 a.m., from 11:12 a.m. to 11:14 a.m., from 11:20 a.m. to 11:22 a.m., from 11:26 a.m. to 11:28 a.m., and from 11:34 a.m. to 11:36 a.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 22 minutes.
- **March 11, 2013 (unplanned):** The extraction well system was offline from 10:26 p.m. to 11:32 p.m. for cleaning of the Raw Water Storage Tank and Process Drain Tank strainers. Extraction system downtime was 1 hour, 6 minutes.
- **March 13, 2013 (unplanned):** The extraction well system was offline from 7:02 a.m. to 3:28 p.m. due to maintenance on the injection water transfer piping. Extraction system downtime was 8 hours, 26 minutes.
- **March 13, 2013 (unplanned):** The extraction well system was offline from 7:50 p.m. to 7:54 p.m. due to loss of power from Needles Power. Extraction system downtime was 4 minutes.
- **March 15, 2013 (unplanned):** The extraction well system was offline from 1:00 p.m. to 2:26 p.m. and from 3:20 p.m. to 3:40 p.m. for the engineer to upload new human-machine interface software. Extraction system downtime was 1 hour, 46 minutes.
- **March 18, 2013 (unplanned):** The extraction well system was offline from 9:30 a.m. to 9:36 a.m. due to loss of power from Needles Power. Extraction system downtime was 6 minutes.
- **March 19, 2013 (unplanned):** The extraction well system was offline from 11:08 a.m. to 11:18 a.m. due to "brine test." Extraction system downtime was 10 minutes.
- **March 26, 2013 (unplanned):** The extraction well system was offline from 10:04 p.m. to 10:16 p.m. due to "training." Extraction system downtime was 12 minutes.

Appendix E
Hydraulic Data for Interim Measures
Reporting Period

Table E-1

Average Monthly and Quarterly Groundwater Elevations, First Quarter 2013
 First 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	January 2013	February 2013	March 2013	Quarter Average	Days in Quarter Average
I-3	River Station	453.28	454.63	456.29	454.74	90
MW-20-070	Shallow Zone	452.18	452.94	454.07	453.07	90
MW-20-100	Middle Zone	451.73	452.47	453.61	452.61	90
MW-20-130	Deep Zone	451.30	452.08	453.20	452.20	90
MW-22	Shallow Zone	453.41	453.96	455.01	454.13	90
MW-25	Shallow Zone	453.84	454.20	INC	INC	58
MW-26	Shallow Zone	453.57	453.94	454.78	454.18	74
MW-27-020	Shallow Zone	453.11	454.32	455.94	454.46	90
MW-27-060	Middle Zone	453.15	454.36	455.95	454.49	90
MW-27-085	Deep Zone	453.08	454.28	455.85	454.41	90
MW-28-025	Shallow Zone	453.09	454.33	455.96	454.47	90
MW-28-090	Deep Zone	453.21	454.40	455.94	454.52	90
MW-30-050	Middle Zone	452.87	453.98	455.46	454.11	90
MW-31-060	Shallow Zone	453.04	453.87	455.06	454.00	90
MW-31-135	Deep Zone	452.42	453.29	454.48	453.40	90
MW-32-035	Shallow Zone	453.04	454.12	454.99	INC	63
MW-33-040	Shallow Zone	453.35	454.23	455.52	454.37	90
MW-33-090	Middle Zone	453.39	454.39	455.80	454.53	90
MW-33-150	Deep Zone	453.45	454.40	455.66	454.51	90
MW-34-055	Middle Zone	453.14	454.37	455.96	454.49	90
MW-34-080	Deep Zone	453.20	454.34	455.93	454.49	90
MW-34-100	Deep Zone	452.90	454.17	455.69	454.36	73
MW-35-060	Shallow Zone	453.66	454.72	456.20	454.86	90
MW-35-135	Deep Zone	454.06	454.85	456.10	455.01	90
MW-36-020	Shallow Zone	453.08	454.14	455.47	454.23	90
MW-36-040	Shallow Zone	452.97	454.11	455.62	454.24	90
MW-36-050	Middle Zone	452.88	454.03	455.55	454.16	90
MW-36-070	Middle Zone	452.85	454.01	455.53	454.13	90
MW-36-090	Deep Zone	452.06	453.10	454.50	453.22	90
MW-36-100	Deep Zone	452.37	453.44	454.88	453.57	90
MW-39-040	Shallow Zone	452.82	453.88	455.32	454.01	90
MW-39-050	Middle Zone	452.67	453.70	455.13	453.84	90
MW-39-060	Middle Zone	452.52	453.53	454.92	453.66	90
MW-39-070	Middle Zone	452.10	453.02	454.29	453.14	90
MW-39-080	Deep Zone	452.24	453.18	454.50	453.31	90
MW-39-100	Deep Zone	452.49	453.46	454.80	453.59	90
MW-42-030	Shallow Zone	452.82	453.88	455.32	454.01	90
MW-42-065	Middle Zone	453.02	454.04	INC	INC	56
MW-43-025	Shallow Zone	453.11	454.37	456.02	454.51	90
MW-43-090	Deep Zone	453.45	454.76	456.43	454.88	90
MW-44-070	Middle Zone	453.09	454.26	455.80	454.38	90
MW-44-115	Deep Zone	452.70	453.71	455.14	453.85	90
MW-44-125	Deep Zone	453.13	454.17	455.69	454.33	89
MW-45-095a	Deep Zone	451.82	452.98	454.41	453.07	90
MW-46-175	Deep Zone	453.21	454.14	455.46	454.28	90
MW-47-055	Shallow Zone	453.59	454.49	455.82	454.64	90
MW-47-115	Deep Zone	453.59	454.39	455.66	454.55	90
MW-49-135	Deep Zone	453.68	454.65	456.04	454.79	90

Table E-1

Average Monthly and Quarterly Groundwater Elevations, First Quarter 2013
*First Quarter 2013 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California*

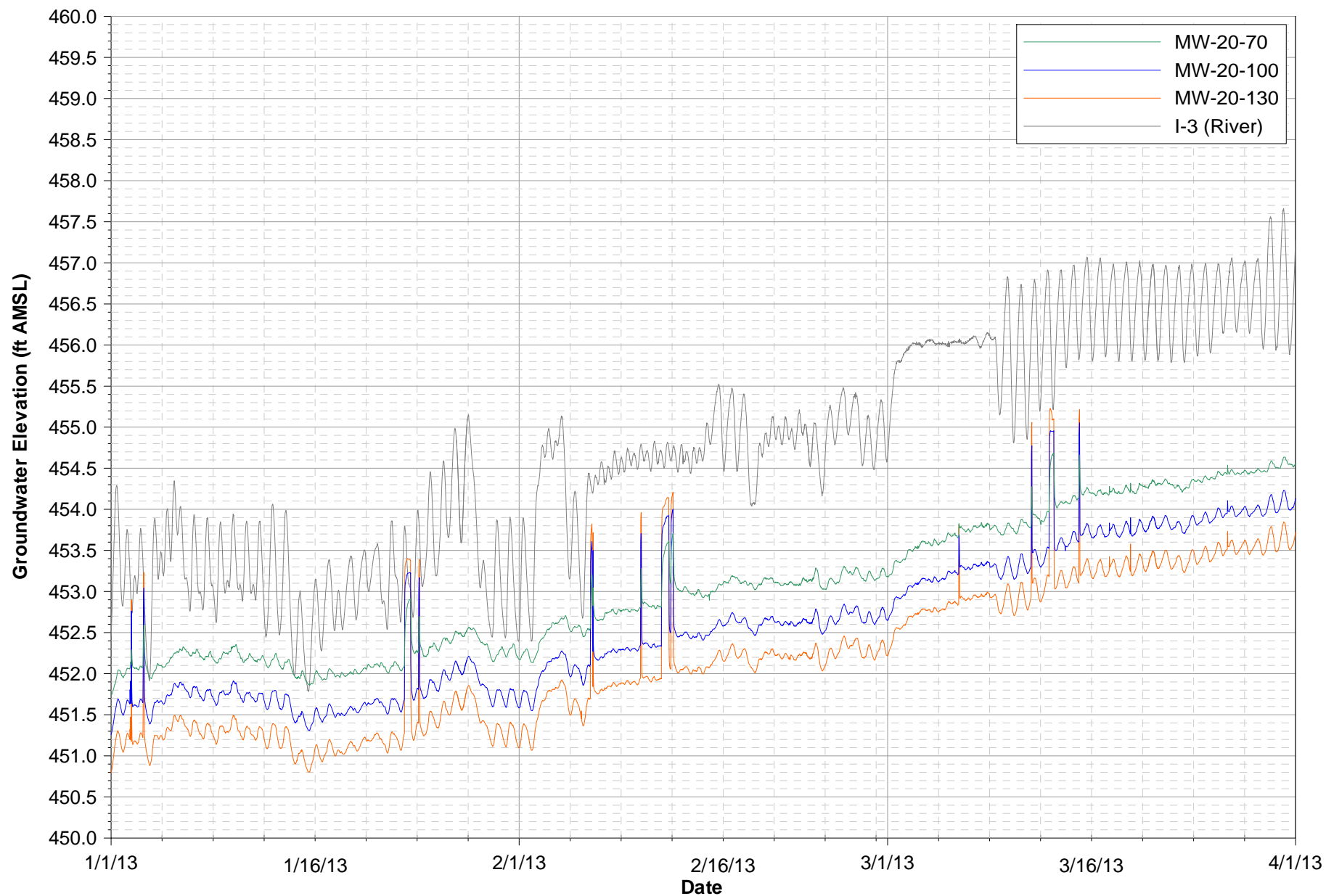
Well ID	Aquifer Zone	January 2013	February 2013	March 2013	Quarter Average	Days in Quarter Average
MW-50-095	Middle Zone	453.34	454.03	455.18	454.19	90
MW-51	Middle Zone	453.57	453.94	454.80	454.12	83
MW-54-085	Deep Zone	453.53	454.74	456.35	454.88	90
MW-54-140	Deep Zone	453.99	455.02	456.41	455.15	90
MW-54-195	Deep Zone	454.26	455.21	INC	INC	46
MW-55-045	Middle Zone	455.02	455.67	456.67	455.79	90
MW-55-120	Deep Zone	455.27	455.83	456.77	456.04	80
PT2D	Deep Zone	451.85	452.78	454.07	452.90	90
PT5D	Deep Zone	452.17	453.16	454.57	453.40	82
PT6D	Deep Zone	452.39	453.36	454.68	453.48	90
RRB	River Station	453.69	454.94	456.64	455.09	90

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.



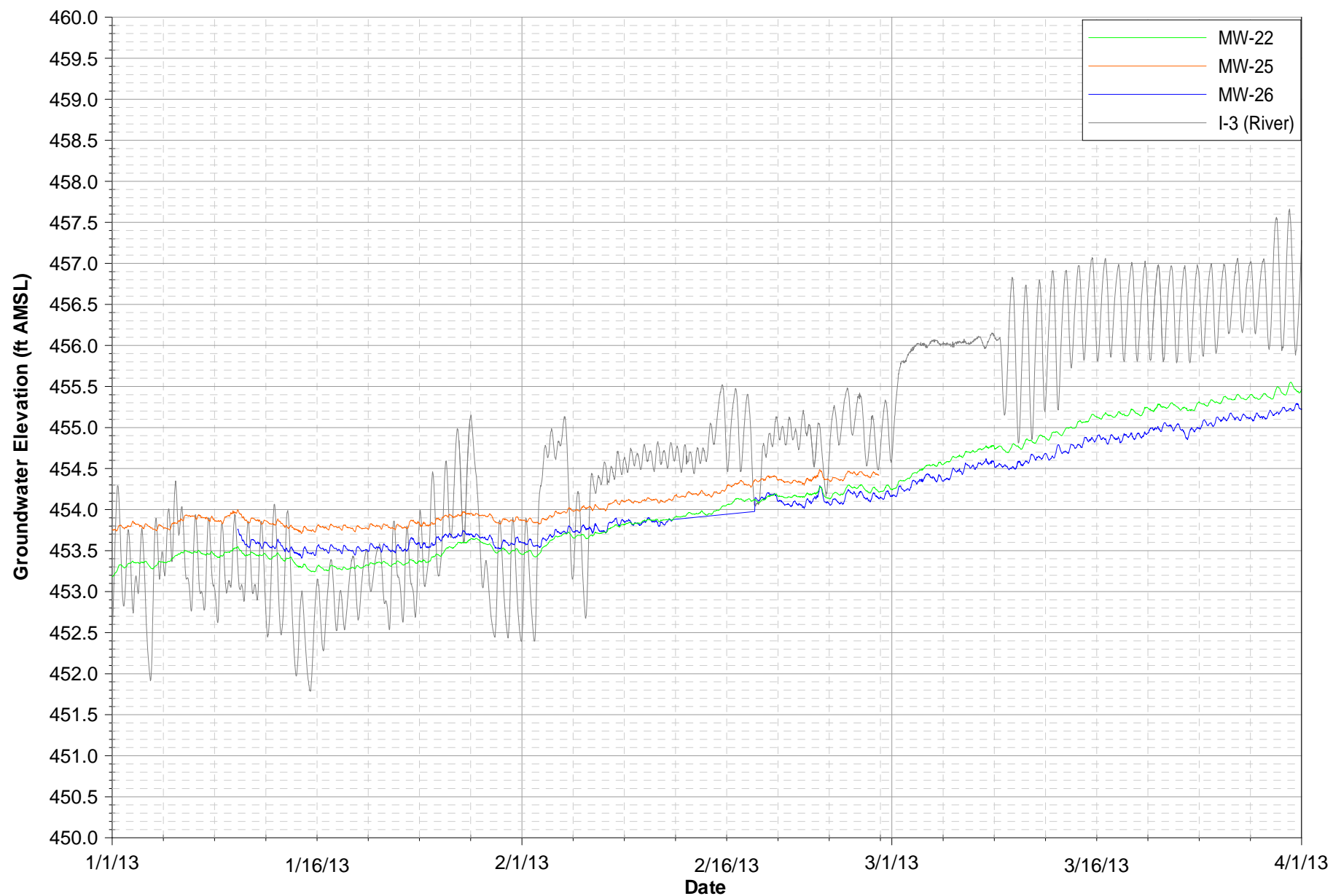
Notes:
Data subject to review.

FIGURE E-1A

MW-20 CLUSTER HYDROGRAPHS

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

CH2MHILL

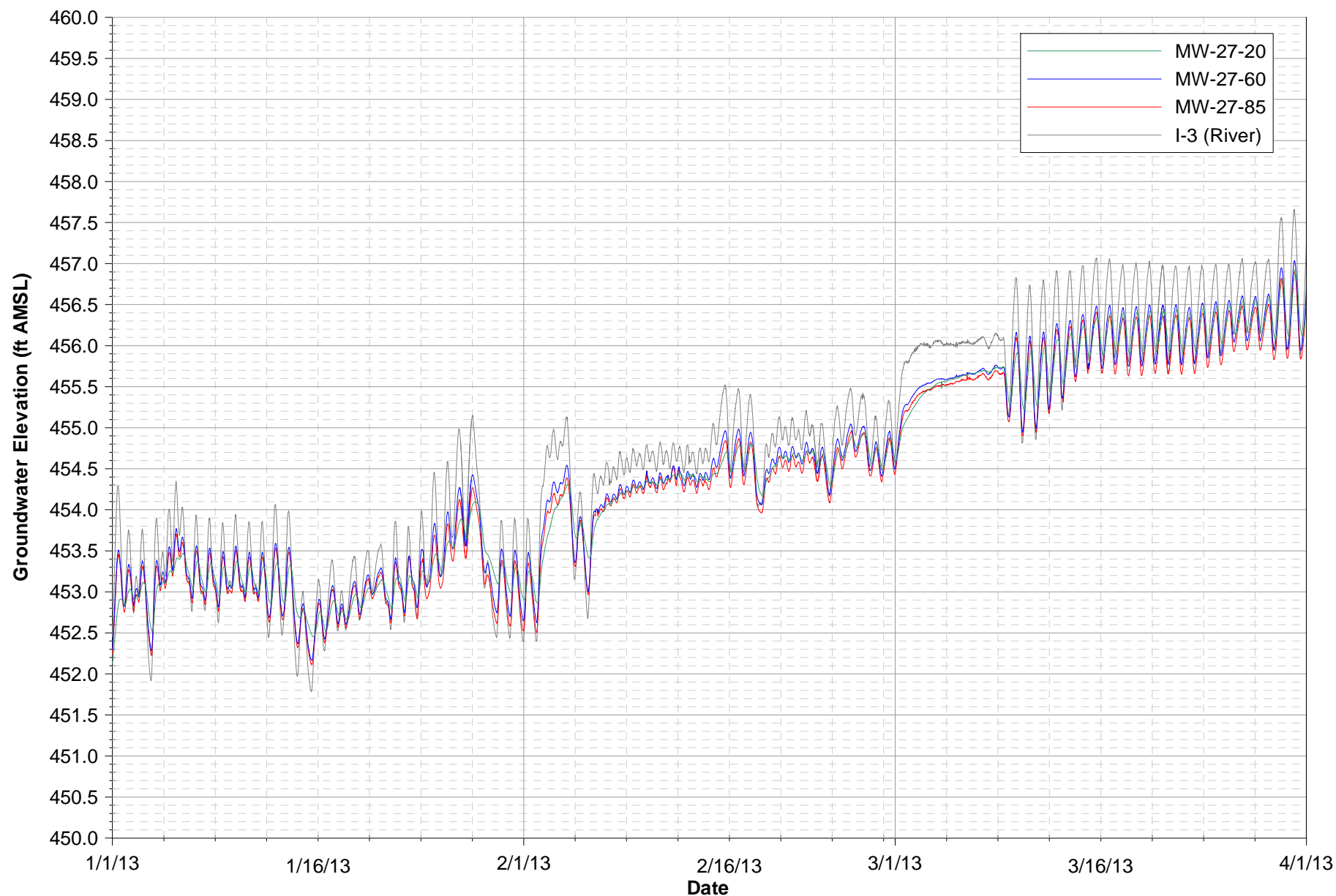


Notes:
 Data subject to review.
 MW-25 data unavailable from February 28, 2013 through April 1, 2013 due to transducer malfunction.
 MW-26 data unavailable from January 1, 2013 through January 10, 2013 due to transducer malfunction.

FIGURE E-1B

MW-22, MW-25, AND MW-26 HYDROGRAPHS

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

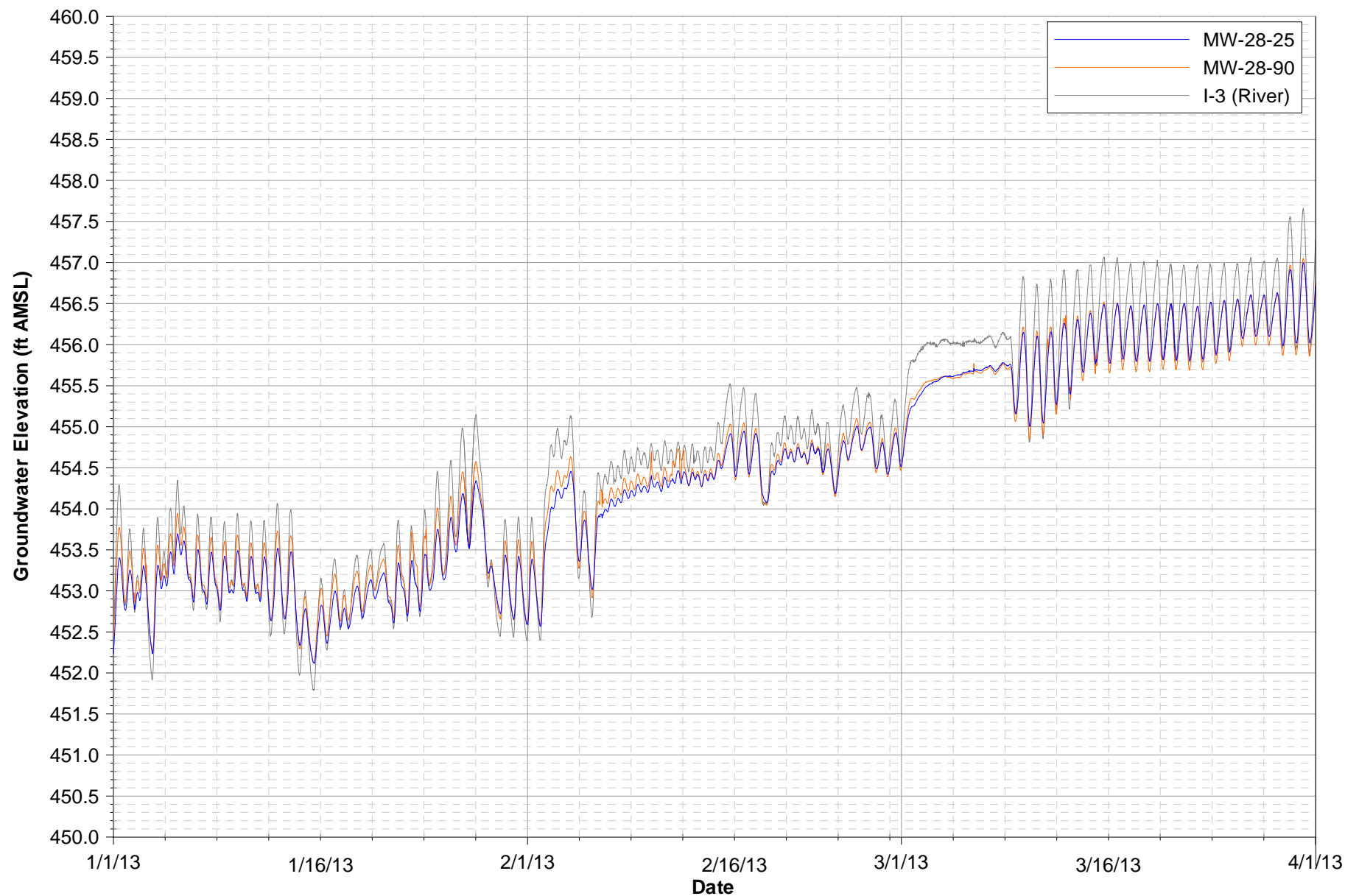


Notes:
Data subject to review.

FIGURE E-1C

MW-27 CLUSTER HYDROGRAPHS

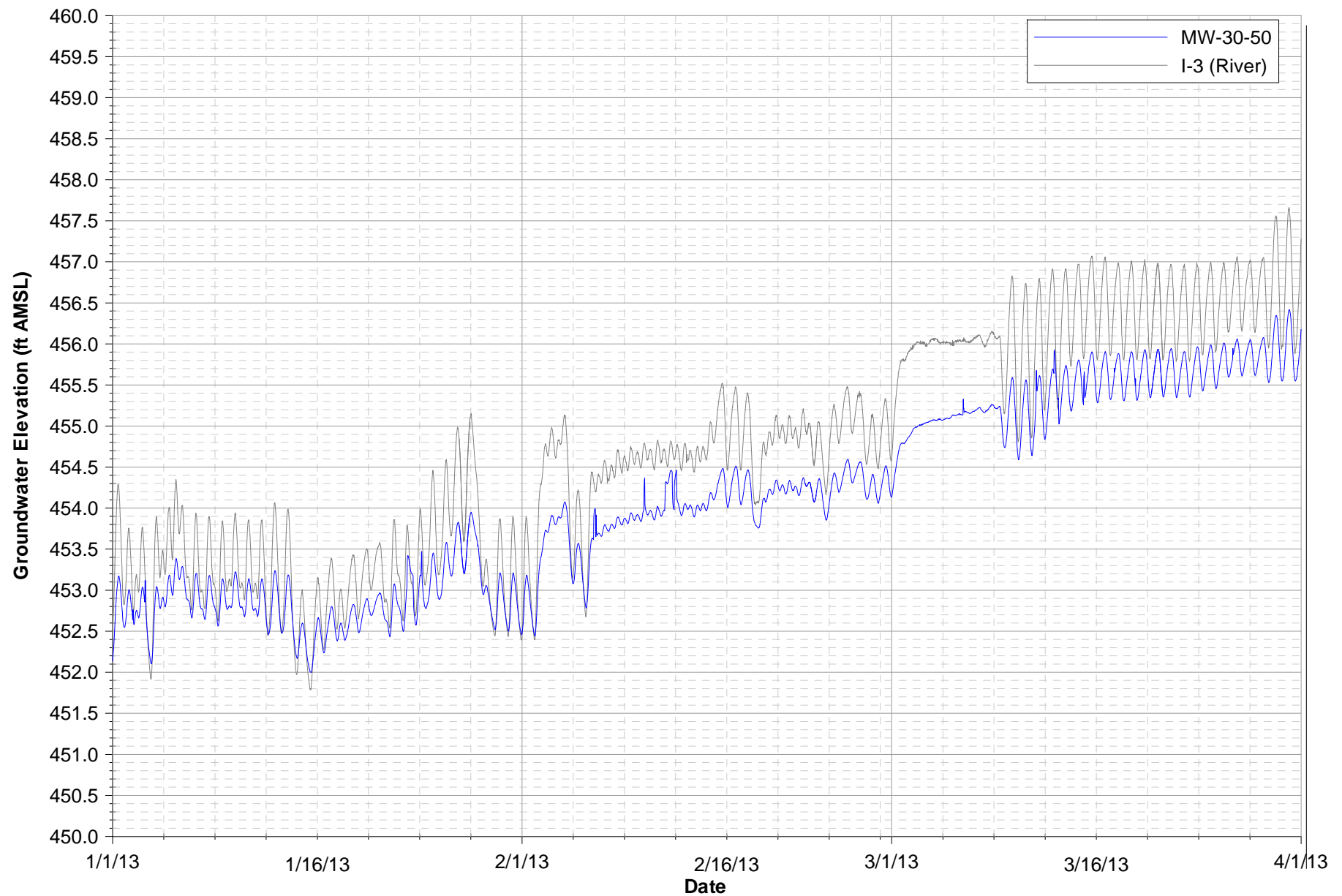
FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
Data subject to review.

FIGURE E-1D MW-28 CLUSTER HYDROGRAPHS

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

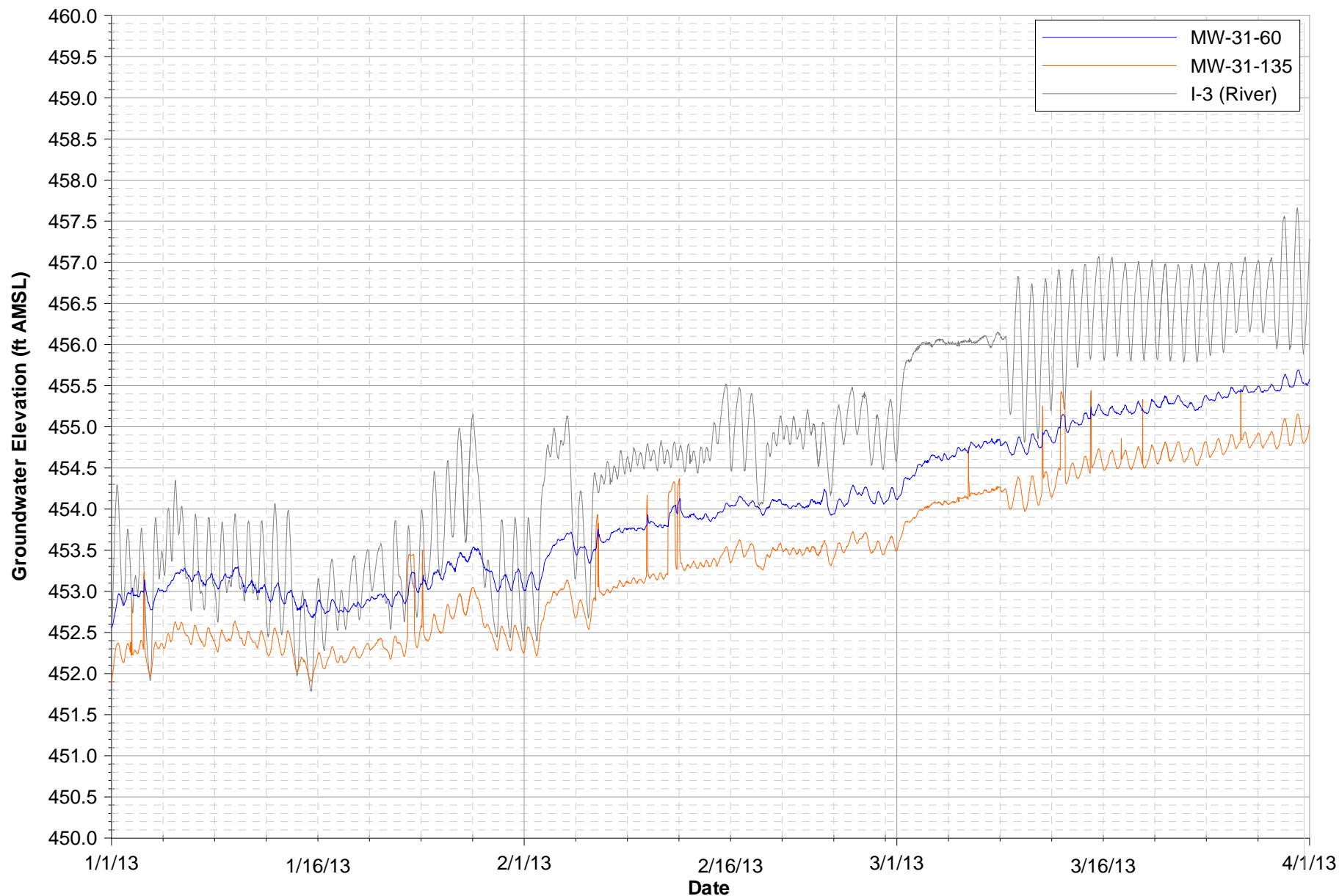


Notes:
Data subject to review.

FIGURE E-1E

MW-30-50 HYDROGRAPH

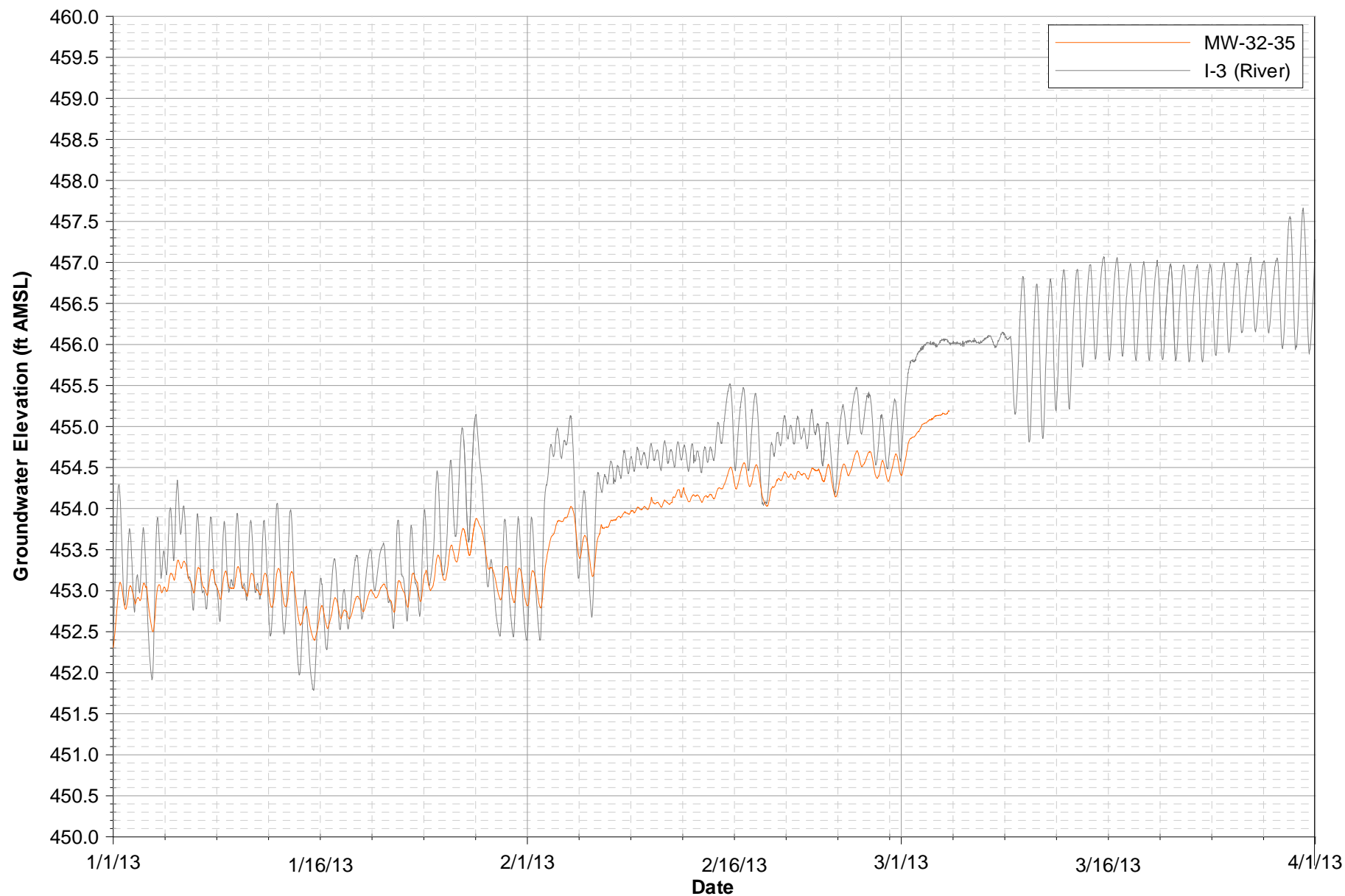
FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
Data subject to review.

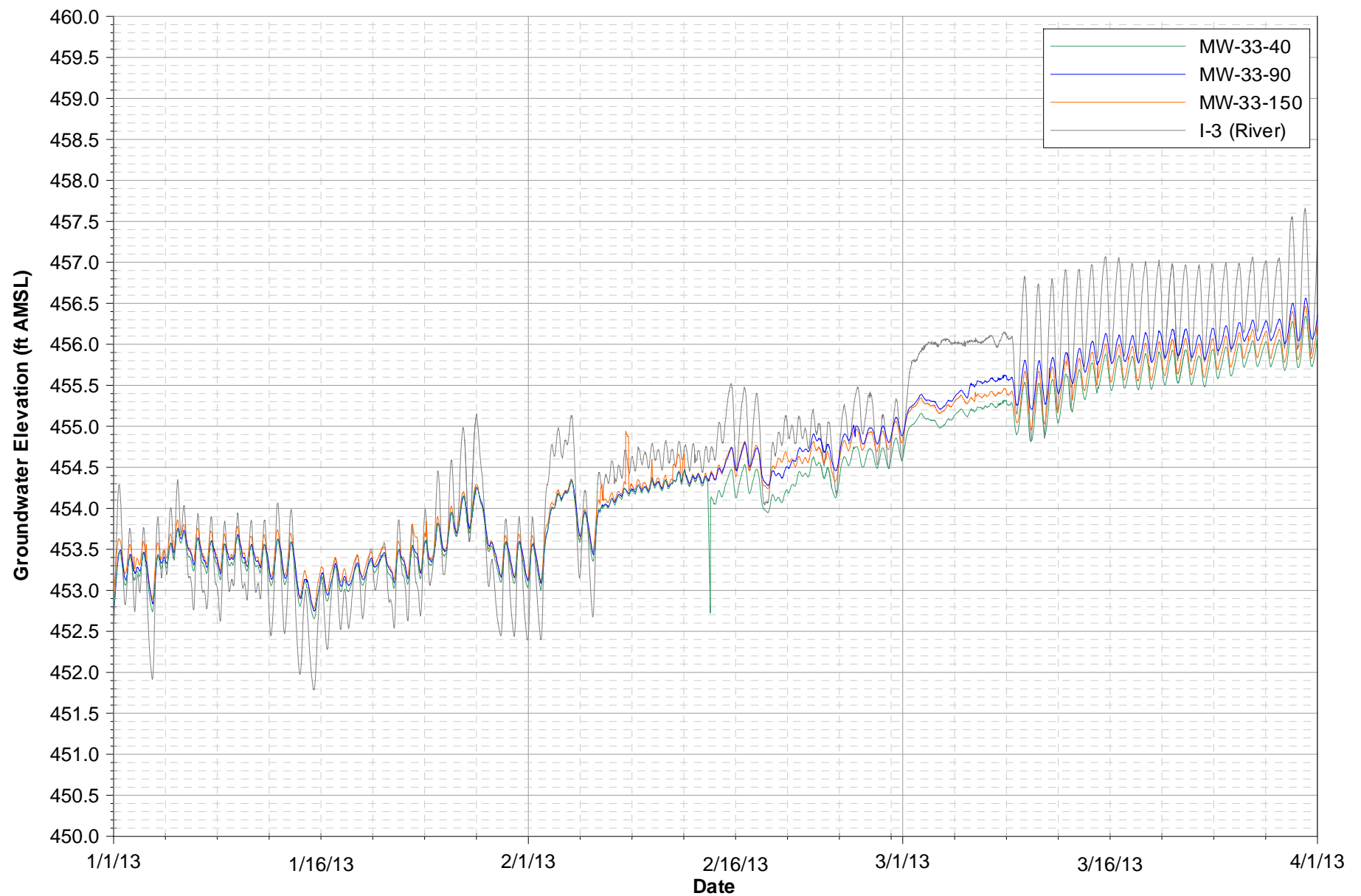
FIGURE E-1F MW-31 CLUSTER HYDROGRAPHS

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



Notes:
 Data subject to review.
 MW-32-35 data unavailable from March 4, 2013 through April 1, 2013 due to transducer malfunction.

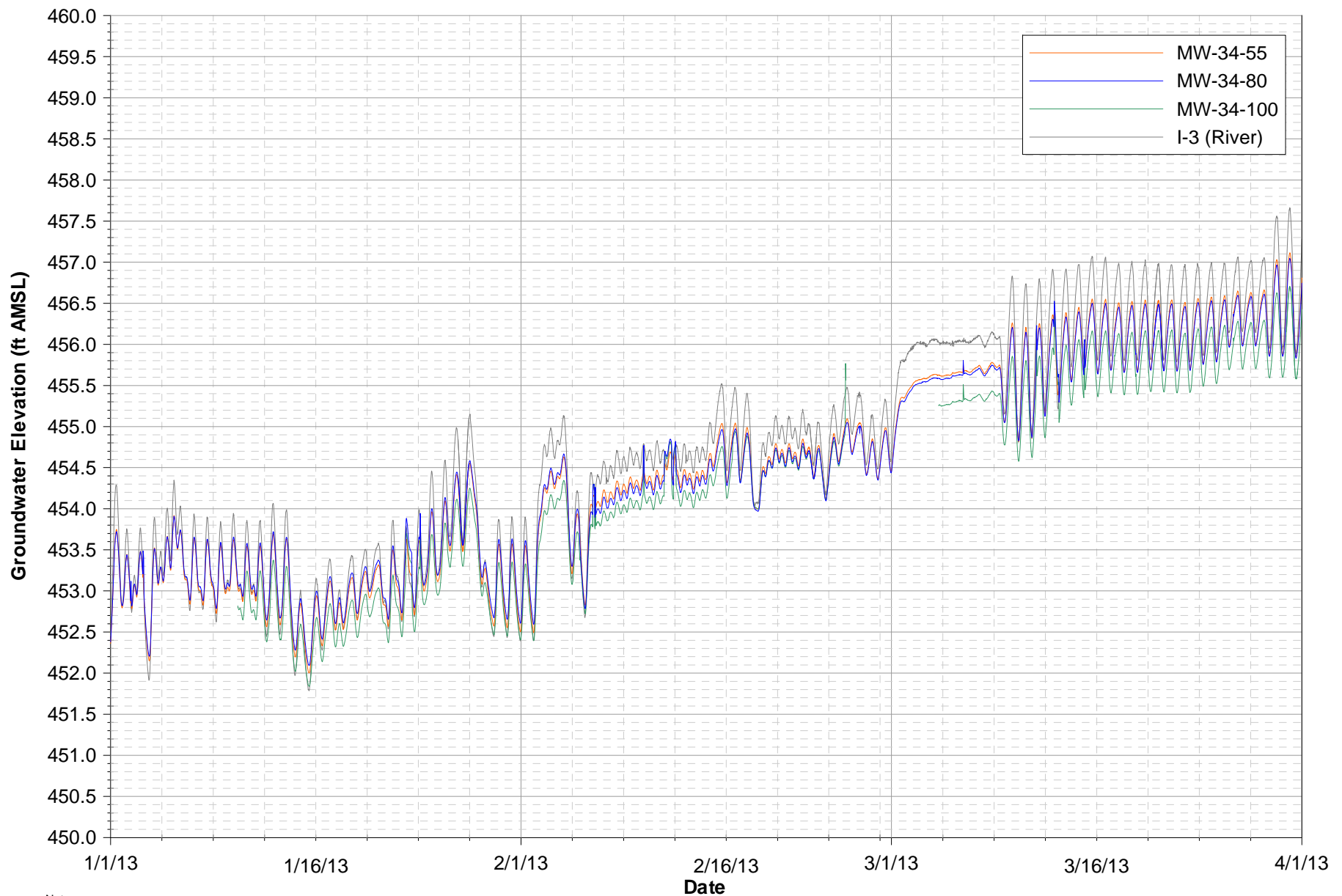
FIGURE E-1G
MW-32 HYDROGRAPH
 FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
Data subject to review.

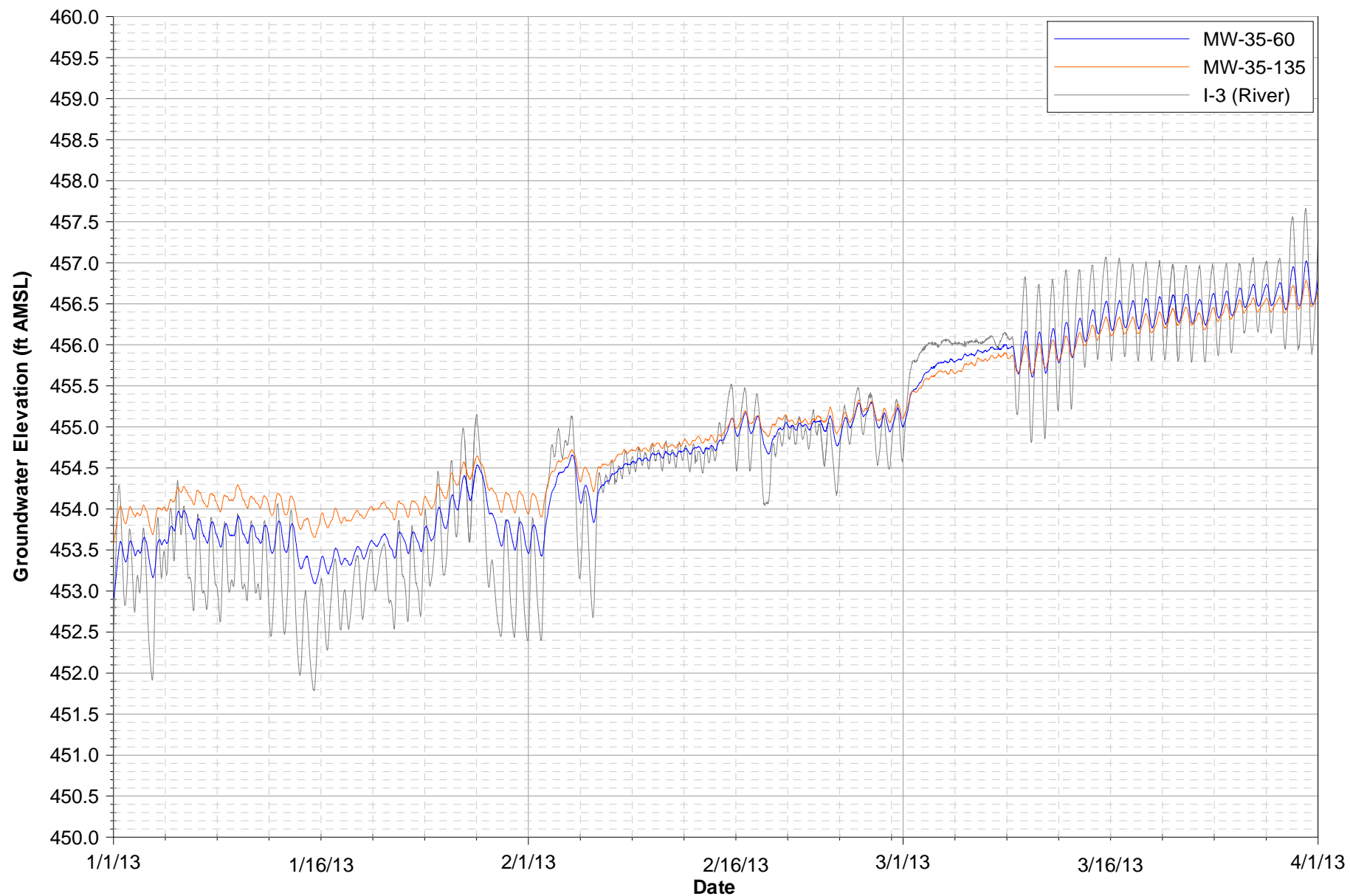
FIGURE E-1H MW-33 CLUSTER HYDROGRAPHS

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



Notes:
 Data subject to review.
 MW-34-100 data unavailable from January 1 through January 10, 2013 and from February 25 through March 4, 2013
 due to transducer malfunction.

FIGURE E-11
MW-34 CLUSTER HYDROGRAPHS
 FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

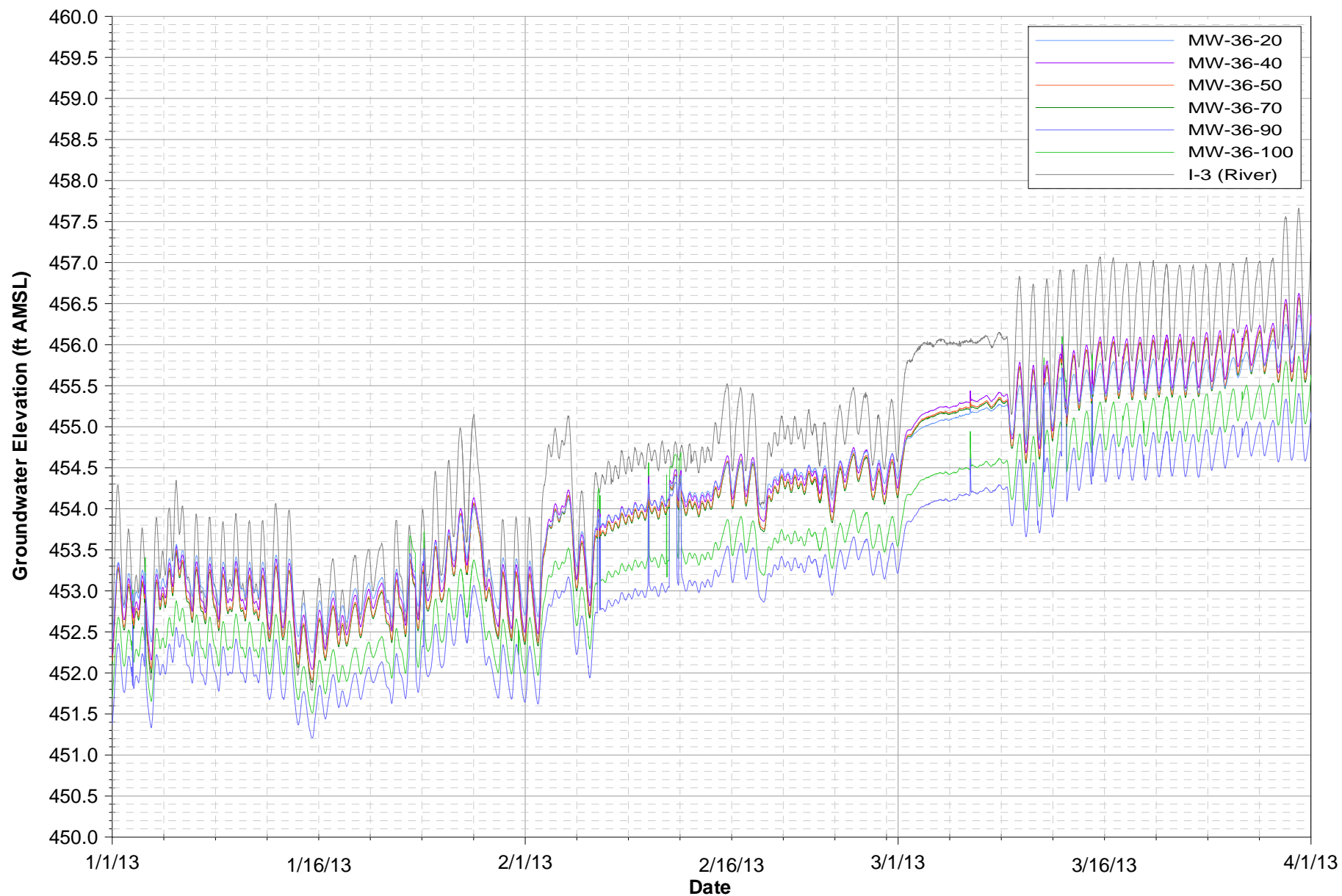


Notes:
Data subject to review.

FIGURE E-1J

MW-35 CLUSTER HYDROGRAPHS

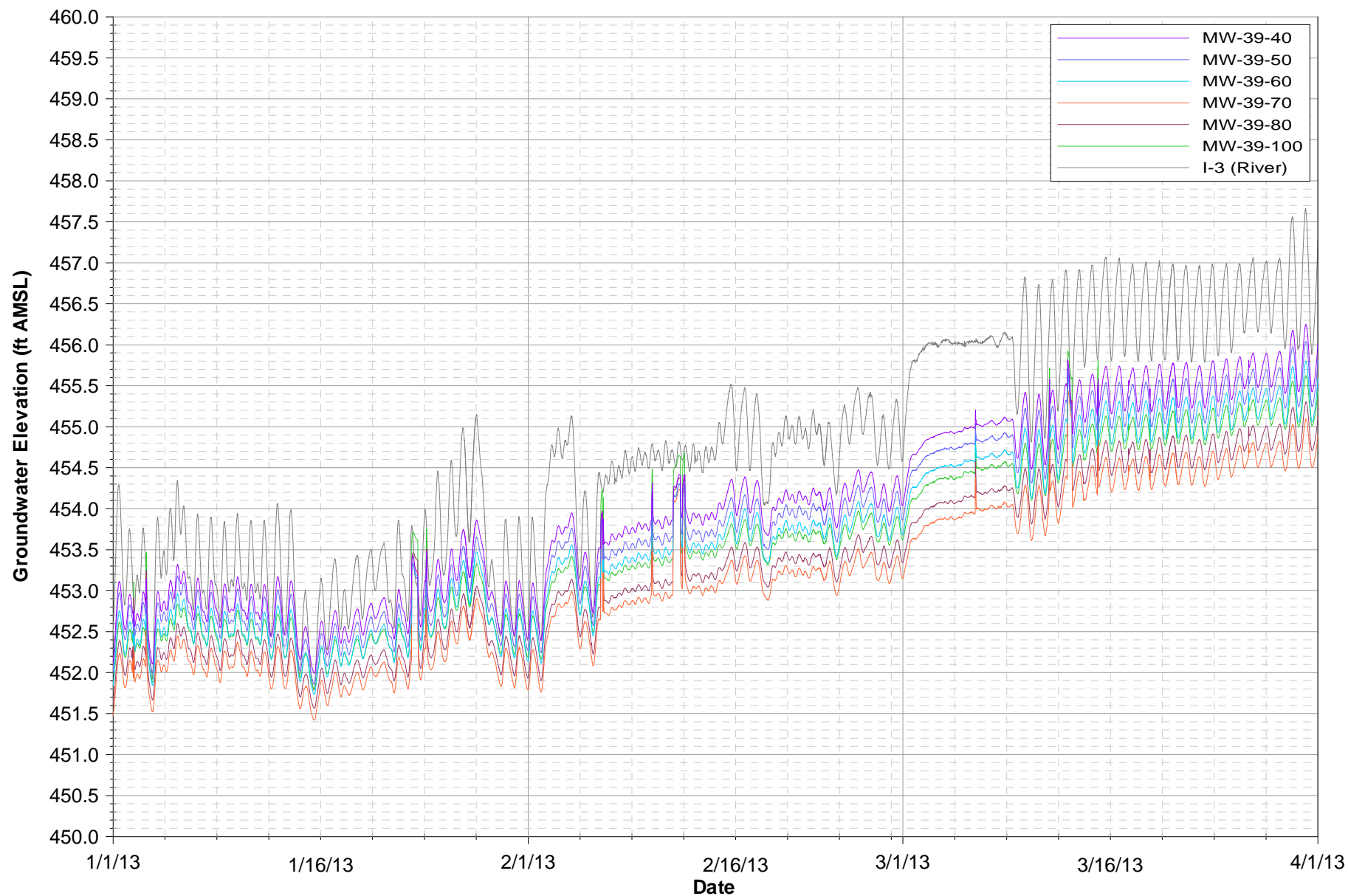
FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
Data subject to review.

FIGURE E-1K MW-36 CLUSTER HYDROGRAPHS

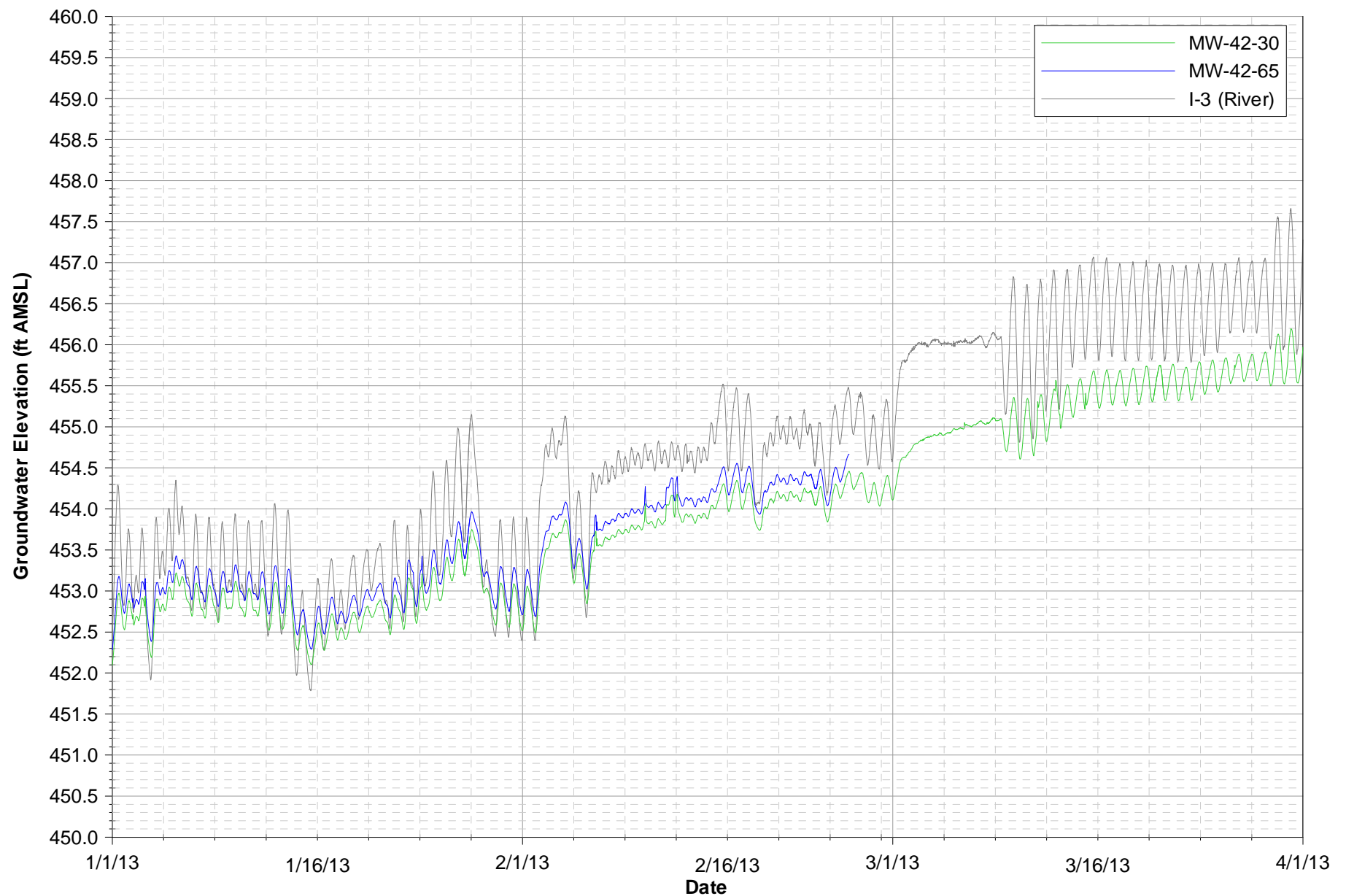
FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
Data subject to review.

FIGURE E-1L **MW-39 CLUSTER HYDROGRAPHS**

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

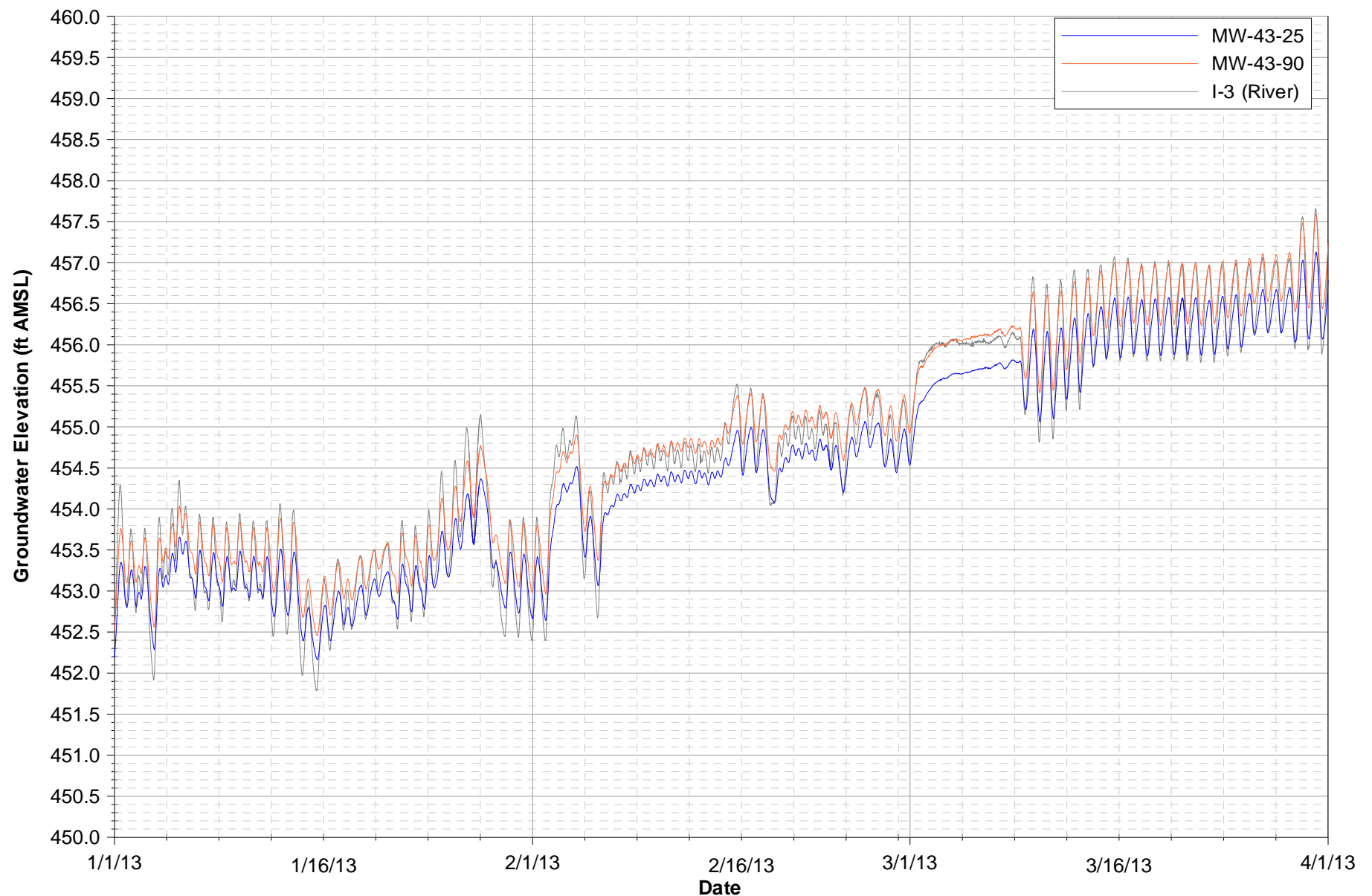


Notes:
 Data subject to review.
 MW-42-65 data unavailable from February 25, 2013 through April 1, 2013 due to transducer malfunction.

FIGURE E-1M

MW-42 CLUSTER HYDROGRAPHS

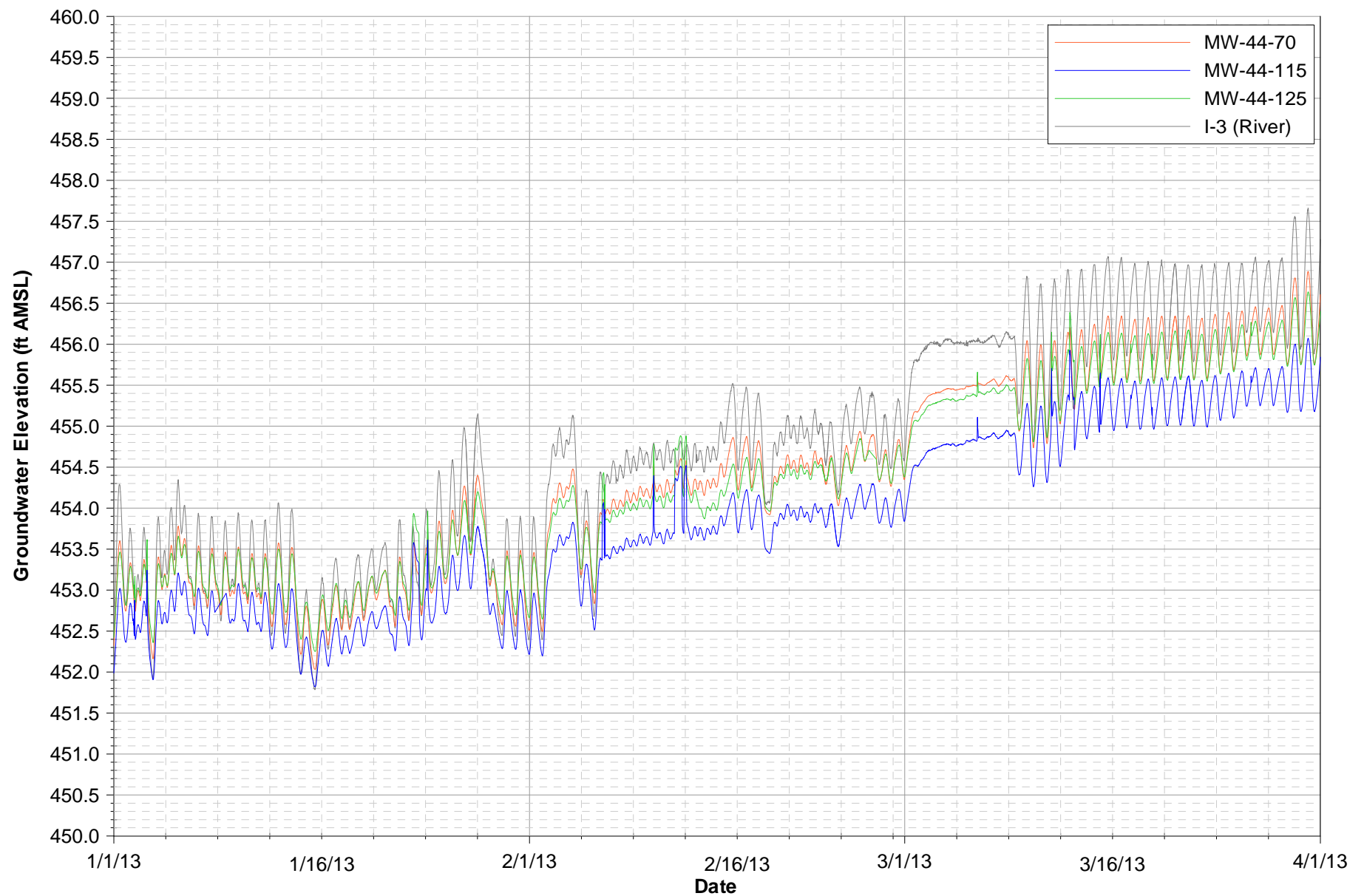
FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING
 AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
Data subject to review.

FIGURE E-1N **MW-43 CLUSTER HYDROGRAPHS**

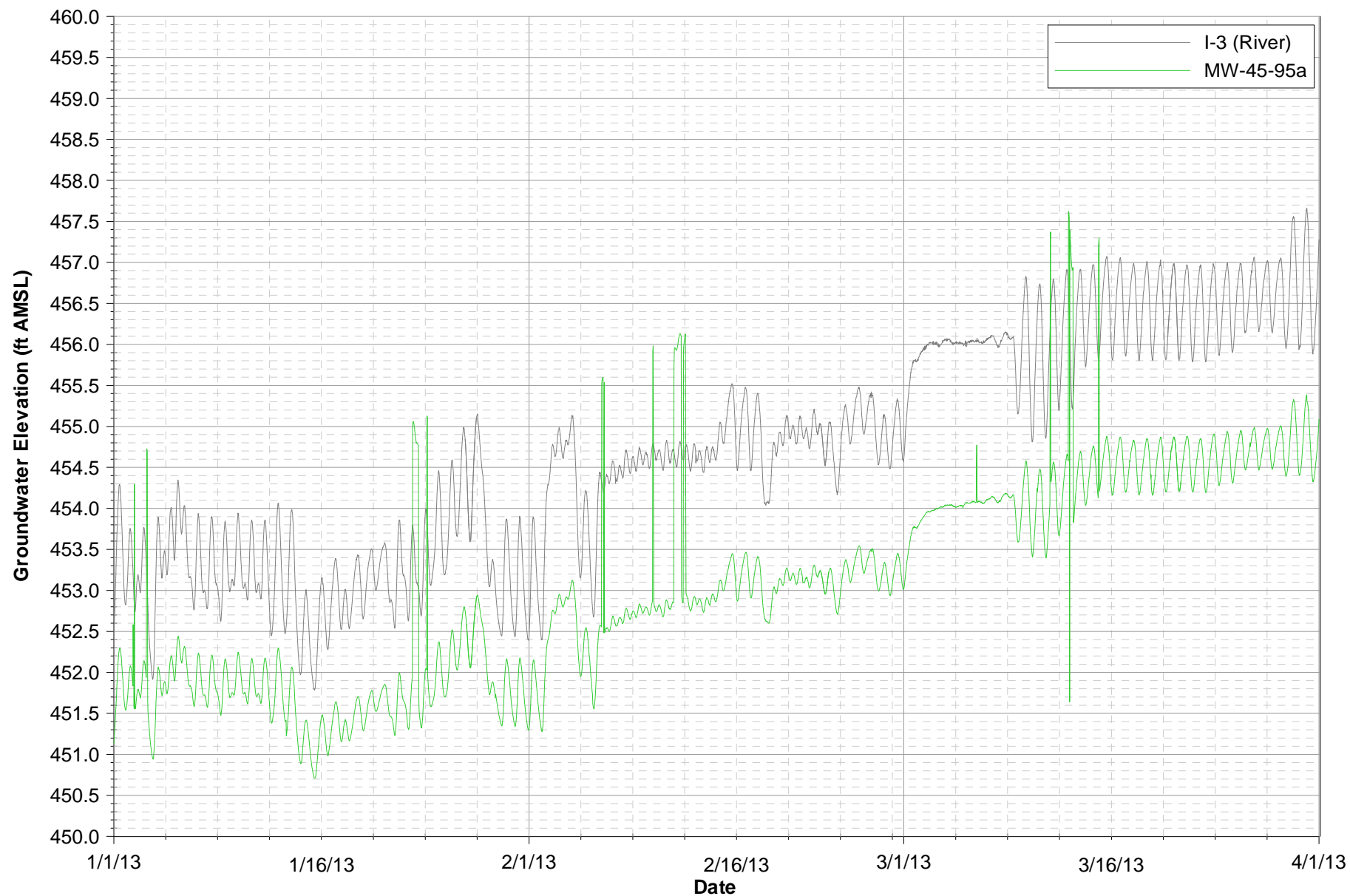
FOURTH QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
Data subject to review.

FIGURE E-10 MW-44 CLUSTER HYDROGRAPHS

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

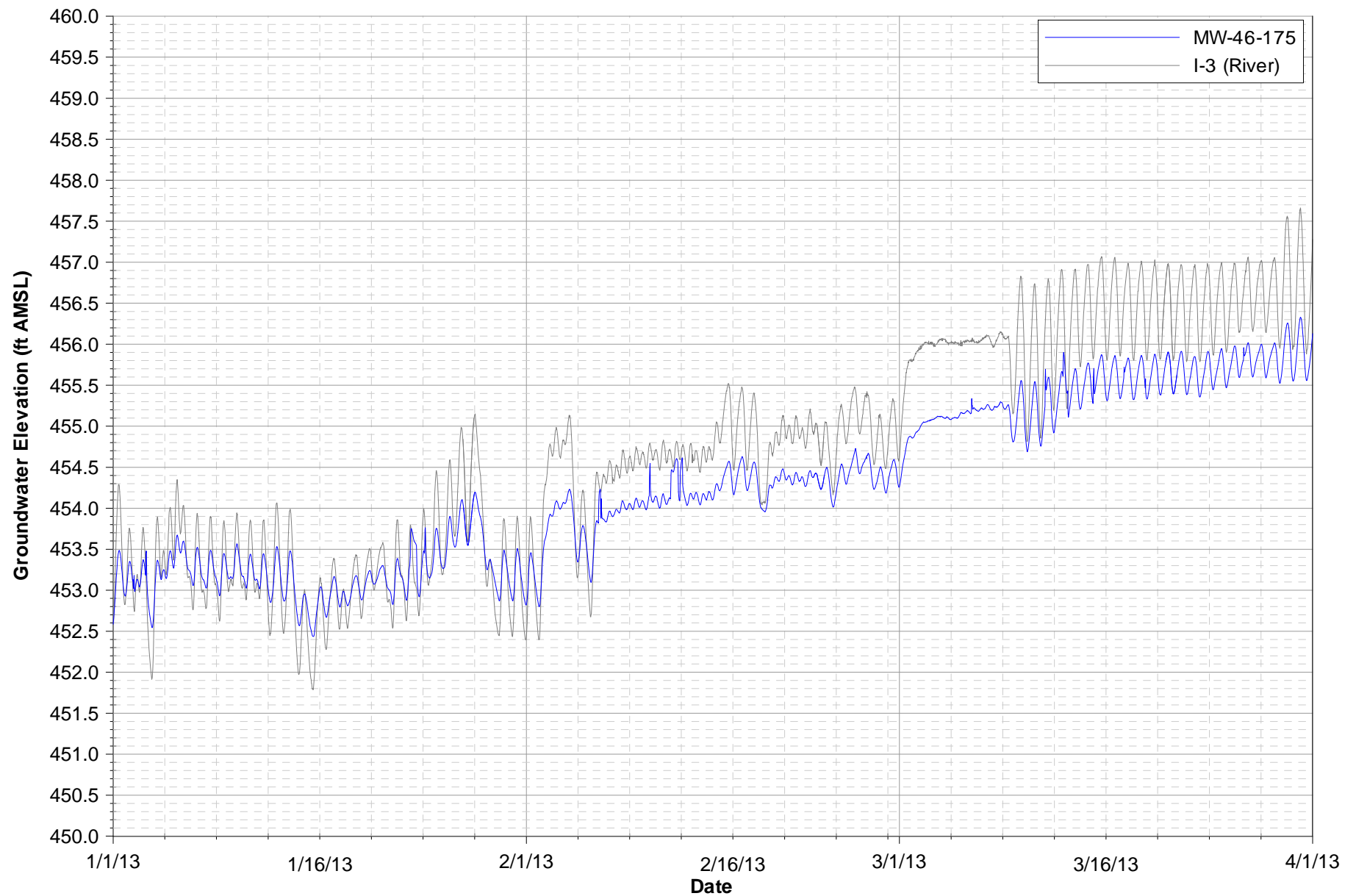


Notes:
Data subject to review.

FIGURE E-1P

MW-45-95a HYDROGRAPH

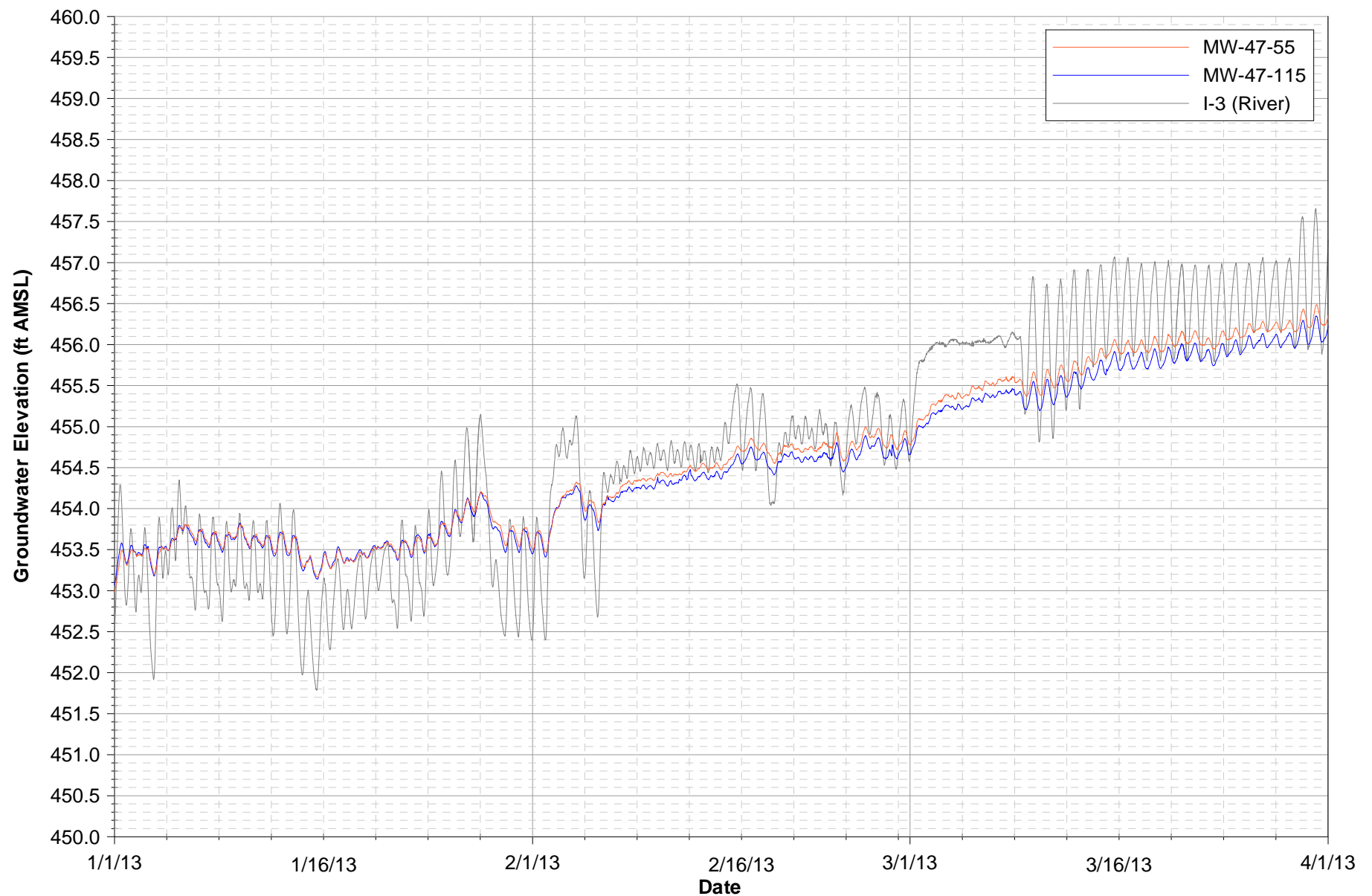
FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
Data subject to review.

FIGURE E-1Q MW-46 HYDROGRAPH

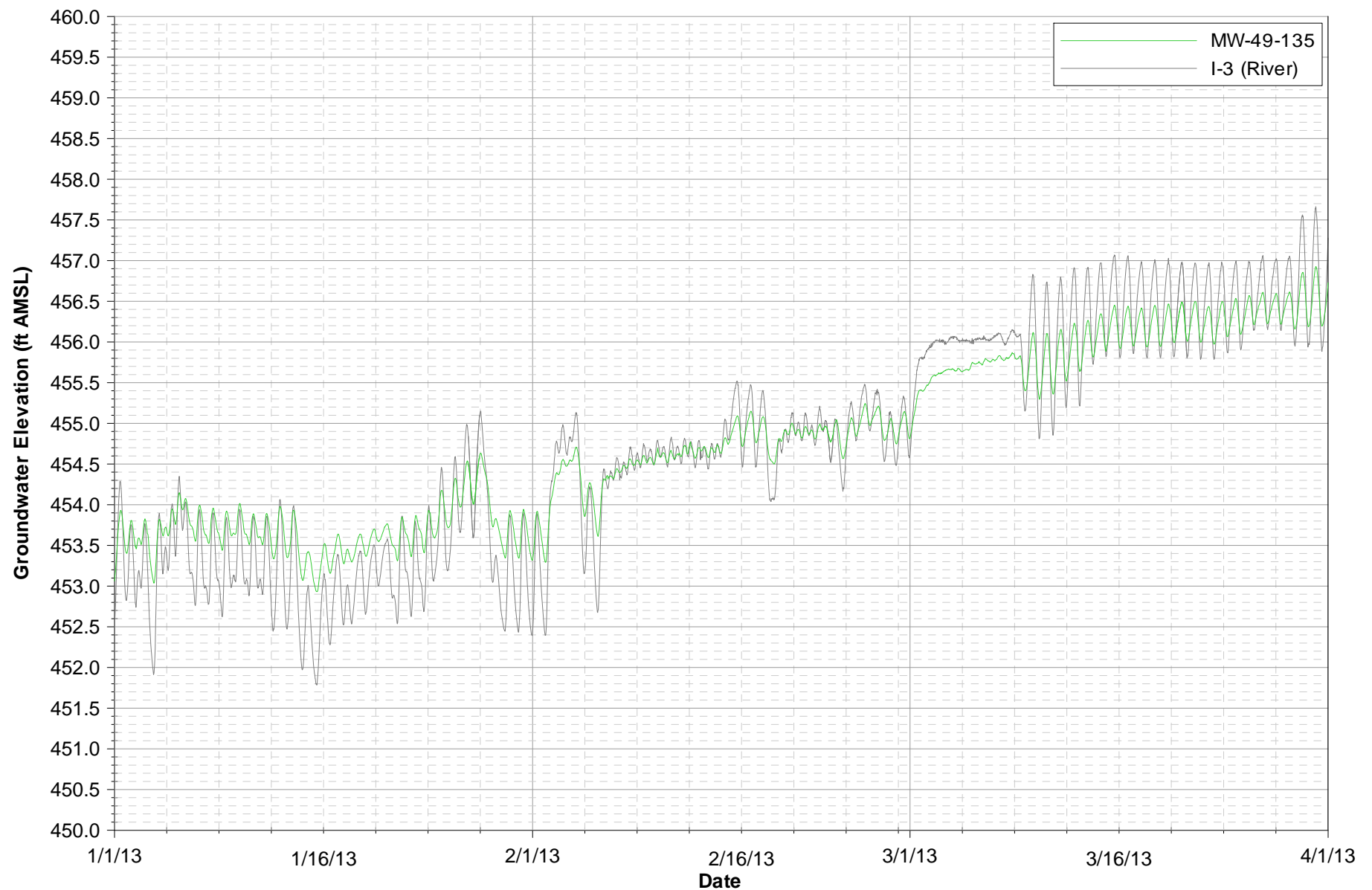
FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
Data subject to review.

FIGURE E-1R MW-47 CLUSTER HYDROGRAPHS

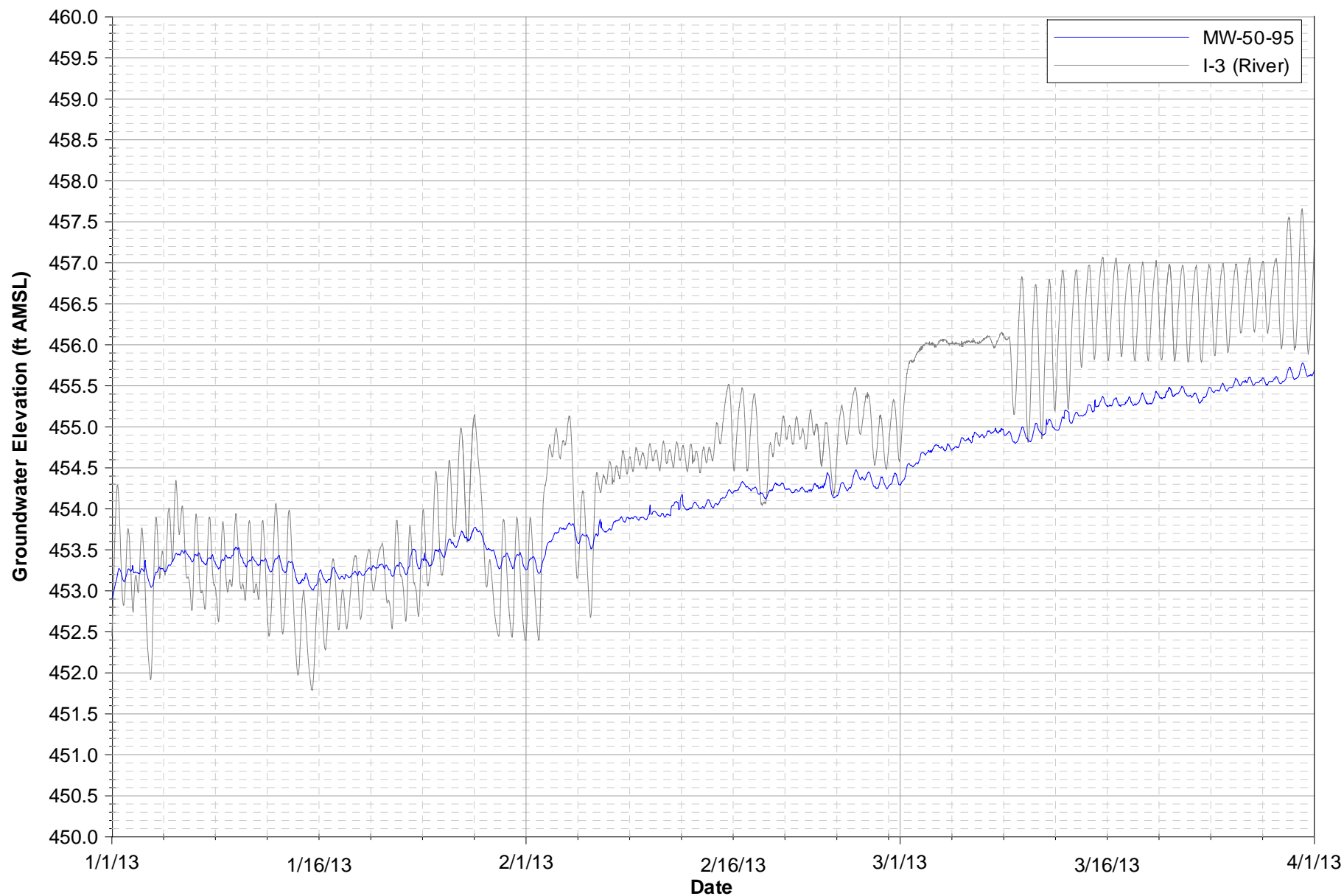
FIRST QUARTER 2013 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
Data subject to review.

FIGURE E-1S MW-49 HYDROGRAPH

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

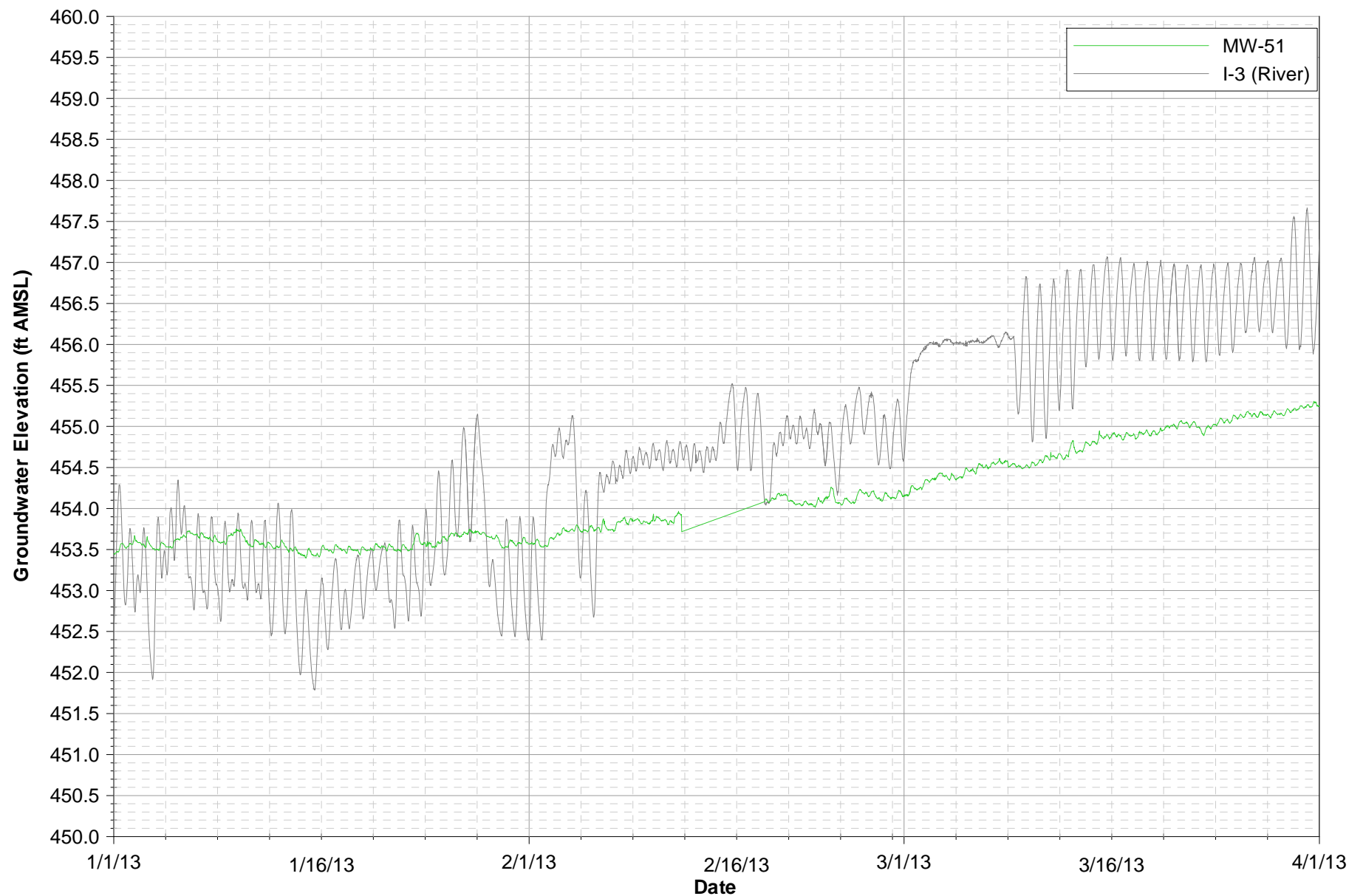


Notes:
Data subject to review.

FIGURE E-1T

MW-50 HYDROGRAPH

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

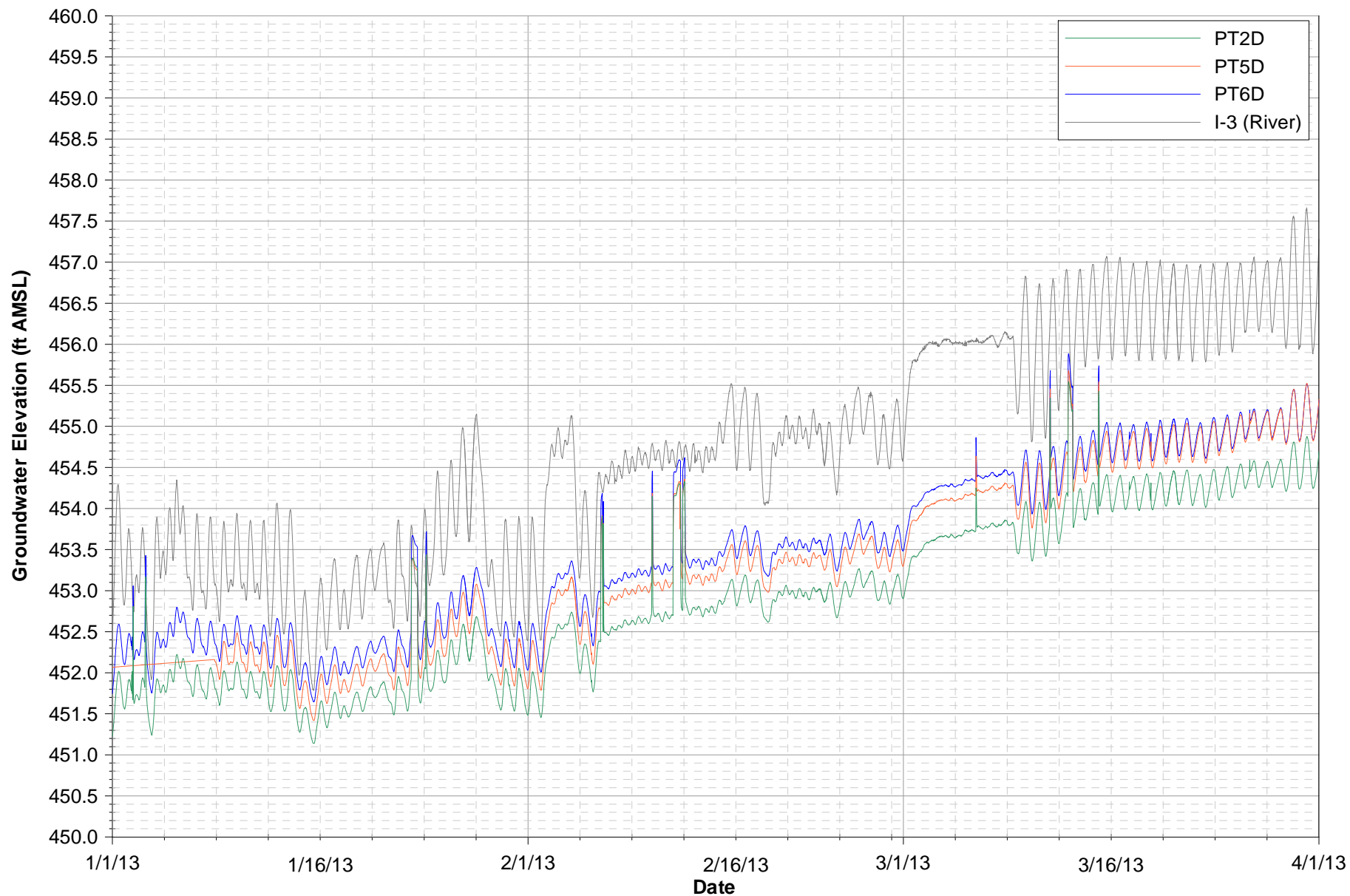


Notes:
Data subject to review.

FIGURE E-1U MW-26 & MW-51 HYDROGRAPHS

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

CH2MHILL



Note:
Data subject to review.

FIGURE E-1V
INSITU PILOT STUDY WELL HYDROGRAPHS

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